ECONOMICAL COMPUTATION OF STRUCTURAL DESCRIPTIONS IN NATURAL LANGUAGE

A Minimally Radicalist Theory

Von der Historisch-Philosophischen Fakultät der Universität Stuttgart zur Erlangung der Würde eines Doktors der Philosophie (Dr. Phil.) genehmigte Abhandlung

Vorgelegt von

Peter Günther Öhl

aus Waldkirch

Hauptberichter: Prof. Ian Roberts Ph.D.
Mitberichter: Prof. Dr. Jürgen Pafel
Mitberichter: Prof. Dr. h.c. Hans Kamp Ph.D.

Tag der mündlichen Prüfung: 03.05.2002

Institut für Linguistik/ Germanistik an der Universität Stuttgart

2003

Preface

This is the first revision of my dissertation that I handed in in January 2002 and defended on May 3rd. I want to thank my main advisors IAN ROBERTS and JÜRGEN PAFEL, who enabled me to present my ideas in a proper way at last. And I very much want to thank AOIFE CAHILL, who helped me to present them in proper English.

"It is a truism that grammar relates sound and meaning". With these words MICHAEL BRODY (1995) introduces his work on a *radically minimalist theory* called the 'Lexico-Logical Form' (LLF). The idea that the relation of sound and meaning must be much closer than is explained by derivationalist theories, is the core of several representationalist accounts, such as the theory of *projective grammar* proposed by HUBERT HAIDER (1992ff), the more recent (not fully representational) *semantico-phonological form* developed by AHMAD LOTFI (1999ff) and the theory of *a condition on the PF-interpretation of chains instead of movement* proposed by IAN ROBERTS and ANNA ROUSSOU (2000ff).

This dissertation, and the theory proposed in it have greatly benefitted from the works of these authors. Moreover, I have been extremely fortunate to have been able to discuss my ideas with all of them. Since IAN ROBERTS and HUBERT HAIDER were my advisors when I wrote this dissertation, I would like to first thank them, together with JÜRGEN PAFEL, who joined the team last and helped me to bring this dissertation to an end. I wish to not only thank AHMAD LOTFI for explaining his ideas to me at our one opportunity to meet in Germany, but above all for teaching me so much about Persian via eMail. And last but not least, I would like to thank MICHAEL BRODY who made me see what I did not understand in his work at the GLEE Summer School in Blagoevgrad 2000. This is also a very good opportunity to say thank you to the organisers of the GLEE Summer S*cool*s, which provide enormous benefit to students.

Alas, MICHAEL has an antisymmetric theory with too many functional heads for my point of view, thus I felt I had to find something else. In fact, this work is the result of so many impressions I got since I first learned generative syntax with KYLE JOHNSON and HAGIT BORER in Amherst/ Massachusetts in 1994 (thanks to

them). It always caused me bare astonishment first, then turned from satisfaction about understanding to wondering what would come next. The first to confront me with representational thinking was HUBERT who supervised my MA thesis in Stuttgart in 1997.

Actually, my first intention was to write a dissertation about Indo-European complementation from the generativist point of view. Diachronic Linguistics was my actual subject before the Amherst linguists caught me, and F.R. HIGGINS was the one who showed me that you can do both at the same time. And doing diachronic syntax was how I got IAN to be my PhD supervisor (sorry about that Ian). He also made it possible for this dissertation to be funded by the DFG (German Research Council (in British and Western European terminology) or Research Foundation).

Then I found I should add some data from a couple of spoken languages. Together with what I learned from my teachers (now I have to thank also MATS ROOTH, who taught me formal semantics, and, well, many others who, should they read this and happen to remember me, hopefully will not miss their names here), I recently felt in danger of ending up with a long term project of typological syntax and semantics about everything.

In the end I decided to simply present what idea of generative grammar of structural descriptions had meanwhile taken place in my head, partly developed by comparing German and English, partly supported by comparative data from some of the languages of which I had the good luck to find reliable informants. Those I want to thank now. Many of them I found through *linguist list* postings or with *prinparam* − it goes without saying that I owe thanks to those organisations too.

My informants were: KOUSHIK BISWAS and RASHAD ULLAH (Bengali), KIMBERLY TUESDAY NETHERY and LOUISE STANLEY (Welsh), RUBEN VAN DE VIJVER and ERIK VAN DER TORRE (Dutch), BRITTA JENSEN, DARCY B. BERRY and ROBERT RYAN (English), EEVA BRITSCH (Finnish), some anonymous informants in Paris checked for me by NORA BONEH (French), ATHINI SIUPI, CHRISTINA SENDALI, GEORGIA FOTOPOULOU and PHOEVOS PANAGIOTIDIS (Greek), ASHRAF HAJI MEYBODI and KARTIK JAMARDAR (Hindi), GUNNAR HRAFNBJARGARSSON

What this dissertation deals with (which is of course introduced in more detail in the first chapter) is how we can account for the generation of syntactic structures most economically, taking into account the interaction of the syntactic module with the semantics and pragmatics modules. Syntacticians often especially neglect the latter. It is true that syntax (and morphology) relate sound and meaning, but how this relation is interpreted depends to a certain extent on pragmatics, such that the interaction of the three modules determines syntax structure even if syntax is autonomous. Only by looking at all of them can we see how a single module like syntax works.

It is important to keep this in mind when information structure is involved, when syntax interacts with topicalisation and focus, and especially when we deal with a clause type like the *interrogative*. Therefore, we deal with the latter in a whole chapter (three), whereas the former we discuss in a chapter together with complementation (two). In the first chapter, we argue for *representational economy* and a specific type of *transparent LF*.

of GeSuS, wann deama Schofkopfn?), ROBERT RYAN, ROBERTA D'ALESSANDRO, STEN VIKNER (do not forget Stuttgart!), SUSANN FISCHER, SVETLANA POLJAKOVA, TANJA SCHMID, WERNER ABRAHAM, WERNER FREY, WINFRIED LECHNER, WOLFGANG STERNEFELD and YUKI SHIGE TAMURA. Of course, none of them is in any way responsible for what has come out of this.

I also want to thank all the colleagues from the linguistic institute, especially the ladies from the main office and our systems administrators RALF EISENSCHMIDT and MARK ANTON who helped me through several struggles with the PC. And the neighbours from the institute of economy, especially HEINZ PETER KÄRNER, who allowed me to use their computing facilities, when things at our institute did not work properly. And the few musical linguists left in the IMSemble – and the colleagues from the Graduiertenkolleg – and my students – and my father, mother, grandparents and sister. I dedicate this dissertation to my daughters, JASMIN and LARISSA.

Stuttgart, 14 June 2003

Peter Öhl

So eine Arbeit wird eigentlich nie fertig, man muss sie für fertig erklären, wenn man nach Zeit und Umständen das Möglichste getan hat.

('Such work is in fact never done. You have to pronounce it finished, when you have done your utmost, according to time and circumstances.')

(J.W. Goethe, *Italian Journey,16.03.1787*; after BUßMANN 1990, 10)

Contents

Ich erkläre hiermit, dass ich unter Verwendung der im Literaturverzeichnis aufge-
führten Quellen und unter fachlicher Betreuung diese Dissertation selbständig ver-
fasst habe.

(Peter Öhl)

List of Abbreviations

Θ(s)	argument(s)		F*	phonologically interpreted feature
ΘS	argument structure		F$_c$	categorial feature
α*	phonologically interpreted feature		FF(s)	formal features
[α* – x]	chain phonologically interpreted by α		FI	full interpretation
[α+x]*	phonologically interpreted bundle of features		FL	faculty of language
∀	universal quantifier		F$_m$	morphological feature
A(P)	adjective(phrase)		fn.	footnote
ACC	accusative		F$_{OC}$	focus
ADV	adverb(ial)		FA	functional application
A$_{FF}$	affix		FC	functional composition
A-P	articulatory-perceptual		FP	functional phrase
A$_{SP}$(P)	aspect(ual) (phrase)		Fr.	French
AUX	auxiliary		*FUT*	future
B$_{GR}$	background		GB	Government and Binding Theory
BD	binding domain		GC	governed category
Bng.	Bengali (Bangla)		GEN	genetive
BPS	bare phrase structure		GG	Generative Grammar
CDom	C-domain		Gm.	German
CFC	complete functional complex		Gmc.	Germanic
C$_{HL}$	computational system of the human language		Gr.	Greek
Chn.	(Mandarin) Chinese		HL	human language
C-I	conceptual-intentional		Hnd.	Hindi
CMP	complementiser		ι	definite operator
CND	conditional		I(P)	inflection(phrase)
COP	copula		IDom	I-domain
C$_{SUB}$	C of subordinate clauses		IF(s)	informative feature(s)
DAT	dative		*IMP*	imperative
DCL	declarative (clause)		incoh.	incoherent
DEM	demonstrative		*IND*	indicative
DEP	dependent		INF	infinitive
DET	determiner		intΘ	internal argument
Dn.	Danish		*IPF*	imperfect
D(P)	determiner (phrase)		It.	Italian
DS	deep structure		ITR	independent time reference
∃	existential quantifier		Jps.	Japanese
e	event		coh.	coherent
Eng.	English		Kor.	Korean
EPP	extended projection principle		λ	classificational operator
extΘ	external argument		L$_1$A	first language acquisition
F(s)	feature(s)		Lat.	Latin
			LCA	linear correspondence axiom
			(L)CS	(lexical) conceptual structure

LF	logical form		PTC	particle
LI	*Linguistic Inquiry* (journal)		*Q*	interrogative feature; nonveridical(ity)
L_i	level *i* of representation		REL	relative (pronoun)
LOC	locative		RelC	relative clause
Ltv.	Latvian		RFL	reflexive (pronoun)
MC	matrix clause		RM	relativised minimality
MCats	morphological categories		Rom.	Romance
ME	Middle English		Rus.	Russian
MLC	minimal link condition		S	sentence
MlSc.	Mainland Scandinavian		SBJ	subject
MP	Minimalist Program		SC	small clause
NELS	Proceedings of the North Eastern Linguistics Society		SD	structural description
NHG	New High German		sg	singular
NLLT	*Natural Language and Linguistic Theory* (journal)		*SJT*	subjunctive
			SPEC	specifier
N(P)	Noun(phrase); nominal		*SPL*	superlative
NEG	negation; antiveridical(ity)		SS	surface structure
NOM	Nominative		SubC	subordinate clause
NPI	negative polarity item		Sw.	Swedish
NUM	numeration		Swb.	Swabian
Nw.	Norwegian		t*	(event) time
OBJ	object		t	(referential) time
OHG	Old High German		t°	speech time
OE	Old English		TEC	transitive expletive construction
PDE	Present Day English		T_{OP}	topic
P(P)	Preposition(phrase)		T_{SUB}	tense of subordinate clause
PF	phonological form		QR	quantifier raising
PI	present participle		UG	universal grammar
PII	past participle		Urd.	Urdu
pl	plural		V1	verb-first
PLG	projective licensing grammar		V2	verb-second
PLT	politeness marker (in Jps.)		V(P)	Verb(phrase) ; verbal
POL	polarity		VDom	V-domain
POT	potentialis		V_{FIN}	finite verb
PPF	plusquam perfect		V_{INF}	non-finite verb
PPI	positive polarity item		V_{MC}	main clause predicate
PRF	Perfekt		V_{SUB}	subordinate clause predicate
PRG	progressive		WFD	well formed dependency
PRS	present		WGmc.	West Germanic
Prs.	Persian		*Wh*	lexical feature of interrogative and relative pronouns
PST	past			

Zusammenfassung

Was diese Dissertation leisten soll, ist die Annäherung an ein sprachtheoretisches Modell, das in zweierlei Hinsicht geeignet ist, das Phänomen struktureller Beschreibung (SD) der Referenz auf Eigenschaften und Sachverhalte in der Welt in optimierter Weise zu erklären.

Zunächst ist das Ziel, einen sowohl methodologisch als auch technisch möglichst ökonomisch arbeitenden Apparat der Generierung syntaktischer Strukturen zu entwerfen. Dies ist im Geist des Ökonomieprinzips natürlicher Sprachen, welches dem generativistischen Modell des minimalistischen Programms (MP) zu Grunde liegt. CHOMSKY (1993-2000) geht davon aus, dass die generative Grammatik (also der geistige Apparat, der uns Menschen ermöglicht, strukturelle Beschreibungen zu erzeugen) ein für ebendieses Ziel optimiertes System ist, sodass der ökonomischste Weg zur Erreichung dieses Ziels gleichzeitig auch derjenige sein muss, auf dem es tatsächlich erreicht wird. Unökonomische (also nicht optimale) Lösungen des Problems der Strukturerzeugung in natürlichen Sprachen, welche empirisch zu beobachten sind, schreibt CHOMSKY sogenannten *evolutionären Imperfektionen* zu, die durch Ökonomieprinzipien restringiert sein sollen.

Eine dieser Imperfektionen ist *move α*, die Tatsache, dass Elemente in der Syntax aus bestimmten Gründen nicht an ihrer Basisposition repräsentiert sind, sondern an eine funktionsspezifische Position bewegt werden. Die Motivation dieser Bewegung wird im minimalistischen Programm in der Erzeugung der Logischen Form LF durch die Bewegung der in Basispositionen inserierten lexikalischen Elemente nach spezifischen funktionalen Positionen gesehen. Diese Bewegung wird durch formale Merkmale ausgelöst, die zur Überprüfung der funktionalen Markierung der lexikalischen Elemente diese an ihre spezifische syntaktische Position ziehen. Eine konvergente LF besteht aus einer Struktur, wo sämtliche formalen Merkmale durch Überprüfung ausgelöscht worden sind und die entsprechenden semantisch gehaltvollen Elemente an deren Positionen stehen. Sprachspezifische Satzbauvariation ergibt sich durch die Parametrisierung der Stärke der formalen Merkmale. Starke Merkmale werden auf dem Weg der

Derivation der LF vor dem Augenblick des '*Spellout*' überprüft, schwache Merkmale danach.

Um die Bewegung der Elemente an ihre Positionen zu kontrollieren, wurden im MP verschiedene derivationelle und repräsentationelle Ökonomieprinzipien abstrahiert, die eine größere Anzahl verschiedener die Wohlgeformtheit der SD kontrollierender Prinzipien der Spracherzeugung des früheren Rektions- und Bindungsmodells (GB) der generativen Grammatik (GG) ersetzen sollen. Methodologisch soll so in der Reduktion der notwendigen Annahmen von Generierungsprinzipien dem Ökonomiegedanken Rechnung getragen werden.

Dem wird in dieser Dissertation entgegengesetzt, dass durch die Reduktion von Prinzipien ein in technischer Hinsicht unökonomisches Modell geschaffen wurde. Die Plausibilität zahlreicher Annahmen des MP über die Spracherzeugung sowohl in technischer als auch konzeptueller Hinsicht wird diskutiert. Die Feststellung des MP, dass derivationelle Bewegung von Elementen in der Syntax in ökonomischer Hinsicht eine Imperfektion darstelle, wird durch den Vorschlag eines repräsentationellen Modells weiterentwickelt, in dem Annahmen über *move α* und somit dessen Einschränkung durch Ökonomieprinzipien nicht mehr notwendig sind.

Diese Idee basiert auf Arbeiten von HAIDER (1996a, 1997b), welche ergeben, dass Ökonomie eine inhärente Eigenschaft einer SD sein muss, wenn Generierung von Sätzen durch Projektion der lexikalischen und formalen Eigenschaften der zu Grunde liegenden Köpfe repräsentationell geschieht. Eine Projektion ist immer die minimale Struktur, die mit der linearen Abfolge der in ihr enthaltenen Köpfe konvergiert. In einem repräsentationellen Modell ist diese Konvergenz das Maß für die Ökonomie, sodass für derivationelle Modelle problematische Phänomene wie optionale 'Bewegung' nicht widersprüchlich sind.

In dieser Dissertation wird versucht, einige technische Finessen, die ein repräsentationelles Modell erfordert, zu erarbeiten. Ausgangspunkt ist die Feststellung von BRODY (1995), dass die Derivation zweier verschiedener Repräsentationen LF und PF (phonologische Form) implausibel ist, da sie dieselben Konvergenzbedingungen erfüllen müssen. Für ihn folgt rein theoretisch, dass LF und PF die gleiche Repräsentation darstellen müssen, sodass die LF nicht

nach 'Spellout' deriviert sein kann. Dies bedeutet jedoch, dass die PF nichts anderes als die phonologische Repräsentation der LF ist. Somit sollten idiosynkratische Abfolgeunterschiede durch Parametrisierung der phonologischen Interpretation der LF erklärt werden können.

Ein solches Modell wurde von ROBERTS & ROUSSOU (2000, 2002) zu entwerfen versucht. Für sie beruht die augenscheinliche Imperfektion *move α* auf der parametrisierten phonologischen Interpretation von Kopfketten, welche in verschiedenen Positionen einer solchen Kette stattfinden kann. Sowohl BRODY als auch ROBERTS & ROUSSOU gehen von einem System der universal syntaktisch repräsentierten Hierarchie von funktionalen Köpfen aus, welche die Besetzung mit lexikalischen Elementen prädeterminiert.

In dieser Dissertation wird dagegen argumentiert, dass in einer ökonomischen SD nur so viele Kopfpositionen vorhanden sind, wie für die Repräsentation der Elemente der linearen Struktur gebraucht wird. Wenn die Repräsentation der für die logische Konvergenz relevanten informativen Merkmale (IFs) durch eine geringere syntaktische Extension funktionaler Köpfe geleistet werden kann, als durch die Anzahl der in der Logik des Satzes funktionalen Merkmale impliziert ist, wird ein parametrisch hierzu befähigtes syntaktisches System, so die Annahme, dies nutzen.

Technisch wird dies als Parametrisierung synkretischer funktionaler Köpfe erklärt, sodass die Streuung funktionaler Merkmale über eine größere oder geringere Anzahl von Köpfen sprachspezifisch unterschiedliche Ausprägung hat. Dies beruht auf einer Annahme von GIORGI & PIANESI (1997). Auf diese Weise ist nicht nur die phonologische Interpretation von IFs parametrisiert, sondern auch die Optionen, sie in Köpfen zu bündeln oder über mehrere Köpfe zu verteilen. Beides kann jedoch als lexikalische Parametrisierung erklärt werden, sodass die Annahme von Parametern wie der Stärke von formalen Merkmalen oder syntaktischer Ökonomieprinzipien für die Erklärung weder für die unterschiedliche Besetzung von Spezifikatorpositionen noch für die Verteilung von Köpfen vonnöten ist.

Der Anspruch, den dieses Modell neben der ökonomischen Optimierung erhebt, ist, zu erklären, wie ein System, das komplexe Ausdrücke generiert, überhaupt zu

einer SD geeignet ist. Dass die PF nichts sein soll als die idiosynkratische Interpretation einer SD der LF, impliziert, dass diese die Interpretation der LF ermöglicht. Die LF muss also in gewisser Weise *transparent* sein. Wir schlagen deshalb ein Modell ähnlich dem von STECHOW (1992, 1995 etc.) vor, wo jeder PF eine eindeutige semantische Repräsentation zugrunde liegt, zu deren Erzeugung aber ausschließlich IFs, also Merkmale, die für die Interpretation von SD gebraucht werden, projiziert werden. Diese sind in unserem Modell als Köpfe in die Syntax inseriert, welche logische Funktionen repräsentieren, deren Komplexität vom parametrischen Synkretismus der Merkmalsträger abhängt. Durch deren Anwendung auf Individuen (also deren Argumente) wird eine Phrase projiziert. Sowohl die Anzahl der Projektionsstufen wie die Restriktion der kategorialen und semantischen Argumenteigenschaften wird durch lexikalisch festgelegte Lizenzierungsbedingungen geleistet.

Diese "projektive Lizenzierungsgrammatik" (PLG) ist also eine Grammatik der Syntax/ Semantik − Schnittstelle. Sie wurde auf der Basis der von HAIDER (1993) vorgelegten *Theorie der Projektiven Grammatik* entwickelt. Projektionen sind iterierbar, die Iteration ist beschränkt durch die Anzahl der Leerstellen eines Prädikats. Hierbei gehen wir davon aus, dass Prädikate semantische Funktionen sind, deren Variablen entsprechend dem Lambda-Kalkül durch Projektion sukzessive ersetzt werden. Projektion erzeugt also die Struktur für die Repräsentation der *intensionalen Semantik* des Satzes (Cf. HEIM & KRATZER 1998).

Diese Vorstellung erfordert eine etwas weiter gefasste Version der X'-Prinzipien, welche keine Restriktion der Komplement- und Spezifikatorpositionen vornimmt. Außerdem benötigen wir eine Phrasenstruktur, die prinzipiell frei von "*labels*" (wie VP, TP, CP etc.) ist, wie etwa die von CHOMSKY (1995a) vorgeschlagene *bare phrase structure*. Diese ermöglicht uns, die von FREGE (1891, 1923-6) formulierten Prinzipien kompositioneller Semantik auf die generative Syntax anzuwenden, da eine lexikalisch spezifizierte (unter Umständen komplexe) Funktion allein durch ihre lexikalische Spezifizierung die Projektion der Phrase bestimmt.

(1)   *Freges Prinzip* (angepasst)

1. Die Semantik eines Knotens ist ein Produkt der Semantik seiner Töchter.

2. Selegierung ist die (unter Umständen rekursive) Anwendung einer Funktion (repräsentiert durch X°) auf ein Individuum (repräsentiert durch YP, ZP).

Projektion heißt also Ersetzung der Variablen durch Individuen. Der Mutterknoten repräsentiert somit eine saturierte Funktion und ist ein Individuum, das wieder eine höhere Funktion saturieren kann.

(2)

$$\beta = f(\alpha)$$

$$\alpha \qquad f(x)$$
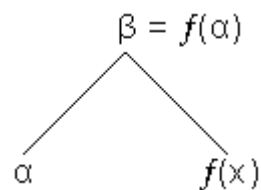
Dass in einer SD keine konfligierenden Funktionen konfiguriert sind, wird zum einen durch selektionale Restriktionen gewährleistet, zum anderen durch die Annahme syntaktischer Dependenzen verwandter Merkmale, die lexikalisch lizenzierte Skopusverhältnisse durch k-Kommandoketten sich in einer konzeptuellen Hierarchie befindlicher korrelierender Köpfe repräsentieren.

Dem Einwand, dass ein solches Modell die Autonomie der Module Syntax und Semantik nicht gewährleiste, ist entgegenzusetzen, dass gerade durch die Entfernung funktionaler Notationen aus der Syntax und derer Etablierung allein durch konzeptuell motivierte und parametrisch spezifizierte Lexikoneinträge, welche mithilfe des Syntaxmoduls eine hierarchische Struktur projizieren, dem Autonomiegedanken interaktiver Module verstärkt Rechnung getragen ist.

Wir versuchen mit unserem Vorschlag, die Vorteile früher vorgeschlagener Kategorialgrammatiken (cf. AJDUKIEWICZ 1935, MONTAGUE 1969, 1973) zu erfassen, deren Vernachlässigung syntaktischer Eigenheiten aber zu kompensieren. Der entscheidende Vorteil ist u.E. die Ermöglichung direkter Kompositionalität der Satzsemantik aus Primitiven und die Übersetzung der Funktionsresultate in Satzkonstituenten. Dies geschieht aber bei uns nicht durch syntaktische Regeln, die aus den semantischen resultieren. Ganz im Gegenteil, ist die Repräsentation semantischer Produkte in der Syntax zahlreichen Beschränkungen der Satzstruktur unterworfen. Die Parametrisierung syntaktischer und lexikalischer Prinzipien erklärt syntaktische Variation, was von

Kategorialgrammatiken nicht geleistet werden kann. Zudem spielen formale Merkmale wie Kasus, Kongruenz sowie syntaktische Kategorienmerkmale eine tragende Rolle für die Lizenzierung. Jedoch lassen sich auch zahlreiche in der GG für aus genuin syntaktischen Prinzipien resultierend geltende Regelmäßigkeiten als Lizenzierungsbedingungen der Syntax/Semantik-Schnittstelle identifizieren. Alles in allem läßt sich der Geist unseres Modells mit dem Slogan von HAIDER (1996b) wiedergeben: "*Wenn die Semantik arbeitet und die Syntax sie gewähren lässt.*"

Da das Modell repräsentationell ist, erlaubt es aber nicht nur eine Einbeziehung der Schnittstelle von Syntax und Semantik in die Erforschung struktureller Beschreibungen. Von der Annahme, dass auch die Pragmatik eine Schnittstelle mit sowohl Syntax und Semantik bildet, welche für die Strukturgenerierung mitbestimmend ist, wird abgeleitet, dass es nicht nur semantische Merkmale in einer funktionalen Extension der die Proposition repräsentierenden Projektionsstufe geben muss, die pragmatisch interpretiert werden, sondern auch eine periphere funktionale Extension des Satzes, die eine Basisstruktur mit Optionen der pragmatischen Informationsstrukturierung erzeugt. Eine weitere wichtige Funktion einer solchen peripheren Projektionsstufe ist die Beherbergung der Komplementierer (CMP), welche eingebettete Propositionen einleiten.

Es wird davon ausgegangen, dass die für die pragmatische Schnittstelleninterpretation relevante Domäne die seit RIZZI (1997) vieldiskutierte C-Domäne (CDom) ist, welche als solche aber nicht eine funktional lizenzierte (vielleicht in mehrere Phrasen aufgespaltete) spezifische Projektion sein kann, sondern lediglich eine abstrakte Notation für die syntaktische Domäne, wo Phrasen eines gewissen Typs ihre Position haben können. Im Gegensatz zur I-Domäne, welche Phrasen mit für die Proposition relevanten Merkmalen beherbergt, sind die Köpfe in der CDom illokutionsrelevant.

Es wird argumentiert, dass in der CDom ein temporales Merkmal beherbergt wird, das die Interpretation des Verbtempus relativ zur Sprechzeit ermöglicht. Dies bedeutet die syntaktische Repräsentation der auf REICHENBACH (1947) basierenden Annahme einer dreigliedrigen Temporallogik durch eine syntaktische

Dependenz, welche eine kohärente Tempusinterpretation ermöglicht, indem *Sprechzeit*, *Referenzzeit* und *Ereigniszeit* zueinander in Bezug gesetzt werden. Dies basiert auf einem Vorschlag von ROBERTS & ROUSSOU (2002). Der Gegensatz zwischen der Struktur von Matrixsätzen und Argumentsätzen kommt dann durch die Repräsentation unterschiedlicher temporaler Merkmale in C zustande, da letztere keine *Sprechzeit* oder autonome Zeitreferenz haben. Es wird angenommen, dass C° ein Merkmal beherbergt, das durch Bindung in die übergeordnete Tempusdependenz integriert ist.

Dies ist jedoch nicht die alleinige Aufgabe der Kategorie CMP. Es wird angenommen, dass neben den semantischen IFs, die der Interpretation der LF zugrunde liegen, auch formale IFs für die Lizenzierung von Köpfen und Phrasen in der SD relevant sind. Dies sind kategoriale Merkmale wie V oder N, außerdem Kasus und Kongruenz. Sie dienen der formalen Kennzeichnung syntaktischer Relationen und werden während der Projektion komputationell interpretiert. Da Argumentpositionen durch Kasus lizenziert werden, können dort nur Elemente der Kategorie N stehen. N ist das kategoriale Merkmal von CMP, das Sätzen ermöglicht, in Argumentposition generiert zu werden. Deutsche V2 Komplemente sind darum keine strukturellen Argumentsätze, weswegen sie weder in einer Argumentposition generiert werden können, noch ein Korrelat in Argumentposition haben können.

Die CDom spielt eine zentrale Rolle für die Informationsstrukturierung, indem in vielen Sprachen Topika oder fokussierte Konstituenten aus der Repräsentation der Proposition in die linke Satzperipherie disloziert werden können. Aus V2-Sprachen wie dem Deutschen stammt die entscheidende Evidenz, dass diese Dislokation eine Position vor einem durch das Verb identifizierbaren funktionalen Kopf besetzt. Deskriptiv dient in diesen Sprachen dieser Kopf der Strukturierung des Satzes in zwei äußerungsrelevante Teile, was in der traditionellen (funktionalen) Grammatik als Gliederung in Satzgegenstand und Satzaussage (oder *Thema-Rhema-Gliederung* bzw. *Topik-Kommentar-Struktur*) bezeichnet wurde.

Basierend auf der Beobachtung dass im Deutschen die Projektion des Satzfokus in der Art vom Verb ausgeht, dass in Normalabfolge seiner Argumente

(und auch der weiteren Ergänzungen gemäß der konzeptuellen Struktur) und bei Normalbetonung auf dem zutiefst eingebetteten Satzglied ein Verbletztsatz immer maximalen Fokus aufweist (cf. HÖHLE 1982), und dass ein V1 Deklarativsatz ebenfalls immer maximalen Fokus hat, wird ein Zusammenhang zwischen den beiden Kopfpositionen hergestellt, der den Kopf, welcher durch V1 lexikalisiert wird, als durch seinen Skopus die Fokusdomäne definierend analysiert. Deswegen nennen wir diesen Kopf FOC°. Die Projektion dieses Kopfes, der ein Merkmal der Schnittstelle von Syntax und Pragmatik repräsentiert, erzeugt die Basisstruktur für die der Pragmatik offenen Informationsstruktur, welche bereits die LF-Repräsentation leisten kann, wenn keine weiteren semantischen Merkmale oder Operatoren über der Fokusdomäne eingeführt worden sind.

V2-Sätze kommen dadurch zustande, dass eine pragmatisch als Satzgegenstand ausgewiesene Konstituente den Spezifikator dieses Kopfes besetzt. Dies kann entweder ein thematisches Element sein, das aus dem Skopus des Fokuskopfes, und somit aus dem Satzfokus, extrahiert wird. Oder ein rhematisches, welches so allerdings als allein fokussiert an der Satzspitze steht, wodurch es zu Fokusinversion kommt.

Außerdem kann die CDom semantische Merkmale beherbergen, welche der Interpretation des illokutionären Typs eines Satzes dienen, was in der Forschung seit MEIBAUER (1987) zum Teil als pragmatische Interpretation des *Satzmodus* erklärt wird. Da der *Interrogativsatz* der in der Literatur am häufigsten beschriebene Satztyp ist, weswegen sich zahlreiche Ansätze zum Vergleich anbieten, wählen auch wir ihn zur weiteren Darstellung der Prinzipien unseres grammatiktheoretischen Rahmens.

Man geht in der (formalen) generativen Grammatik oft davon aus, dass Satzmodi entsprechende syntaktische Typenmerkmale haben, wie etwa

(3)   ***Typal Features***   (cf. GROHMANN 2000)
   [S]: syntactic declaratives   [M]: syntactic imperatives
   [Q]: syntactic interrogatives   [E]: syntactic exclamatives

, welche spezifische formale Realisierungen hätten, die auf LF (GROHMANN 2000) oder bei der Illokutionsspezifizierung (BRANDT & al. 1992) [1] als Satzmodi interpretiert würden. Die grundlegende Schwäche einer solchen Annahme ist unseres Erachtens die aus der traditionellen Grammatik ererbte vernachlässigte Trennung von Formtyp und Funktionstyp, die daher rührt, dass man sich von funktionalen Generalisierungen über den zu derivierenden Typ hat leiten lassen. Wir stellen einige Problem dar, die sich bei dieser Einteilung ergeben, welche wir im folgenden kurz skizzieren.

Nach (BRANDT & al. 1992, 31) und BRANDNER (1996) wird in Sätzen wie

(4)   a) Ich weiß nicht, **ob** er ihn gesehen hat.
      b) Ich weiß nicht, **wen** er gesehen hat.

C° mit einem spezifischen Merkmal *Wh* selegiert. Vorschläge wie der folgende werden in der GG in der Regel unwidersprochen hingenommen: Im **ob**-Satz sei es der Komplementierer, der *Wh* enthalte, im W-Satz erhalte C das Merkmal durch SPEZIFIKATOR-Kopf-Kongruenz. In interrogativen Matrixsätzen sei es ein ∅-*W*-Operator, der SPEC/C besetze.

Für die Einbettung von **ob-** und **w-**Sätzen gelten aber unterschiedliche Bedingungen, wie beispielsweise von FORTMANN (1994) gezeigt. Nicht alle Verben, die *w*-Sätze einbetten, betten auch **ob**-Sätze ein.

(5)   a) Helmut hat begriffen, dass er demnächst gehen muß.   (FORTMANN 1994, 3)
      b) Helmut hat begriffen, **wer** demnächst gehen muß.
      c) *Helmut hat begriffen, **ob** er demnächst gehen muß.

Es muss also jedenfalls zwischen W-Sätzen und interrogativen weiter differenziert werden. Dass Satztypen und also deren Merkmale verbspezifisch selegiert werden ist ohnehin nicht eindeutig. ADGER & QUER (1996) diskutieren das Phänomen der "nicht-selegierten eingebetteten Fragen" (UEQs) im Englischen, die nur in negativen Polaritätskontexten und bei bestimmten Verben lizenziert sind.

(6)   a) Julie mentioned that/ *if the bartender was happy.
      b) **Did** Julie mention that/ if the bartender was happy?

---

[1]   BRANDT & al (1992) gehen dabei nur von drei Modi aus: Deklarative, Interrogative und Imperative.

  c) Julie did**n't** mention that/ if the bartender was happy.

Wo ein Element negativer Polarität lizenziert ist, sind es auch UEQs.

(7) a) **Noone** mentioned **any**thing/ **if** the bartender was happy. (Negative Quantifiers)

  b) **Only** Julie mentioned **any**thing/ **if** the bartender was happy.   ('only'-focus)

  c) **If** Julie mentioned **any**thing/ **if** the bartender was happy, we could order another drink.   (Embedding Conditional)

  d) We **refused** to mention **any**thing/ **if** they had the keys. (Adversative Predicates)

  e) **Without** mentioning **any**thing/ **if** they had the keys, there's nothing we can do. ('without' clauses)

Ähnliches lässt sich für das Deutsche feststellen, wo allerdings negative Polaritätskontexte nicht durch entsprechende Elemente wie *any* identifizieren lassen. Unseres Erachtens gilt dieses Phänomen auch für das Verb "wissen".

(8) a) *?Er weiß, ob er mich gesehen hat.

  b) *Jetzt wußte er, ob er mich schon einmal gesehen hatte.

Ohne Negation oder Ähnliches erlaubt *wissen* nicht ohne weiteres einen *ob*-Satz als Komplement. Die Äußerung muss schon die Implikatur erlauben, dass der Wahrheitswert der eingebetteten Proposition zur Frage steht. Wird dies durch den Kontext erschwert oder verhindert, ist der *ob*-Satz nicht lizenziert.

  Da es sich hier nicht um syntaktische Selegierung handeln kann, steht also zur Diskussion, welche Merkmale tatsächlich einen Fragesatz konstituieren und unter welchen Bedingungen diese auch im Nebensatz lizenziert sind. Wir versuchen diese Gegensätze aufzulösen, indem wir das relevante Merkmal nicht als formales syntaktisches Merkmal betrachten, das allein und zwangsläufig als Typenmerkmal eine bestimmte Satzmodusinterpretation auslöst, sondern als modales Merkmal, das in verschiedenen Konfigurationen spezifische Interpretation bewirkt. Wir verfolgen also die Strategie, als Zielgröße nicht den Satztyp zu wählen, sondern stattdessen primitive modale Merkmale zu ermitteln, die in der Derivation von Sätzen mit bestimmten Modi beteiligt sind. Wir zeigen, dass es zwar modale Merkmale gibt, die durch spezifische Repräsentation in der Syntax realisiert werden und die Interpretation von Satzmodi erlauben. Spezifische syntaktische „Typenmerkmale" oder primitive semantische Merkmale spezifisch für bestimmte Satzmodi sind jedoch nicht Bestandteil der menschlichen Sprachwissens.

In ihrer Untersuchung der Lizenzierungsbedingungen negativer Polarität schlug GIANNAKIDOU (1998, 106ff) eine Dreiteilung der polaritätserzeugenden Operatoren vor.

(9)   a) A propositional operator *Op* in a given context c is *veridical* iff it holds that:
          $[\![Op\ p]\!]_c = 1 \rightarrow [\![p]\!] = 1$

      b) A propositional operator Op in a given context c is ***nonveridical*** iff it holds that:
          $[\![Op\ p]\!]_c = 1 \ -\!/\!\rightarrow [\![p]\!] = 1$

      c) A nonveridical operator is ***antiveridical***, iff it holds that
          $[\![Op\ p]\!]_c = 1 \rightarrow [\![p]\!] = 0$

Nonveridikalität bezeichnet somit die Eigenschaft einer Proposition, nicht wahrheitsfähig zu sein – also das was Fragesätze (und auch andere nicht-deklarative Sätze) markiert. Wir schlagen vor, dass ein solcher Operator, der die Wahrheitsvariable bindet (Cf. PAFEL 1997, 310f), verantwortlich für die Wahrheitsunfähigkeit nicht-deklarativer Sätze ist. Dass dieser *negative Polarität* impliziert, ist insofern interessant, als dass genau die Kontexte, welche diese lizenzieren, auch UEQs lizenzieren. Ein nonveridikalischer Operator lizenziert in seinem Skopus also Nonveridikalität, was mit unserem Konzept der Dependenzen korrelierender Merkmale leicht zu erklären ist. So, wie es eine temporale Dependenz zwischen Matrix und Komplement gibt, gibt es auch eine modale, was in den folgenden Beispielen durch Koindizierung symbolisiert wird.

(10)   a) $[_{CP}$ Ich $[_{C'}$ habe$_i$ $[_{VP}$ mich gefragt$_i$, $[_{CP}$ ob$_i$ $[_{VP}$ er kommen$_i$ wird$_i$ $]\cdots]$

       b) $[_{CP}$ $[_{C'}$ hast$_i$ $[_{VP}$ du gesehen$_i$, $[_{CP}$ ob$_i$ $[_{VP}$ alle gekommen$_i$ sind$_i$ $]\cdots]$

       c) $[_{CP}$ Wann$_i$ $[_{C'}$ hat$_i$ $[_{VP}$ er dir **x**$_i$ erzählt$_i$, $[_{CP}$ ob$_i$ $[_{VP}$ alle kommen$_i$ werden$_i$ $]\cdots]$

Da Lizenzierung unter Dependenz keine lexikalische Selegierung ist, besteht dennoch die Option, Sätze ohne nonveridikalischen Operator zu selegieren.

(11)   Hast Du gesehen, dass alle gekommen sind?

Diese Analyse modaler Dependenz weiten wir auf andere Arten modaler Markierung aus. Alle nichtdeklarativen Sätze haben einen nonveridikalischen Operator in der CDom, der eine Dependenz mit dem Modus des finiten Verbs bildet. Diese Art der semantischen Markiertheit wird pragmatisch interpretiert, sodass verschiedene illokutionäre Typen durch die Interpretation der modalen Dependenz im Satz ermöglicht werden. Dies geht weit über die Möglichkeiten hinaus, als durch die Annahme einer geringen Anzahl von Satzmodi, die sekundär

pragmatisch umgedeutet werden können, vorhergesagt wird. Deshalb gibt es sowohl systemimmanente als auch idiosynkratische Asymmetrien bezüglich der Zuordnung dieser 'Typen' oder 'Satzmodi' zu den Merkmalen.

Introduction

As indicated in the title, the aim of this paper is to outline a theory enabling us to model an economical way of computing structural descriptions in natural language. This is in fact very much in the spririt of CHOMSKY (1993 etc.) and his followers' Minimalist Program (MP). However, by critically discussing their derivational model and arguing against it, we will develop a representational theory that is capable of capturing many relevant regularities of the syntactic and logical structure of sentences by assuming and explaining the interface interactions while interpreting structural descriptions. It is a generative theory of the syntax/semantics interface.

The subtitle *A Minimally Radicalist Theory* is an allusion to two pieces of linguistic work which gave some inspiration to our model. First of all, BRODY's (1995) *Radically Minimalist Theory* of the *lexico-logical form* that delivered the important message that a model where the phonological form PF and the logical form LF of a sentence are treated as one single representation must be conceptually superior to a derivational one, with respect to both elegance and structural economy. Second, the idea of *sentence radicals* proposed by researchers working in the framework of *categorial grammar* in order to explain clause types through specific representations of *markedness* added to *propositions* (cf. ZAEFFERER 1979). In fact, the model we propose is much more elaborate with respect to the analysis of the factors yielding this markedness, but the spirit of the radicalist method is consistently lead through: We treat all sentences strictly compositionally, starting out from *predicates*, which we treat as logical functions that are decomposed in syntax, and *propositions*. Propositions can be marked by logical operators yielding different kinds of modality, also including different clause moods. In the same way we catch the syntax and semantics of subordination. This way of looking at *lexical decomposition* and markedness through specific operators has very much been inspired by the model of *transparent logical form* developed by STECHOW (1993 etc.).

In order to produce compositional SDs, we use functional application as proposed by MONTAGUE (1969, 1973) for our semantic representation LF.

However, we want to avoid the crucial weakness of the kind of categorial grammar he uses (as first proposed by AJDUKIEWICZ 1935) – i.e. the lack of autonomy in the syntactic module. In our model, the syntactic rules do not result from semantic functions. Instead, the representation of semantic formulae is subject to numerous syntactic constraints and principles. Their parameterisation results in syntactic variation, which cannot be explained by categorial grammars. In addition, formal Fs like case, AGR and syntactic categorial Fs play a crucial role for licensing.

The crucial role that logical functions play in structure generation is that of semantic licensing. Since in our model all informative items that are inserted into syntax (independent of whether they are represented by words or by opaque elements, i.e. *informative 'features'* (IFs) that must get transparency indirectly) have lexical entries as logical functions, the composition of a sentence is subject to semantic selection and binding. This might also be expressed in terms of subcategorisation. In order to account for this representationally, we have to allow *interaction of the interfaces* when a sentence is projected, in order to license the elements inserted into the structure. This is why we call our model a *projective licensing grammar* (PLG). Our model in fact assumes *autonomous modules*, but necessarily allows for a little more interaction than GB or the MP. Altogether the spirit of our model can be summarised as: '*Semantics is working as syntax allows it*' ("*Wenn die Semantik arbeitet und die Syntax sie gewähren lässt.*"; cf. HAIDER 1996b). In order to account for structures specific to marked information structure, we also have to allow some interaction with the pragmatic module. As we will show, there is much less controversy in this assumption than syntactic autonomists may think.

Above all, we reject the view that syntactic autonomy must mean that syntax derives a structure with logical and information structural scope positions as a genuine *syntactic* level of representation by means of syntactic functional phrases that do the work of semantics and pragmatics. What syntax must provide is some structure where semantic and pragmatic information can be represented – which may be subject to syntactic constraints. However, these must not be as restrictive as suggested by the models of LF that we argue against, which imply

that the repertoir of formal features in the lexicon determines what can be logically expressed, and how information can be structured. We think that this view contradicts the spirit of modular autonomy much more than a model allowing interface interaction during projection for the sake of economy.

Another crucial characteristic of PLG is projective economy in the sense of HAIDER (1996a). We want to avoid uneconomical projection of structure, i.e. of phrases that do not host informative elements and are therefore not criterial for the interpretation of the SD. A first step is the reduction of functional phrases by assuming that functional heads are projected only if they represent IFs that express markedness. A second step is allowing functional heads to parametrically host more than one IF. This is reflected in the linear array by the variation of functional complexity of items and word order. The idea of this goes back to the proposal of *matching projections* by HAIDER (1989) and a more recent minimalist account of parametric *feature scattering* by GIORGI & PIANESI (1997), which *implies feature syncretism* in languages where the linear array indicates a smaller amount of functional projections.

In ch. 1 we develop PLG and discuss some of its implications and consequences for syntactic theory. Ch. 2 is dedicated to information structure and the syntax and semantics of subordination. In ch. 3 we apply our theory to the syntax and semantics of clause types. Our analyses are supported by comparative data from 15 languages, each of them representing a number of specific typological properties. The comparative component of our work is meant to bidirectionally justify our theory: First, those languages provide evidence for the assumptions we make about functional heads, functional application and logical operators. Second, they show that our model is fully capable of accounting for variation of syntactic representation of meaning.

1. Some Background and Discussion

1.1. Economy of Derivation and Representation

Economy was perhaps the most fundamental concept of syntactic theory in the 90's. It forms the core of CHOMSKY's (1993 – 2000) minimalist program (MP).

The term economy has two prominent senses: It can be meant methodologically, in terms of an elegant theory of syntax (cf. BRODY 1998b), which means that the aim is a theory of grammar with a minimal number of assumptions. Second, it has a biological implication if this theory can explain grammar as an operational system producing language using a minimal apparatus. Economy in the MP is regarded as the leading principle of cognition, and thus also of the linguistic component. The strongest minimalist thesis would hold that the human faculty of language (FL) is an optimal solution to minimal design specifications (CHOMSKY 1999, 1).

In the following paragraphs, we will first give a short description of concepts of economy in a derivational minimalist framework. Thereafter we will discuss some of the problems for descriptive and explanatory adequacy. Last, we will consider economy in a representational model and point to the advantages in both the methodological and the empirical context. What we will not include in our discussion is the 21st century version of the *minimalist framework* assuming *probes* and *goals* in syntax (cf. CHOMSKY 2000), which differs mainly technically but not conceptually from the earlier versions.

1.1.1. *The Formalism and Main Assumptions of the MP*

In MP, there are two linguistic modules relevant for the production of sentences, i.e. the structural descriptions (SDs) of complex expressions. First, the lexicon as a storage of features (Fs, i.e. "linguistic properties", CHOMSKY 1999, 33). Second, the computational system of human language C$_{HL}$ accessing only *formal* (syntactic) features (FFs) of categories which are the elements of the SD. Unlike GB, the MP does not assume two levels of syntactic representation like deep structure (DS) representing the semantic configuration of S, and surface structure

(SS) representing the relations between the constituents in the linear string of S. Derivation of S is looked at as a continuous process where parametric properties determine when the SD is assigned a PF before further derivation leads to the logical form LF of SD. The technical aspects of this we discuss below.

The phonological form PF, representing the structure underlying the phonetic output, and the logical form LF, the structure representing the interpretation of S, are defined in terms of interfaces of interpretation by the articulatory-perceptual system on the one hand, and the conceptual-intentional one on the other hand (cf. CHOMSKY 1995a+b). This can be considered a logical development from one of the basic generativist assumptions that linguistic modules are autonomous. The phonetics and semantics modules are left to interpretative systems that interface with syntax at PF and LF. Autonomy is interpreted such that the other modules do not influence the production of SDs, but only check their eventual wellformedness. This is meant to work as follows:

In the MP, the primitives of the lexicon are not lexemes or functional morphemes but rather atomic grammatical features (Fs) (either lexical or functional). A lexical entry is in fact a list of features (cf. CHOMSKY 1995, 235f), i.e. the primitive properties constituting an expression (EXP) or relating expressions in an SD. Human language (HL) is a derivational procedure mapping F to {EXP}, where an expression EXP is a member of a set of interface representations (cf. CHOMSKY 1999, 7).

C_{HL} is a system deriving structural descriptions (SDs) in successive cyclic operational steps of merger and movement of Fs taken from the lexicon to the numeration (NUM) of the sentence S, i.e. the set of Fs representing the interpretation of S and/or deriving SD. The derivation of SD in the MP is based on the assumption of FFs playing a role only for triggering movement to form a representation of S. They are *checked* by the elements they attract, and thereby deleted.

In the course of the derivation, one of the representations is spelt out, that is, interpreted by the PF interface. Which of the representations this is, i.e., after which derivational step *spellout* of SD takes place, is determined by parameterisation: "strong" Fs trigger overt (pre-*spellout*) movement,

idiosyncratically (i.e. parametrically) weak Fs do so covertly (post-*spellout*). The whole derivation is visualised by the following graph:

(1) storage of Fs   Lexicon
                               ↓
                         select (NUM)
                               ↓
                            merge
                               ↓
  computational   *move* (*overt*)
  system (C_{HL})   ↓   **PF**
                          Spell-Out ─────────────→   (Phonological
                               ↓   Form; interfacing
                         move (*covert*)   with the
                                                        articulatory
                                                        perceptual (AP-)
                                                        system)

                               LF
                          (Logical Form;
                          interfacing with
                          the conceptual
                          intentional (CI-)
                          system)
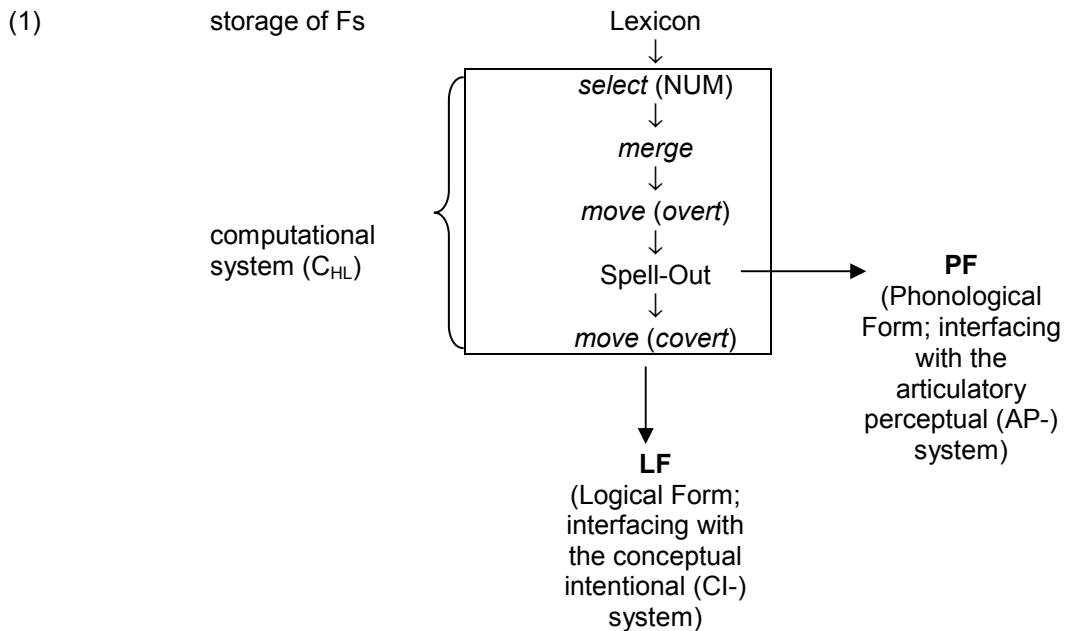
Together with deep structure (DS) CHOMSKY eliminated Θ-theory from the productive system. In GB, it was a module interfacing with semantics, based on the assumption of independent principles constraining all levels of representation. In order to reduce the number of assumptions about C_{HL}, CHOMSKY (1993, 20) wants to dispense with the Θ-criterion and the projection principle.

(2) ***Theta Criterion***   (cf. HAEGEMAN 1994, 54)

Each argument is assigned one and only one Θ-role. Each Θ-role is assigned to one and only one argument.

(3) ***The Projection Principle***   (cf. CHOMSKY 1981a, 36, 38)

Given $[_G ...A...B...]$ and the levels of representation $\{L_i, L_j\}$, then

a) if B is an immediate constituent of G at L_i, and $G = A'$, then A Θ-marks B in G.

b) if A selects B in G as a lexical property, then A selects B in G at L_i.

c) if A selects B in G at L_i, then A selects B in G at L_j.

CHOMSKY (1993-2000) leaves the questions of semantic completeness and compatibility open, but the system implies that it relies purely on formal checking operations triggered by the formal (categorial) features (FFs).

Lexical items are inserted into syntax fully inflected. Syntactic structures are produced by projection of categorial Fs and *merging* and *moving* of lexical items. In the course of a derivation, FFs in syntax are checked by corresponding lexical

and functional categories, i.e. their morphological counterparts. For the sake of simplification, we will call these the "morphological categories" (MCats), in contrast to the uninterpretable categorial Fs that are deleted through checking by the MCats. Checking theory is motivated by a principle adopted from GB theory: The grammaticality of SDs is constrained by interpretability of the logical form LF.

(4)   ***Principle of full interpretation***   (CHOMSKY 1986b)
        Elements at LF must be licensed by an interpretation.

In MP, this is reinterpreted as the global principle of economy of representation: An SD must not contain more symbols (or features) than "meaning". Categorial features that have no LF interpretation project the syntactic structure. Deriving S means deleting those FFs through checking by the corresponding MCats.

(5)   ***Feature Checking***   (cf. CHOMSKY 1995)
        F_i is an uninterpretable formal feature of a syntactic category, F_k is a corresponding feature of a lexical or functional category.
        $\Rightarrow F_i$ is locally checked by F_k .

Checking takes place in the form of merger, which means that the MCat is adjoined to the categorial feature, the latter projecting to a higher level. There is some discussion about labelling and the status of these projections in CHOMSKY (1995b, 243ff), which we do not want to repeat here. In short, ***structure-building operations*** (cf. CHOMSKY 1993, 1995) can be summarised as follows:

(6)   ***Bare Phrase Structure*** (BPS)
        Two nodes β and γ are merged to a single node α by
        a) selection of γ by β
        b) adjunction of γ to β.

(7)   **Labelling:** In both cases α inherits its category (label) from β.

Fs are inserted into syntax as heads (X°). Head to head adjunction results in a complex head. Heads can select constituents as complements, which by definition must be phrases. The resulting phrase is labelled by the labelling feature of the selecting head. Adjunction of YP results in an XP labelled by the labelling feature of the head to which it has been adjoined.

(8) F_m (m = morphological) is merged in the domain of F_c (c = categorial) in order to check F_c, if

    a) it has an autonomous lexical entry (e.g. particles) or

    b) it is part of a bundle of Fs that has <u>not yet</u> been merged (e.g. V in base position) or

    c) it has been moved from a lower position.

(9) F_m is moved to the domain of F_c in order to check F_c, if it is part of a bundle of Fs that <u>has</u> been merged before (e.g. T_m as part of V°).

This means that checking theory predicts an extensive derivation with successive cyclic movement operations even for simple sentences. For illustration, we derive a simplified LF structure where we have the F_cs V (verbal), D (nominal), I (inflectional).

(10) John sleeps.

For the sake of simplification, we use English words, neglecting the fact that several Fs in Eng. are checked covertly. As a first step, V is projected into syntax. CHOMSKY (1993 – 2000) is not explicit about how to account for this formally. To be consistent with the MP assumptions about projection and derivation one could assume that a bundle of the categorial features V and D (V carrying a D-feature) is projected from NUM and merged with the lexical head V° "sleeps" which is also taken from NUM, hereby deleting the syntactic F V.

    The complex head V°-[$_V$ D] and the DP "John" (i.e. a lexical item merged with D° in a former step) merge, projecting the node [$_{VP}$ John sleeps]. To be consistent with the model, deletion of the uninterpretable syntactic feature D of V must be assumed. The resulting constituent is selected by the head I° taken from NUM, carrying the features D and I.

(11) [$_{IP}$ [$_{I°}$ I – D] [$_{VP}$ John sleeps]]

In order to check the I_c features, I_m, which was previously projected within the bundle, V° has to adjoin to I°, deleting I_c and leaving a trace in V.

(12) [$_{IP}$ [$_{I°}$ sleeps$_i$ – [$_{I°}$ D]] [$_{VP}$ John t$_i$]]

The remaining FF D_c has to be checked by '*John*' adjoining to the node [$_I$I° [VP]]. The content of the functional head I° after checking by the MC and deletion of the FFs may consist of interpretable tense features (*PRS*, in this case) that are not deleted.

(13) $[_{IP}$ John$_k$ $[_{I'}$ $[_{I°}$ sleeps$_i$ – $[_{I°}$ PRS $]]$ $[_{VP}$ t$_k$ t$_i$ $]$ $]$ $]$

Assuming that all sentences also project a C domain where features like finiteness (HOLMBERG & PLATZACK 1995, RIZZI 1997, ROBERTS & ROUSSOU 2002) or clause type (GROHMANN 1999, ROBERTS & ROUSSOU 1999, WRATIL 2000) are checked, there must be (at least) another potential cycle moving V or a phrasal constituent or even both, if the corresponding FFs are strong:

(14)   a) $[_{CP}$ $[_{C°}$ C – D $]$ $[_{IP}$ John$_k$ $[_{I'}$ $[_{I°}$ sleeps$_i$ – $[_{I°}$ PRS $]]$ $[_{VP}$ t$_k$ t$_i$ $]$ $]$ $]$

       b) $[_{CP}$ John$_k$ $[_{C'}$ $[_{C°}$ $[_{I°}$ sleeps$_i$ -$[_{I°}$ PRS $]]_m$ $[_{C°}$? $]]$ $[_{IP}$ t$_k$ $[_{I'}$ $[_{I°}$ t$_m$ $]$ $[_{VP}$ t$_k$ t$_i$ $]$ $]$ $]$

The number of checking sites grows if split domains of C and I are assumed (cf. POLLOCK 1989, RIZZI 1997).

CHOMSKY (1995-2000) aims at a model where linguistic variation reduces to only the parameterisation of this universal procedure of *feature checking*.

> The task is to show that the apparent richness and diversity of linguistic phenomena is illusory and epiphenomenal, the result of interaction of fixed principles under slightly varying conditions.   (CHOMSKY 1995a, 389)

> Variation is essentially morphological in character, including the critical question of which parts of a computation enter the phonological component (. . .)   (ibid., 388)

According to this assumption, language specific differences are determined by parametric *strength* or *weakness* of the categorial features. The derivation is divided into an overt part whose result is transparent to PF and a covert one that is visible only for LF. Only the strong features are checked before the derivation enters the phonological interpretational system (the moment of *spellout*), though all categorial features have to be checked before logical interpretation on LF. Thus, all languages should have an LF representation like (14b)[2], whereas the PF representation (and thus word order) should differ according to parametric properties of the functional heads.

The linear order in a syntactic string depends on two factors: The principled UG hierarchy of syntactic categorial features determining scope in clause structure and providing sites for morphological categories, and the parameterised

---

[2]   At least as far as the functional Fs are concerned; CHOMSKY (1993, 1994) assumes that only in the overt part of the derivation, the Fs not attracted by the corresponding FF are *pied-piped* within the bundle projected to NUM. Covert movement strands them, such that in languages like Eng. that check INFL of full V covertly, only the T- and φ-Fs of V are moved to I° on LF.

pre-*spellout* topology determined by checking. Feature strength parametrically triggers different positions of the constituents, thus yielding typological options of word order.

We list the theoretical possibilities, indicating the borders of the domains with adverbials. Time adverbials presumably are above VP, whereas frame adverbials are between the domains of C and I.

(15) a) $[_{CP}$ $[_{C°}$ C – D] at school $[_{IP}$ $[_{I°}$ I – D] always $[_{VP}$ John sleeps]]

b) $[_{CP}$ $[_{C°}$ C – D] at school $[_{IP}$ John$_k$ $[_{I°}$ I – D] always $[_{VP}$ t$_k$ sleeps]]

c) $[_{CP}$ $[_{C°}$ C – D] at school $[_{IP}$ John$_k$ $[_{I'}$ $[_{I°}$ sleeps$_i$ – $[_{I°}$ PRS]] always $[_{VP}$ t$_k$ t$_i$]]]

d) $[_{CP}$ $[_{C°}$ $[_{I°}$ sleeps$_i$ -$[_{I°}$ PRS]]$_m$ $[_{C°}$ D] at school $[_{IP}$ John$_k$ $[_{I'}$ t$_m$] always $[_{VP}$ t$_k$ t$_i$]]]

e) $[_{CP}$ John$_k$ $[_{C'}$ $[_{C°}$ $[_{I°}$ sleeps$_i$ -$[_{I°}$ PRS]]$_m$ $[_{C°}$ DCL(?)]] at school $[_{IP}$ $[_{I'}$ $[_{I°}$ t$_m$] always $[_{VP}$ t$_k$ t$_i$]]]

These 5 options stand for 5 word order types that could possibly exist among the world's natural languages. However, it seems that no 'weak-everything'-language exists, which to our knowledge has not been accounted for in the minimalist literature. The remaining four seem at first glance to be represented in natural language.

(16) a) (no language that we know of).

b) At school, John always sleeps.   (English – type)

c) A l'école, Jean dort toujours.   (French – type)
at – school – John – sleeps – always

d) gwelodd Sion Mair yn yfed coffi   (Welsh-type)[3]
saw – John – Mary – PTC – drink – coffee

e) Hans schläft in der Schule immer.   (German – type)
John – sleeps – in – the – school – always

Leaving aside phenomena like OV order and topicalisation, which can be explained by a few additional assumptions discussed below, these options yield a number of PF representations which we can use for explaining word order typology. More detailed accounts have been presented based on a greater number of functional phrases, e.g. for French (POLLOCK 1989), Welsh (HENDRICK 1991) and Italian (RIZZI 1997). This will be illustrated below when we discuss the

---

3   The fact that nothing may intervene between fronted V and the subject in many VSO languages (cf. ROBERTS *to appear*) cannot be accounted for in this system.

splitting of the C and I domains. All these accounts are based on the assumption of the functional 'mother-phrases' CP and IP.

Using data from several languages, we will illustrate how a system like this one, dividing clause structure into three domains, can not only account for variation of word order between languages, but also for the way that all types of main and embedded clauses are constructed. What we want to argue against, however, is checking theory and the way it treats the semantic content of structural descriptions, reducing sentence generation to the constellation of formal features.

Since, with respect to the spirit of economy, redundancy is an obvious weak point of this system, this is the starting point of our discussion.

1.1.2.   Economy in the Minimalist Program

CHOMSKY (1993-2000) regards language as a system optimised for generation of complex expressions with only some imperfections – like movement. Since movement per se is uneconomical, there are economy principles as a measure of imperfection. Principles of derivational economy inhibit derivations from involving too many and costly operations. They can be summarised as the condition of:

(17)   **Fewest Steps**   (cf. CHOMSKY 1993)[4]

   If two derivations D1 and D2 are in the same *reference set* and D1 involves fewer operations than D2, D1 is preferred over D2.

(18)   **Reference Set**

   Two derivations are in the same reference set iff they converge and yield the same LF output.

Local constraints in GB, like those following from *binding principles*, *superiority* or *subjacency* are replaced by economy conditions that can be subsumed under the principle:

---

[4]   The following abstractions from CHOMSKY (1993, 1995) are taken from class handouts of GEREON MÜLLER's class on 'Economy in Syntax' at the University of Stuttgart, Summer 1999; mennie senks to him.

(19)   ***Shortest Paths***   (cf. CHOMSKY 1993, 1995)

>   If two derivations D1 and D2 are in the same reference set and the movement
>   paths of D1 are shorter[5] than those of D2, D1 is preferred over D2.

According to CHOMSKY (1993, 1995), a derivation *crashes* if an economy principle is violated. Thus, grammaticality depends on two factors subsumable under economy.

(20)   ***Grammaticality***

>   A derivation D1 is grammatical iff
>
>   a) D1 produces an interpretable string (FI, global representational constraint) and
>
>   b) there is no D2 ≠ D1 in the same reference set that is preferred over D1 by a derivational constraint.

This means, however, that many derivations can be launched in order to produce one single SD, all but one of them doomed to be cancelled or fail at LF. The reduction of generativist concepts to two economy principles is actually at the cost of economy of production: Syntax may aimlessly produce countless SDs that are subject to constraints on the derivation and interpretation of representations making them "crash" at some point of the derivation when a local principle has been violated, or where all but the grammatical one are sorted out at one of the interfaces PF or LF. LENERZ (1998, 109) summarises those disadvantages as follows:

>   The computation of the 'most economical' derivation repeatedly requires large-scale,
>   uneconomical comparison. It is not only that many representations must be divided
>   into sets of those converging or not converging with full interpretation, but also, the
>   members of the converging set, which violate principles like MLC or procrastinate,
>   must be sorted out and the numbers of operations deriving the remaining ones must
>   be calculated.[6]

---

[5]   This has been expressed in terms of closeness of attractees in CHOMSKY (1995).

[6]   Summarised and translated from Gm. (P.Ö.): Weitere Probleme ergeben sich bei der Berechnung der ‚ökonomischsten' Derivation. Hier müssen z. T. recht aufwendige, ihrerseits kaum ‚ökonomisch' zu nennende Vergleiche angestellt werden. So ist etwa die MLC (kürzeste Bewegung) nur durch recht komplexe Strukturbedingungen zu ermitteln. Auch die Annahme, die Derivation mit den wenigsten Arbeitsschritten sei vorzuziehen, erfordert m. E. die Berechnung aller qua Vergleichsmenge konkurrierenden Derivationen. Es muss nämlich 1.) festgestellt werden, welche Derivationen überhaupt konvergieren (d. h. grammatisch sind, C. D.) und 2.) welche der konvergierenden gegen procrastinate oder ein etwaiges anderes Prinzip verstoßen und 3.) welche der übrigbleibenden konvergierenden mit der geringsten Anzahl an Ableitungsschritten auskommt.

This means that the idea of economy as postulated by CHOMSKY to be the mother of all principles is not only circumvented by an uncontrolled C_{HL} producing a great number of representations of which only the fittest must survive, it is also guided ad absurdum by the need for an inventory of mechanisms controlling the fitness of the output. The theory may be minimalist by assuming a smaller set of principles. However, with respect to cognitive economy the gain of this view is not obvious, the problems are merely transported from the way that the computational system is organised to the mechanisms that are necessary for producing appropriate SDs.

In order to avoid assumptions about syntactic principles, the MP does not assume levels of representations with specific wellformedness conditions. That semantic wellformedness and full interpretation are not checked before LF is an obvious disadvantage of the model with respect to economy. Only one single representation fulfilling all fitness conditions should be able to pass through to LF. However, a generator of SDs which works without control by generative principles of wellformedness can in principle launch infinitely many derivations that may "crash" (i.e. be cancelled) only after entering the LF interface. Not even completeness or redundancy of NUM are constrained by specific conditions. Thus, our first objection to this computational system is that it is much too powerful with respect to restriction of the output of generative syntax.

Second, in fact the whole model of checking theory inherently contradicts the spirit of economy. For some reason checking theory assumes sets of FFs with positive or negative marking, like [±present, ±past]. It is not only that an FF [–past] is trivially redundant if there is an FF [+present]. Since the MP assumes BPS, all these Fs have to be merged into the structure twice. First, to project the tree, and second, to insert the fitting items. The only purpose of the first group of Fs is to create the sites of insertion of substantive elements and to label them – in order to make sure that the right items will end up in the right places. We will try to replace this system by a notion of BPS where many of these FFs are not necessary.

Since FFs are uninterpretable, they have to be deleted before the derivation reaches LF. Thus *merger* and *movement* of lexical items is motivated by the following principle:

(21) ***Principle of full interpretation*** (CHOMSKY 1986b)
Elements at LF must be licensed by an interpretation.

Uninterpretable FFs come into being only to be deleted by LF. It is not only that uninterpretable FFs offending the *principle of full interpretation* (FI) are redundant, they may even have to be checked by redundant FFs. Thus, the syntactic tree always contains structure that is not needed for representation of information. Neither projection of structure which is unnecessary for representation of information nor checking by cyclic movement operations can be said to be economical. Thus it would be a gain if we could dispense with feature checking.

Therefore we think economical syntax must mean that only interpretable Fs are projected. We adopt the view from ROBERTS & ROUSSOU (1999, 2002) where there are only *positive* values of interpretable Fs like [past] that express semantic or formal markedness of SD (we will call them *informative features*, IFs). There is no reason why natural language should work with such binary sets of features (except informationally relevant cases like polarity) – unless one assumes phrase structure labelled by FFs before being filled by lexical items.

Instead, we want to assume a model where the projection of only one well-formed structure is determined by the properties of only interpretable positive Fs that project the syntactic tree. We will show that this can be accounted for in terms of licensing. Our aim is to design a model where successive projection of Fs licensed by preceding steps yields exactly one single representation that can be directly LF interpreted.

1.1.3. Optional Movement

It has often been observed that optional movement cannot be accounted for by the MP, since the alternative structure derived by more steps should be excluded by derivational economy. HAIDER (1996a, 1997b) gives as examples English subjunctive auxiliary movement and French infinitival movement.

(22)   a) I demanded that he not have left before I return.

     b) I demanded that he have$_i$ not t$_i$ left before I return.   (cf. FIENGO 1980, 80)

(23)   a) ne pas avoir eu d'enfance heureuse . . .
       NEG (+concord) – *have – had – childhood – happy*

         "to not have had a happy infancy"

     b) N'avoir$_i$ pas t$_i$ eu d'enfance heureuse . . .   (cf. POLLOCK 1989, 373f.)

The MP deduces the limits of optionality from constraints on local derivational economy. We give some more examples from the comparative syntax of Eng. and German, which show that claims the MP makes about universal economy constraints are too strong. First, subject movement and the EPP: In the MP an explanation is needed as to why no constituent other than the subject can be attracted to SPEC/ I where it checks the D-feature.

(24)   a) John did not miss the train yesterday.

     b) *The train did not John miss yesterday.

     c) *Yesterday did not John miss the train.

Of course, one could simply argue that sentences like (24 b+c) are never input for L$_1$A of English children. However, this does not sufficiently explain that there is not an option for the Eng. core grammar to create them. In the MP, obligatory movement of the subject to SPEC/IP is explained through a strong D-feature in I attracting a nominal XP, which is regarded as the only FF computationally relevant for subject fronting. Movement of the object or nominal adverbials is excluded by the local economy constraint MLC (minimal link condition).

(25)   ***Minimal Link Condition***   (CHOMSKY 1995, 311)

     K attracts α only if there is no β, β closer to K than α, such that K attracts β.

Of course, a projective theory of grammar must have means to prevent illicit representations. However, already the assumptions the MP makes about this are much too strong, as illustrated by German.

Subject movement in Gm. is not obligatory. Its position relative to the object(s) depends on the Θ-grid of V (cf. HAIDER 1993, 152f.).

(26) ? [$_{VP}$ Syntaktikern   Fehler   unterlaufen]$_i$ ^{7} sind$_j$ nicht nur früher e_i e_j
  syntacticians(DAT) – *mistakes*(NOM) – *slipped-in* – *are* – *not* – *only* – *earlier*

  "Mistakes used to not just happen to syntacticians".

The subject in the example above must be in its base position; otherwise it would not be fronted with VP. A constituent containing non-finite V and more constituents cannot be fronted if the order of SBJ and OBJ has been changed by scrambling:

(27) a) [Väter   den Kindern   vorgelesen]$_i$ haben$_j$ nicht nur früher e_i e_j
   fathers(NOM) – *the − children*(DAT) – *read-to* – *have* – *not* – *only* – *earlier*

   "Not only in earlier days, fathers read to their children".

  b) *[Den Kindern Väter vorgelesen]$_i$ haben$_j$ nicht nur früher e_i e_j

To explain this difference between Eng. and Gm., it would not be enough to postulate a weak D-feature in Gm., since there are numerous cases where a fronted VP must not contain the subject. E.g.:

(28) a) *[Ein Vater seinen Kindern vorlesen] wird immer gerne.
   a – father – his – children – read-to – will – always – gladly

  b) [seinen Kindern vorlesen] wird ein Vater immer gerne

One can conclude that in this case it moves outside VP indeed obligatorily, however, for other reasons than the checking of a D-feature. This will be discussed in more detail in section 1.3.5 . One can state, however, that there must be different conditions on subject movement in Gm. and Eng., since with respect to the subject position there is optionality in Gm. .

The same is true for *Wh*-fronting: According to MP, *Wh*-movement is also triggered by a strong FF "*Wh*" in C. Due to the MLC, *Wh*-fronting over another *Wh*-element is ungrammatical in English (the so called '*superiority effect*' from GB).

(29) a) Who wrote what about what?
  b) *What did who write about what?

---

^{7} VP fronting like this is stylistically marked. However, it is not ungrammatical like

 (i) *[$_{VP}$ Syntaktikern   dieser Fehler   unterlaufen]$_i$ wird$_j$ immer wieder e_i e_j
   syntacticians(DAT) – *this - mistake*(NOM) – *slip-in* – *will* – *always* – *again*

 In this case VP fronting is in fact bad, since it contains a definite DP that has to be fronted within the *mittelfeld* for information structural reasons (cf. KRATZER 1984, in HAIDER 1993, 136, 153). This issue will be discussed in more detail in section 1.3.5.

c) *About what did who write what?

If a strong *Wh*-F attracts a *Wh*-MCat, it should always attract the closest one. If there was only one exception to that, it would follow that either the strength of FFs as a parameterisable property or the MLC, which follows from principles of derivational economy, must be abandoned as the *universal* explanation of such correlations between order and structure. In German, the superiority effect (cf. HAIDER 2000a and our discussions below, p. 157) of *Wh*-fronting is much weaker than in Eng. and gives rise to the assumption of different conditions.

(30) a) Wer hat was worüber geschrieben?
          Who – has – what – about-what – written

      b) Was hat wer worüber geschrieben?

      c) Worüber hat wer was geschrieben?

(31) a) Was hat wer warum geschrieben?
          what – has – who – why – written

      b) *Was hat warum wer geschrieben?

Thus, both the concept of strong Fs and the MLC make the theory too restrictive.

1.1.4.   Information Structure

Other examples that could be added here are *focus-fronting*, *topicalisation* and *scrambling*. It is well-known that in many languages topic or focus or even both can be fronted, and that this is optional. In languages like Gm., there is scrambling as another possibility of information structuring. Note that *prosodic* marking of the focus is given anyway.

Fronting can be used as an additional, structural means of dividing the *theme* from the *rheme* of the sentence. Unfortunately, there are several competing proposals for the terminology of *theme* and *rheme*, also *topic* and *comment*, *focus* and *background* (cf. GUNDEL 1977). Either *theme* and *rheme* or *topic* and *comment* have been used to contrast the matter about which the utterance is made to what is uttered about it. In order to avoid confusion, we therefore have to clarify the use of those terms, first.

In functional grammar, *theme* has traditionally been used to term the *'old information'* contained in a sentence, whereas the *'new, added information'* has been called the *rheme*. There are several possibilities to structure the information

of a sentence according to those functional notions. In languages with *scrambling* (e.g. Japanese, German), old information, even if consisting of several constituents can be dislocated to the left of the *rheme*.

(32) a) John **wa**   sono neko **o**   pettosyopu **de**   kat   ta
          John – TOP – this – cat – ACC – petshop – LOC – buy – PST

        'John bought this cat in the petshop.'

    b) John **ga** sono neko **o** pettosyopu **de wa** kat ta.
          John – NOM – this – cat – ACC – petshop – LOC – TOP – buy – PST

        ' John bought this cat in a Petshop (Foc).'

Japanese *topics* (i.e., what the utterance is about) are marked by the PTC *wa* and are in normal order at the beginning of the clause. If constituents are scrambled over the 'topic', it is *focussed* as *new information*, however, since the *old information* is marked by dislocation. Thus, (b) above would be a suitable answer to the question:

(33)   Where did John buy this cat?

The same is possible in Gm., which is most visible in subordinate clauses. As discovered by Höhle (1982), Gm. SubCs have normal order, if the constituent which is closest to V° has the *primary sentence stress* and the complete embedded proposition represents the 'new information'[8]. This he called *maximal focus projection.*

(34)   A: What did he say?

    B: Er sagte, [$_{CP}$ dass ein Hund in einem Blumenladen eine Katze gekauft hat]
       he – said – that – a – dog – in – a – flower-shop – a – cat – bought – has

      (normal order, the whole embedded proposition is *rhematic* and *focussed* as 'new information')

According to Höhle (1982), sentence focus corresponds to a projection from V. If it is not *maximal focus projection* that takes place, the non-focussed constituents can be *scrambled* (cf. Haider 2000b) over the first focussed one to the left of V.

(35)   A: Who did he say bought a cat in a flowershop?

---

8   'New information' is here used in terms of pragmatic relevance, not in terms of concrete introduction of previously wholly unknown actants.

B: Er sagte, [_{CP}dass in einem Blumenladen eine Katze ein H<small>UND</small> (F<small>OC</small>) gekauft hat]
he – said – that – in – a – flower-shop – a – cat – a – dog – bought – has

(scrambled order, only [_{DP} ein Hund] is rhematic and focussed as 'new information')

Thus, the focussed part can easily be identified by primary sentence stress and the relative structural position. Note that the same can be done without dislocation, by simply changing the sentence stress between the constituents.

(36)   Er sagte, [_{CP} dass ein H<small>UND</small> (F<small>OC</small>) in einem Blumenladen eine Katze gekauft hat]
he – said – that – a – dog – in – a – flower-shop – a – cat – bought – has

Another way of marking the focus, which is used in many languages, is to put it into a prominent position at the top/ left edge of the sentence.

(37)   A: Where do people wear bowler hats?
       B: In L<small>ONDON</small> (F<small>OC</small>), people wear bowler hats.

(38)   A: What do you believe that the boy studies?
       B: Pistevo óti [ti G<small>LOSSOLOGÍA</small> (F<small>OC</small>) to agóri spúdazi]   (Greek)
          believe-1stsg – CMP − DET − *linguistics* – DET − *boy* – *studies*

Note however, that this is only possible as a rule if not more than one constituent is focussed. The focus is in that case also the matter about which the utterance is made (i.e. the *topic*). Thus, we propose to regard focus fronting as topicalisation in a wider sense, contrasting to background topicalisation. In the configurational respect, *focus dislocation* equals *topicalisation*. *Topicalisation* marks a constituent as the matter about which something is uttered, which can apply to both the *rheme* (focus, F<small>OC</small>) and the *theme* (background, B<small>GR</small>) of the sentence.

(39)   A: Where do people wear bowler hats?
       B: Bowler hats (B<small>GR</small>*, topicalised*), people wear in L<small>ONDON</small> (F<small>OC</small>) .

That the term *theme* is often replaced for *topic* in the literature may be a result of the fact that many languages have this topic position where a *thematic* element may be isolated in order to be *commented*. Strictly speaking, they are not identical, however. Therefore, we actually prefer the terms *topic* and *comment* vs. *focus* and *background* and avoid the terms *theme* and *rheme*.

(40)   W<small>HO</small> (F<small>OC</small>) on earth wouldn't you give a kiss (B<small>GR</small>)?

(41)   a) I would not give a kiss (B<small>GR</small>) to Mike T<small>YSON</small> (F<small>OC</small>).
       b) A kiss (B<small>GR</small>), I would not give to Mike T<small>YSON</small> (F<small>OC</small>).

     c) To Mike TYSON (FOC), I would not give a kiss (BGR).

Topic positions we therefore refer to as those (maybe language specific) prominent positions that are created for items that are meant to be commented. Focussed constituents are mainly prosodically marked, but may also have language specific structural positions like the one adjacent to V in Gm. Since the *focus* may aslo be commented, its dislocation to a TOP position is independently possible.

     As demonstrated by the EPP-account above, the minimalist system does not look into the function of the attracted element, only the category. A minimalist should assume that the closest checker of a D-feature is always attracted. However, neither FOC nor TOP obey local economy. There is no constraint like "shortest move" observable. Therefore, recent accounts of *relativised minimality* (cf. RIZZI 2001, first formulated 1990a) are used to amend the MLC by categorial differentiation of the attractee. RIZZI (1997) assumes FFs like TOP and FOC attract topics and focalised elements. This still leaves us with explaining optionality, however. If we assume that FFs of functional categories like TOP and FOC trigger movement, optional movement would mean that we project those Fs exactly when we want to front the corresponding complements – which means we generate SD according to the pragmatic intention of structuring information. Since this means that we need interaction with the pragmatic module anyway, it is doubtful that we need syntactic Fs for topicalisation (or even focussing). Our argument is as follows:

     If we agree that information structuring motivates topic movement, this means that either that a cognitive module external to C_{HL} may override economy, or that C_{HL} has Fs sensitive to outside modules. It is interface driven. If this is done before *spellout* by means of FFs, this means that pragmatics take part in the syntactic derivation of LF, which is not desirable if interface interpretation is meant to take place after syntax. Again we should wonder when and why they are projected. Are they always there and checked only if they are strong? Especially in the case of multiple (and even iterated) topic positions in Italian, this should be regarded as improbable.

(42)   Il libro, a Gianni, domani, glielo darò senz'altro.   (cf. RIZZI 1997, 290)
       the – book – to – G. – tomorrow – him – I-give(FUT) – *for-sure*

If we let this take place after the point of *spellout* as operation on the PF output, we must wonder why remnant VP fronting like

(43)   *GIVE, I would not a kiss to Mike Tyson (– maybe I would blow him one).

is ungrammatical in English. Obviously, the operation of topicalisation is still constrained by at least some language specific conditions on syntactic wellformedness. Since the same construction would be grammatical in Gm., the restriction cannot be due to formal constraints that are universal .

(44)   GEBEN würde ich Mike Tyson keinen Kuss (– vielleicht aber einen zuhauchen).

The same is true for scrambling in German. No constraint like *shortest move* seems to hold.

(45)   a) Gestern hat ein Pfadfinder einer alten Dame einen DIENST erwiesen.
          *Yesterday – has – a – scout*NOM – *an – old – lady*DAT *– a – service*ACC *–
          done*

          "Yesterday, a scout has done a service for an old lady".

       b) Gestern hat ein Pfadfinder **einen Dienst** einer alten DAME erwiesen.

       c) Gestern hat **einen Dienst** ein Pfadfinder einer alten DAME erwiesen.

       d) Gestern hat **einer alten Dame** ein Pfadfinder einen DIENST erwiesen.

       e) Gestern hat **einer alten Dame einen Dienst** ein PFADFINDER erwiesen.

In all these cases, constituents are *optionally moved* out of the sentence focus, i.e. over the constituent marked by primary stress. Scrambling seems to be pragmatically motivated. But optionality also has its limits. Given unmarked stress[9] and intonation, resultatives and non-finite V cannot be scrambled.

(46)   a) er sagte dass gestern ein Stein **ins Wasser** gefallen ist.
          He – said – CMP *– yesterday – a – stone – into-the – water – fallen – is*

          "he said that a stone has fallen into the water."

       b) *er sagte dass gestern **ins Wasser** ein STEIN gefallen ist.

(47)   a) *er sagte dass **gefallen** ein Stein ins WASSER ist

       b) *er sagte dass ein Stein **gefallen** ins WASSER ist

---

[9] I.e., on the deepest embedded constituent, cf. HÖHLE 1982, CINQUE 1993.

There are obvious grammatical restrictions on the reordering of constituents by scrambling. This is even more puzzling since the same constituents can be topicalised.

(48)   a) **ins Wasser** ist gestern ein Stein gefallen

       b) **gefallen** ist gestern ein Stein ins Wasser

The clue must be that whenever there are options of structure variation, pragmatics may make use of it. Whether we want to front the *topic* or the *focus* or structure information through scrambling is in fact not computationally relevant, however. Therefore, we have to assume that these are pragmatic means of structuring the information by making use of options of syntactic structure variation.

Anyway, it is obvious that that the pragmatic options are constrained by syntax, and not simply PF-output operations. If we do not want to assume separate "measures of grammaticality" of the outputs of C_{HL} to PF and LF, we have to count optional movement phenomena like topicalisation and scrambling as C_{HL} operations that are subject to their constraints. There must be an instance of C_{HL} where syntax interfaces and interacts with the pragmatic module. We will return to the technical aspects of this in section 1.3.5.

If this is true, however, there are two more reasons not to assume a derivational model of generative syntax. First, the obvious idiosyncratic differences with respect to both structural variation and the limits of optionality cannot be explained through universal derivational economy principles. And second, since we do not want to involve pragmatics in the computation of LF, the pragmatic interface interpretation must not apply to any derivational step before LF. Both problems in our view point to one solution: Pragmatic variation and wellformedness conditions should not apply to a derivation but to one single representation, which must be LF. Why is it visible at PF, however? This is what a *representational* model grants without any additional assumption.

1.1.5.   Economy in a Representational Model

Nothing yet has been said explicitly about the phonological form PF of an SD. CHOMSKY (1995, 390) understands HL as a "generative system that constructs

pairs (π, λ) that are interpreted at the A-P and C-I interfaces". π (PF representation) and λ (LF representation) receive some interpretation "at the relevant level (perhaps interpretation as gibberish)".

> We say that a computation (derivation) *converges* at one of the interface levels if it forms an interpretable representation of this sense, and converges at both interface levels, PF and LF; otherwise it *crashes*.   CHOMSKY (1995, 390)

What prevents a derivation from crashing covertly, however? Since convergence of a derivation at LF is decisive for its grammaticality, it is imperative that at the point of *spellout* LF-convergence is granted. Sentences like

(49)   I sees the point.

are predicted to converge on LF as "gibberish". In the derivational model sketched in (1) on page 29, this derivation would crash at LF after being spelt out. Features are constant throughout the derivation, and *sees* must check 1^{st}sg at LF, since in this system nothing prevents it from being merged as V° and Eng. AGR is checked post *spellout*. Thus, PF should be at the mercy of chance not to produce incorrect agreement, and it would be easy to calculate the rate of errors in the performance of an average speaker, who is likely to produce quite a lot of "gibberish". Of course, this is not true – only derivations that are able to pass LF are in fact spelt out under normal circumstances. What prevents C_{HL} from deriving such an Eng. sentence?

Since in the derivational MP model, PF is shaped at a point when LF is not yet reached, the PF interface must get reliable input in order to spell out a representation of the right derivation. PF and LF cannot converge on a most economically derived and fully interpretable representation by a chance coincidence (cf. also BRODY 1995, 1998b). Therefore, a control mechanism must be there anticipating the spelt out derivation meeting all conditions on LF, provided that the fully fledged V° entering NUM is 'compatible' with AGR°. This, however, should make it improbable that *spell out* takes place before the derivation converges with LF. LF must be in a way *transparent* to Spell-Out.

The most economical way of realising a '*transparent LF*' [10] must be by making it the spelt out representation. If this is true, PF is just the parameterised shape of LF. Otherwise, spell out has to be a copy of the derivation later evaluated as grammatical when the weak features are also checked.[11] How else could LF be evaluated, if not by establishing it? Again we doubt if the gain in economy by reducing the principles of structure generation can outweigh the effort of derivations that are not output oriented but computed before application of the constraints that can make them crash after all, may be as late as at the LF interface.

Moreover, as BRODY (1995, 98) notes, why should PF trigger a type of movement that is at the same time necessary for checking operations at LF:

> Since PF and LF are independent levels, it is a surprising accident that for those morphemes whose features have to be checked at PF (i.e., have strong features) an exactly identical requirement holds at both LF and PF. Optimally this identity relation should be captured, but even minimally, the theory should be constructed in a way that does not make this relation necessarily a curious accident. Thus the fact that strong features have identical effects at both LF and PF clearly suggests that these requirements hold at the same level of representation.

BRODY (1995, 1998a+b) wants to develop a theory of *perfect syntax,* where economy considerations as a measure of imperfection do not play a role. From the biological point of view, an optimised system should not have more redundancy[12] than necessary. Thus a theory assuming not only less principles, but also less technical expense, should have more explanatory adequacy if it has the same explanatory potential. Such a theory BRODY (1998) calls *elegant syntax*.

Methodologically, a minimal inventory of analytical means would also minimise the number of necessary assumptions about the system. A first step in avoiding the need for economy considerations would be to try and get rid of the uninterpretable categorial FFs. Second, if representations are separated from

---

[10] This term is borrowed from VON STECHOW 1995, 55, who refers to IRENE HEIM, p.c. . The concept of *transparent LF* will be discussed further below.

[11] The need to have these copies would even potentiate the number of structures being involved in syntactic derivation.

[12] This has to be understood as redundancy of systematic components, not as the inventory of lexical items or variation of complex expressions. Redundant expressivity of L by means of a powerful inventory of signs belongs to idiosyncratic extension, not to the cognitive capacity of HL or the intension of SDs and thus cannot be regarded as uneconomical.

derivations, no assumptions about structure building operations are needed. The only criterion for grammaticality of S will be fulfilment of wellformedness conditions on a single representation. Conditions on movement operations can be expressed in terms of conditions on their product, i.e. chains, that have to be well formed on every level of representation.

Therefore, BRODY (1995, 1998b) also explicates that PF must be the *spellout* of a representation corresponding to LF, or even more directly, that PF and LF are the same representation. Economy following from assumptions about derivational steps of *merger* and *movement* comes for free, if constraints holding for the evaluation of two related structures are applied to *just a single representation*.

HAIDER (1996a) argues from the point of view of *first language acquisition* (L_1A) and of *parsing* that economy must be an inherent property of a core grammar generating structures that encode information in a human language.

Children acquiring knowledge of the Language L spoken in their surroundings face the ***projection problem*** (HAIDER 1996a, 10).

(50)   a) What is the structure of a given string of terminals in L?
       b) What is the grammar of L, given a subset of expressions of L.

A theory of grammar must be able to solve this problem. In the derivational system, i.e. a system where the data must trigger derivations, the child has to recognise and reconstruct moved constituents from an underlying structure that must be part of UG, i.e. the *encapsulated cognitive module* the child does not have conscious access to. Only thus is it able to parameterise Fs as strong or weak to be triggers of movement (given the economy principle of procrastinate). The child must also identify syntactic functions of constituents like subject, adverbs, objects, in order to recognise their specific positions and relate them to base positions.

> It is impossible to assume on one hand a cognitively encapsulated system of UG-principles and require the child on the other hand to determine a parameter value according to its effects in the derivation.   (HAIDER 1996a, 11)

The parameterisation of syntax should not be subject to logical operations (cf. also FODOR 2001). Instead of making assumptions about how children can intuitively

reconstruct a derived structure, we want to assume that parameterisation applies according to a single representation, especially to the lexical representation of Fs and its PF.

In both a derivational and a representational model, L_1A starts out with the assignment of a minimally convergent structure to the given string. Only in the representational one, however, is this structure of the form which is described and interpreted at the same time. Since no assumptions about the manipulation of elements from the set NUM are necessary, routinising of structure assignment leads the child to the grammar of L_1.

Thus, unlike the derivational model where *economy is axiomatic* (HAIDER 1996a, 1), economy follows naturally in a representational model. We only have to assume that L_1A designs a core grammar suitable for parsing the input most economically. Such a grammar must inherently be able to create linear codes a parser can easily decode by assigning a hierarchical structure to them.

The MP predicts that children learn languages by looking for lexical items fitting into a concrete half-derived universal structure LF. It is not less appropriate to instead assume that children acquiring a language look for lexical items expressing IFs in more or less complex structures, thus parameterising both their lexical conceptual structure (LCS) and its projection to S.

LF is then a universal virtual structure containing IFs which can idiosyncratically be expressed by lexical items. Children look for items expressing features and assign to them a minimally convergent structure. All they need is a productive system of conceptualisation interacting with symbolic mapping and structure building operations (i.e. what can be called UG). How much UG must be specified for the way of representing this information will be discussed at several points in this dissertation.

In order to produce parsable structures, a grammar of a human language must work for the benefit of perception, resulting in the most economical structure underlying a phonological string representing all information. This is less likely to be an altruistic property of C_{HL} but rather a result of assigning minimally convergent structures to linear strings during L_1A. Since the parser is subject to restrictions such as the limited resource of time, economy is a relevant condition

for successful parsing processes. HAIDER (1996a, 4) therefore sees a *primacy of decoding*. Since parsing has to be economical, the amount of structure to be parsed must be minimal. Thus, economy principles of derivation are less plausible than those of representation, even if they result in the same structure.

Already CHOMSKY (1993, 21) has replaced the derivational economical constraint on movement by a constraint on the representation: A condition on the length of chains. In a representational system, where chains are formed in the course of structure projection, the same result can be achieved without movement (cf. HAIDER 1996, 5). Since there are no empirical reflexes and no strong independent arguments in favour of movement, a representational theory of grammar must not only be superior with respect to the plausibility of assumptions about cognition, but also with respect to *theoretical elegance*.

A representational model can also more elegantly account for optionality. *An optional derivational step is uneconomical* (HAIDER 1996a, 11). HAIDER (1997b, 85) explains that only in a representational model structures with optional constituent reordering can be justified as equally economical. A syntactic representation is in the first place a minimal convergent structure for a given linear array, i.e. the "minimal structure that passes the checking operations for wellformedness." In an approach where LF-interpretation applies to the spelt out representation, structures with and without reordering are each minimal convergent structures for given arrays.

The question whether and in what way chains are costly must be normalised anyway, since obviously different movement options exist idiosyncratically, making the assumption of a universal economical constraint indeed problematic. We think that these considerations make it worthwhile to work out a theory of projective grammar that is neither too powerful with respect to productivity nor too restrictive with respect to limitation of structural variation.

1.2.   What this Work is Meant to Contribute

People are always making an effort to improve the theory and to widen the range of phenomena that can be approached in an explanatorily adequate way, to account for language with all its variation and peculiarities. There are two main

mistakes that we are trying to avoid in this dissertation, which in our view often obstruct the achievement of explanatory adequacy in generative research.

First, abstractions of UG principles and parameters from empirical generalisations are regularly made on the grounds of too small a database for concise comparison. This is with respect to both variation within the grammatical system of single languages and the options of making, modifying, and structuring utterances, and with respect to typological variation between the grammatical systems of different languages.

Second, the attempts at further development of the theory are often based on approaches to language from a fabric of detailed concepts that is too inflexible, and does not allow for finding new concepts in the abstraction from linguistic phenomena, but restricts explanations to the narrow framework already shaped and even tightened by recent developments of the minimalist program. To put it more simply: We think that much too often theoretical linguists try to fit the data to their theories instead of revising their theories to make them fit the data.

1.2.1.   *The Project*

In order to avoid misunderstanding we want to point out that we do not argue against theoretical restrictiveness in general. However, in order to avoid epicycles explaining what does not seem round, we have to consider ellipses.[13] Therefore, we want to start out from a minimally restrictive framework of a theory of syntactic structural description. We want to avoid relying on or even assuming axioms that are not confirmed by the data without additional postulates. Instead, we want to try to keep to abstractions suggested by the data.

We do not want to claim that everything that has been found to restrict the explanation of language is wrong, and we do not want to replace the old theory of generative grammar by a new one. Our framework is the result of adaptation and amendment of several syntactical and semantic generative accounts for structural

---

[13]   Thanks to Ian Roberts for this metaphor from early modern astronomy. After accepting that all planets circulate around the sun, astronomers very long tried to keep to the ideal model that those orbits are perfect cycles. When punctual empirical observations started to contradict this assumption, astronomers computed epicycles accounting for this deviation. This obstructed for a very long time the insight that the orbits are in fact ellipses.

interface interpretation. What we want to do is point to just some restrictions we think are incorrect, and suggest some alternative analyses of syntax we think to be suitable for explaining certain phenomena well.

Our approach shall be object oriented and we nevertheless try to keep in mind methodological plausibility. We want to propose a generative theory where syntax is economical in all relevant aspects. As pointed out above, only a representational theory can achieve this. We think it is also necessary to recover some of the concepts of autonomous syntax which were essential for the generative theory from the early days of the research on syntactic structures (CHOMSKY 1957, 1965) and which we suspect the recent developments of generative theory to have lost subversively.

As indicated above, we doubt if assumptions about functional specification of phrases are necessary if the hierarchy of functional phrases can be explained through semantics or pragmatics. Of course, there is evidence that e.g. topics are fronted. But do we need to assume that there are phrases parametrically specified for hosting the topic? Topicalisation is an information structural relation and thus pragmatically interpreted. A theory that can dispense with specification of functional heads by Fs like TOP should be more elegant, especially if languages can have multiple topics (like Italian, cf. (42) on p.44).

If we have to decide between a model where the logical relations we want to express are restricted by a number of syntactic constraints on the derivation of something like LF, or one where a logical structure (call it LF) constrains what its structural description has to provide, we prefer the latter. Topicalisation does not at all imply that we need a syntactic F constraining something like *topic hood*, but simply says that there must be syntactic structures that can be extended for structuring information. If we take the notion of autonomy in syntax seriously, we should agree that semantic or functional primitives like *PRF*, *PST* or TOP cannot have a place in the syntactic tree unless they are projected from the lexicon to make an SD of a proposition. What a tree has to provide is structure so that the IFs can be represented in an interpretable form, and maybe some formal means to identify structural relations, like *case* or AGR.

In the ideal case, all semantic and functional notions are divorced from syntax and left to the interface with semantics or pragmatics. This means that the generation not only of functional phrases supporting pragmatics, like a TopP, but also those representing semantics, like a TP or AspP, must be constrained by the modules relevant for their interpretation. To put it more simply, we do not have to configure relations between functional phrases like TP and AspP syntactically, if temporal relations are conceptually predetermined, anyway.

We are seeking explanatory adequacy in considering syntax as the one and only module computing structures of semantic representations from the lexicon to encode their logical representation in a complex utterance. The model we propose is called the *projective licensing grammar* (PLG)[14]. It is a theory of the interface of syntax, semantics and pragmatics, where projection is the part of formal syntax and licensing is the part of the interfaces.

We think that the basic concept of *bare phrase structure* as put forward by CHOMSKY (1993, 1995a) in the earlier days of the minimalist program, with its central thought that *labels* of phrases are not there in phrase structure but are added to it by the items projected, would be a reasonable way to produce a structural description of lexical features which is logically interpretable.

What has been built on that, in a way, reverses the logic of autonomous syntax, however, in that the shaping of the syntactic tree takes place by projection of purely formal features (FFs) to specific phrases that are later checked by the creatures carrying the substantive features finally interpreted on LF. Thus, in fact a tree has to consist of specific phrases labelled VP, TP, AGRP, CP etc., *before* the actual sentence is made by filling in the suitable items.

Of course, these categories show up regularly in well-formed sentences. But isn't it a rather fair assumption that V, T, AGR and C are features that are able to project their lexically specified properties autonomously to a phrase structure which is in fact '*bare*', instead of assuming that abstract FFs project it in order to provide the sites to host them?

---

[14] A basic version of this theory we already presented in ÖHL (1997). The terms we borrowed from HAIDER'S (1993ff) syntactical theory of *projective grammar* and from SPEAS' (1990)

There should be no universal constraint on the number, the content or the hierarchy of functional projections *given by syntax*. We take functional categories (the interpretable ones, at least) to be reflexes of the conceptual structure, which also determines their logical hierarchy. As an example, let us consider a simplified temporal logic like that of REICHENBACH (1947). It is based on the insight that the time of an event cannot be interpreted if it is not related to the temporal frame where it takes place, which again cannot be interpreted if it is not related to the time when the proposition is made. He named the three benchmarks:

(51)   speech time (ST) ~ reference time (RT) ~ event time (ET)

, which we will notate as $t°$ (ST), t (RT) and $t*$ (ET) whenever it is necessary to distinguish them or if we want to equate points in time in our formula to the REICHENBACHian terms. The aspectual relations that exist between the benchmarks must be a matter of conceptual cognitive interpretation, rather than of their structural description. Instead of assuming a syntactic hierarchy of phrases like CP – TP – AspP – VP, it suffices to assume that syntax represents the conceptual structure (CS) of V (i.e., the event *e* plus a specific number of Θs) whose event time $t*$ is related to the reference time t and speech time $t°$ in a specific way. In the next paragraph we discuss this relation in predicate logic.

We will argue that heads like C°, T°, Asp° are projected exactly if they have the function of hosting IFs that compositionally represent such a relation. What we do not want to assume are syntactic constraints on the number of Fs in a universally fixed number of functional heads. Through well-known work by RIZZI (1997) and CINQUE (1999), the MP model was amended by the assumption of more functional phrases projected by syntactic FFs, like TOPP, FOCP, MOODP, MODP etc. These proposals make the implication of the presence of functional and semantic notions in syntax explicit. Moreover, the FFs might be projected irrespective of the specific semantics and information structure of a clause, which is later filled with the items that are suitable to give this tree an interpretation.

---

licensing grammar based on the idea of syntactic saturation of the *lexical conceptual structure* (LCS) and its Θ-*grid*.

The whole concept of a syntactic tree carrying FFs that must be deleted by checking operations in our view leads to the idea of syntactic and semantic autonomy ad absurdum. We think that all features that are projected must contribute to either the semantics or the information structure of a sentence, or must be relevant for the computation of structural relations (like case or AGR). All Fs are interpretable. A functional phrase FP is projected and the interpretable IF lexicalised if and only if the IF is positive, which means it belongs to the information provided by SD[15]. And a functional head that can host semantic information is projected only if it is necessary to mark the SD, i.e. to express semantic markedness.

Our theory of PLG is minimalist in that it adopts the spirit of economy and elegance expected of a minimalist approach. We seek both in a model where a sentence is an idiosyncratic SD of logical relations between items that are minimally projected from the lexicon. A representational model where all projected IFs are licensed by the function they serve for SD of LF is more economical than a derivational approach that has to provide methods such as deletion of uninterpretable FFs to fulfil the *principle of full interpretation.* Instead of a derivational checking theory, we propose a model that is strictly representational and economical with respect to a projected structure that is *naturally* fully interpretable.

Most basic is the convergence of PF and LF to one representation that is produced by a feasible, transparent system with economy as an inherent property. First, we should try to reduce the opaque parts to a minimum and avoid empty branches or head positions not only for the sake of transparency, but also for the sake of representational economy. Second, if PF is nothing but an idiosyncratic phonetic reflex of LF that translates terminals of one single representation of S into a string of phonetic symbols, idiosyncratic constituent order can often be separated from the syntactic rules yielding LF. Properties of the structure above a

---

[15]   Again, in order to prevent misunderstanding: This does not include those cases were a negative value belongs to the interpretation of a F. Speaking of ASP, it is of course relevant whether it is [±PRF], since ASP is polar. *Imperfective* is defined as a negative value, and thus *positive* in our sense. However, an F [-TOP] would be redundant since no constituent is defined as the 'elsewhere case', as would [-PRS], since both anteriority and posteriority presuppose it.

phonetic string may be attributed to PF-properties of chains. We will show that constituent order can indeed be reduced to lexical properties of IFs and their idiosyncratic conceptualisation and PF-representation. It follows from exactly two parameterisable properties of morphological features projected from the lexicon: First, their lexically stored options of *composibility* (resulting in "*feature bundles*" and, related to that that, *chain formation*). Second, the options of *PF realisation* (or *lexicalisation*) of chains of IFs in parametrically designated heads.

This will not only yield an obvious gain with respect to elegance, but also explain the identical LFs of different syntagms in different languages without referring to generative computation. Lexical properties of heads are parallel to their syntactic properties, and do not just trigger their syntactic behaviour. Although the technical aspects of our models differ, our concept is very much in agreement with what has been suggested and postulated by BRODY (1995 – 1998).

1.2.2.   The Theory

In the following paragraphs, we introduce the basics and concepts of the PLG theory. We present mainly theoretical aspects and considerations and do not yet verify them with a broad empirical basis. The application of the theory presented in this section will follow in the next two chapters.

1.2.2.1   Transparent LF

In our view, what syntax autonomously contributes to projection is mainly *bare phrase structure* in its literal sense, i.e. computation of structure hosting combinations of IFs according to their lexical properties. We take IFs to be lexical entries for logical formulae projected to syntax, which compare well to predicates that are in fact lexical entries for formulae projected as V° , e.g.:

(52)   SMILE: λxλe[smile'(e,x)]

Projection makes an SD out of BSP by establishing a logical relation between predicates, arguments and operators by structurally relating their lexical entries. Universal constraints on this structure serve the requirement that it must yield an interpretable logical form LF – which is the precondition for a representational

theory of syntax. The output of C_{HL}, i.e. the syntactic structure, must be a representation directly accessible by the conceptual/logical interpretational system – which means that LF must be *transparent*. This idea goes back to earlier proposals by STECHOW (1995, 1996), HEIM & KRATZER (1998); cf. also BECK (1996).

Transparency also means that every sentence has exactly one unambiguous logical form. Of course, there are relations that are very problematic for this assumption. Ambiguous quantification has extensively been discussed by PAFEL (1997), who shows that quantifier scope cannot simply be explained through scope positions that are overtly or covertly derived in syntax. He argues that there must be a level of structural description representing the semantic decomposition of underspecified or ambiguous complex expressions, mediating between syntax and semantics. This is provided neither by syntactic nor predicate-logical structures. We think, nevertheless, that what he calls *logical structure* (PAFEL 1997, 337ff) can be encoded by syntax directly. Ambiguity of sentences mainly arises from translation of the two dimensional binary hierarchical structure that yields the interpretation of logical relations in S to a one dimensional linear array.[16]

The phonetic string of S results from the mapping of LF to PF. Strings of phonetic segments are translations of terminal nodes to phonetic symbols. The reason for ambiguity is that PFs are perceived as one dimensional linear arrays, whereas the SD they translate is a two dimensional hierarchical representation. Since this translation does not map the terminals to phonetic symbols in a one-to-one relationship, it results in a rather opaque representation of logical relations that must be interpreted by means of knowledge of language. Translating structures to lower dimensional pictures always gives rise to ambiguity. The phenomenon compares to what is known as '*Necker's Cube*':[17]

---

[16] This is meant to be metaphorical. We would not claim that phonetic symbols are only one dimensional. However, the data relevant for their interpretation is perceived along exactly one crucial dimension, time.

[17] The idea of this comparison goes back to a discussion in PAFEL (1997, 1) arguing for the assumption that we need an autonomous logical structure mediating between syntax and

(53)
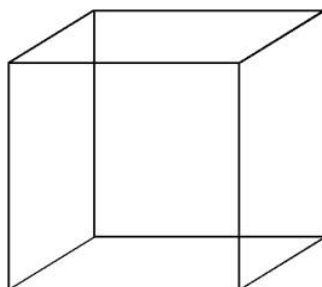
This two dimensional picture of a three dimensional figure is ambiguous between the two perspectives. They may switch after looking at it for a while. The reason for this is that even under the closest approximation, two dimensional pictures cannot capture the missing dimension. We are forced to complete the missing data by means of our knowledge about spatial perception. Similarly, linear arrays are only approximations to the hierarchical SD they represent and we need knowledge of language to interpret them.

Thus, ambiguous sentences do not derive two different LFs, but result from ambiguous translations of two (or even more) LFs to PF. In fact there are no ambiguous sentences but only ambiguous phonetic strings. Our challenge is to test the feasibility of this assumption with comparative data analysis. It is grounded on the following conception of *sentence*: S is a full and unambiguous structural description of the logical relations constituting a proposition. *Transparent LF* for us means that everything contributing to the interpretation of S must in some way be contained in and made identifiable by the SD. LF *is* the SD of a proposition. LF is *not* a higher level of representation of S that is derived from the lower level of representation that is called *spellout*. In contrast, a sentence is a full structural description of an LF. Every LF stands for a specific interpretation of a sentence.

We want to present a preliminary idea of *transparent LF* using an example from STECHOW (1993, 58ff), which we have slightly amended and adapted to English. In this model, *worlds* (*w*)*, times* (*t*) and *events* (*e*) are treated as implicit arguments of predicates (cf. the *events* of DAVIDSON 1967). Therefore the full lexical entry of '*smile*' is at least:

---

semantics. In our model the problem is shifted to the LF and PF levels, however, it is essentially the same effect.

(54)   SMILE: $\lambda x \lambda e \lambda t \lambda w[smile'(w,t,e,x)]$

Although STECHOW (1993, 58, 59) assumes the presence of an event variable, he neglects it in his discussion. Since we regard it as elementary for the verbal semantics, we completed the formula with the variable *e*. *Worlds* we also neglect, when it is not contextually necessary. Consider the following sentence and its logical representation adapted from STECHOW (1993, 59):

(55)   a) Charlotte always smiled today.

          b) $\forall t^* \exists e[t^* < t° \,\&\, t^* \subseteq today(t°) \rightarrow smile(t^*,e,Charlotte)]$

          c) 'For every point of time t* before t° that is in a subset of the set 'today' of t° there is an event where Charlotte smiles.'

t* is by convention the notation for atomic elements of *t*, therefore it replaces the argument *t* of the predicate *'smile'*. It is in a proper subset of *t* because of the specific, distributive kind of universal quantification by the adverbial '*always*' ($\forall t^*$). In the following we will read the *t** of our formula as ET in REICHENBACHian terms. This is neither logically nor conceptually necessary, but might be helpful for reasons of clarity. *t°* is our speech time where the event time *t** is related to by precedence. *t** is in a set of times denoted by the deictic element 'today' that also refers to speech time. 'Today' is a name for an interval defined by containment of *t°*. One might represent 'today' as

(56) $t^{today} = \forall t[t^{0h} \le t° \le t^{24h}]$

, given that *0h* and *24h* are names for points of times defining the left and the right limit of the interval 'day'. The sentence above could also thus be represented like:

(57) $\forall t^* \exists e[t^{0h} \le t^* < t° \rightarrow smile(t^*,e,Charlotte)]$

, this would be at the cost of direct compositionality, however. Note, though, that this formula makes reference time (the points of time of today before speech time, i.e., $t^{0h} \le t < t°$) transparent. Reference time *t* is thus encoded by the deictic adverbial interacting with the event time *t**. Since *t** is also an implicit argument of 'smile', a predicate inherently relating an event to a time *t* in a world *w*, and *t** is defined as an atomic element of *t*, a logical relation is established between reference time, the universally quantified *t** and the event.

        In a representational model, the LF of a sentence like this should be

accessible to interpretation as illustrated in the following graph (again adapted from STECHOW 1993, 59; syntactic aspects such as the positions of the subject and the adverbial will be discussed in a later section). Note that every node in the tree stands for some semantic information and that the upper nodes represent complex information composed of the content of the lower ones. The uppermost node yields the LF of this sentence.

(58)
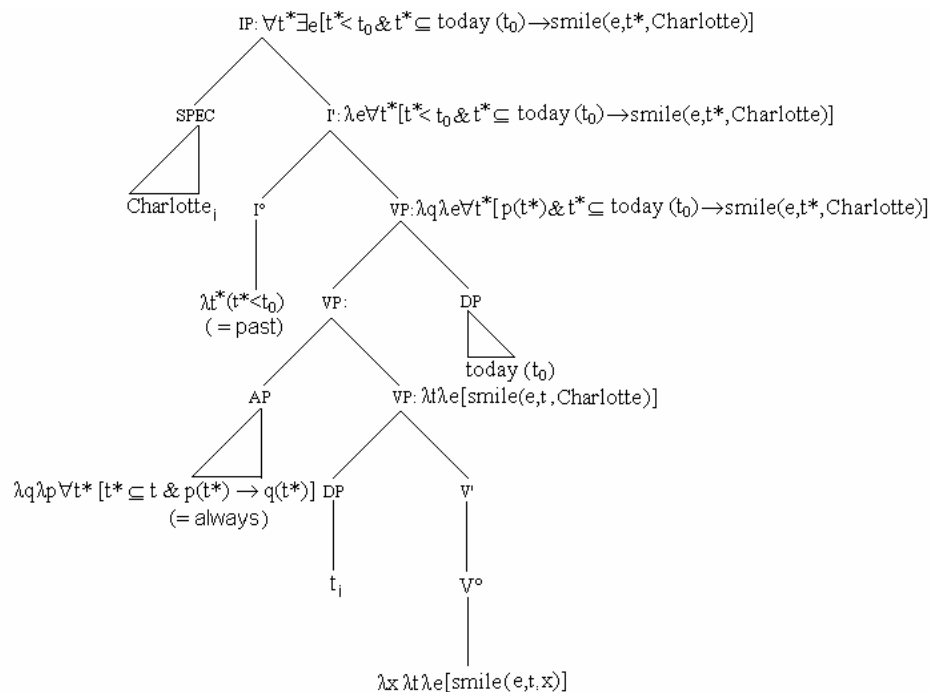
We assume that the temporal relation (t,e) is already logically represented by the predicate (syntactically it is due to VP being a complement of I° relating t and $t°$). V° is in fact a complex function of t, e and x. Adverbials like *always*, which are adjoined to VP, quantify over t^*, and this quantification is obviously inherited by the dominating nodes. One flaw of the composition of this tree is, in our view, that the unification of the predicate and the temporal relation depends on saturation of the two place function represented by *always*, where *tense* is the restriction of the predicate. This makes the assumption of λt preceding λe in the formula of the predicate necessary, which is formally undesirable (as noted above, STECHOW neglects e at this point). STECHOW's (1993, 59) presentation implies that tense would be conjoined by the adverbial *once* in a similar way.

(59)   a) Charlotte smiled once today.

b) $\exists t^*\exists e[t^* < t° \ \& \ t^*\subseteq \text{today}(t°) \ \& \ \text{smile}(t^*,e,\text{Charlotte})]$

Although this may be logically adequate, it leaves open the fact that the relation can be established without such an adverbial. Moreover, as STECHOW (1993, 60) concedes, this view requires the assumption of *polymorphous* 'always' if an additional restriction is involved.

(60) a) Charlotte always smiled, when Eduard was reading.

  b) ALWAYS: $\lambda p\lambda q\lambda r\forall t^*[t^*\subseteq t\&p(t^*)\&q(t^*)\to r(t^*)]$

After the introduction of further technical aspects of this model, we will try to replace this by a concept of functional composition. Moreover, the fact that this sentence and its LF lying in the position of the subject are configurationally non-parallel, must be explained on the basis of assumptions about formal syntactic properties (cf. 1.2.2.5+1.2.2.6). We will also have to explain the existential binding of the event variable *e* and how the relative scope of the quantifiers is interpreted without QR on a derived LF (cf. 1.2.2.9).

Our conceptual-intentional module must be shaped in such a way that it can get this information by parsing the corresponding linear array. If S is ambiguous, every potential interpretation of S must correspond to one LF (cf. STECHOW 1993, 55). This means that not only do different LFs have to underlie ambiguous phonetic strings, but also that we have to have a means of decoding them during perception (as we have means to produce unambiguous LFs which we assign PFs). The only thing that can remain ambiguous *is* the phonetic string.

We have to point out here that PF is *not* identical to the phonetic string. E.g. *Wh*-traces obviously have a PF representation, which can be seen in blocking contraction (cf. FUKUI & SPEAS 1986, 151).

(61) a) Who$_i$ do you want e$_i$ to visit Bill.

  b) Who$_i$ do you want to visit e$_i$.

There are two identical phonetic strings. Nevertheless, the PF is different due to the intervening subject gap in (a) – it has a $\varnothing$-PF matrix that is reconstructed and therefore blocks the contraction of *want* and *to*.

(62) a) *Who$_i$ do you wan-e$_i$-na visit Bill.

  b) Who$_i$ do you wanna visit e$_i$

Of course, the position footing the chain headed by the *Wh*-item is not only phonologically, but also logically reconstructed. The gap is there since there is a missing saturator of the Θ-role in the VP. We think that a great part of what we have to reconstruct in syntax is given by the (L)CS of items (or IFs) and our (partly conceptual) knowledge how they can combine in morphology and syntax. Thus, even if the PF underlying the string is not as obvious as in this example, we have access to the SD through its PF, and access to LF through its SD.

1.2.2.2   Syntactic Composition

Our model allows us to reduce several structural principles to the way the syntactic module computes structure of lexical semantic units. This applies to both the *principle of structure preservation* first formulated for a transformational theory by EMONDS (1976) and later adapted to a derivational approach like

(63)   ***Principle of Structure Preservation***   (cf. ROBERTS 1997, 35, 102)

Maximal projections can only move to Specifier or Adjunct positions; heads can only move to head positions.

, and that of *binary branching* first proposed by KAYNE (1981) on the grounds of abstract considerations about structural relations.

(64)   ***Principle of Binary Branching***   (cf. KAYNE 1984, 123f)

A governs B only if there is an unambiguous path from B to A. Thus a node dominating a head X° must not have more than two branches.

(65)   *

$$
\begin{array}{ccc}
& X' & \\
\diagup & | & \diagdown \\
X° & YP & ZP
\end{array}
$$
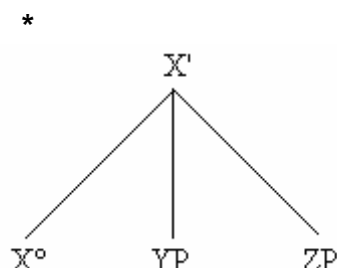
We propose that an SD is compositionally constructed through subsequent cyclic formations of sets of ordered pairs. The reason why the computational system of human language C_{HL} has this, is that projection to a higher level of SD takes place by the application of functions to individuals in order to become saturated (functional application, FA), or to other functions in order to form a complex

function (functional composition, FC). FC is a way to form complexes of two (or more) functions that are applied to the same argument. We will return to this later. The idea of the formation of complex expressions through FA and FC goes back to FREGE (1891).

> "Statements in general, just like equations or inequalities of expressions in analysis, can be imagined to be split up into two parts; one complete in itself, and the other in need of supplementation, or "unsaturated". (...) I give the name "function" to what this "unsaturated" part stands for."   (cf. HEIM & KRATZER 1998, 3)

Therefore we follow the convention of calling this way of analysing complex expressions the *Fregean Principle*. What we assume is that the way to reconstruct the intension of a sentence developed by HEIM & KRATZER (1998) for generative grammar is exactly how C_{HL} proceeds when projecting an SD. Projection in our model parallels FA or FC, thereby *labelling* the BPS with *information*. In syntax, FA yields a representation like:

(66)

$$\beta = f(\alpha)$$

$$\alpha \qquad f(x)$$
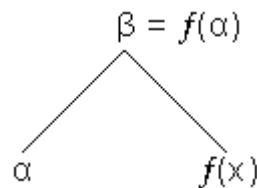
As mentioned above, *labelling* takes place in the form of projection of IFs that are lexical entries for logical functions to syntax. Semantic IFs are, as a rule, subtypes of semantic categories. For example, the semantic category T (tense) has the subtypes *past, future, past perfect* etc. Consider again the logical function of the IF *PST* as notated in the example from STECHOW (1993)[18].

(67) $\lambda\varphi\lambda t[\ t < t° \& \varphi(t)]$

All semantic IFs in a clause correspond to functions taking arguments in the sense of FREGE (1891). In this case, the argument will be φ, which syntactically corresponds to VP which is an argument of I°. The typical representation of a function $f(x)$ in syntax is a head X° carrying the IF that will be interpreted and the

---

[18] In 1.2.2.9 we will refine this formula by introducing the relation RT to it.

function saturated by projective FA or FC. This takes place as selection of either complementation or specification of a head X° by a phrase YP.

In this sense, the term selection applies to both SPECs and COMPLEMENTs, since both are saturating the function by replacing the variables. The levels of projection where functions can be applied in syntax are thus either X° or X', the highest level (i.e. XP) corresponds to the saturated function containing no more variables that can be replaced by a selected item. This property of being saturated gives the function the status of an individual, such that it can replace variables of higher functions. In order to yield a well-formed expression, saturation must be constrained by licensing conditions.

We think that with our model we can catch the essential advantages of categorial grammars as proposed by AJDUKIEWICZ (1935) or MONTAGUE (1969, 1973), without neglecting syntactic genuineness. These advantages are, in our view, the direct compositionality of sentence semantics from primitives and the translation from functions and their results to sentence constituents. In our model, however, syntactic rules do not result from the semantic functions. Instead, the representation of semantic formula is subject to numerous constraints and principles of the syntactic module. Nevertheless, there are also many constraints that have been postulated that result from genuine syntactic principles in GG, which can be identified as licensing conditions on the syntax/semantics interface.

We assume that licensing in syntax corresponds to the lexical definition of the set of possible values potentially replacing a variable. There are at least two kinds of licensing conditions, conceptual ones and formal (categorial) ones. These must be specified in the lexical entry. E.g. what can replace the variable x in the complex expression

(68) $f(x) = [\![\text{sleep' (x)}]\!]$

must not only belong to a set of individuals with semantic IFs like [animate] but must also be nominal, i.e. licensed by the formal F [N]. This might correlate to the categorial F the predicate will have in syntax. Therefore, the lexical entry of *sleep* must specify at least the following information:

(69)   SLEEP (V)

    subcategorisation: N __

    logical function: $\lambda x \lambda e\ \lambda t^* \lambda w[sleep(w,t^*,e,x)\ ]$

    s-selection: { x | animate(x), etc. }

In order to be a SPEC or a COMPLEMENT, an individual must belong to a set that is lexically defined for the replacement. Descriptively, the categorial F [N] of lexical categories can identify an argument of a head of the category [V] in syntax. This is important for case assignment, which in SD will identify the structural relation between the head and the argument.

Note that an assumption of *selectional licensing* can be a technical compensation for the assumption of a universal structure of labelled extended projections like

(70) $[_{ForceP} [_{ToPP^*} [_{FocP} [_{ToPP^*} [_{FinP} [_{AGRSP} [_{NegP} [_{TP} [_{AGROP} [_{AspP} [_{vP} [_{VP}]\cdots]^{19}$

, which are intended to explain the hierarchy of functional phrases in syntax. That an FP like TP dominates AspP and not vice versa can be sufficiently defined by the conceptual structure of a lexical entry representing T (e.g. *PST*), which is a function over an aspectually specified event and can therefore not be applied earlier.

Although these assumptions can explain SDs representing logical relations between single ordered pairs properly, the model needs some more refinement. The LCS and formal identification cannot be the only things that constrain licensing in a syntactic structure. In order to compute sentences, we need certain conditions to hold on the interpretation of constellations of *the whole set* of IFs that can be related in an SD. We need a concept of *chain formation* and the licensing of their links.

1.2.2.3   Syntactic Dependencies

When Chomsky (1986b) proposed interpretability to be a condition for the presence of elements on LF, i.e. the

---

[19]   From now on, we use the notation]$\cdots$] instead of a number of brackets.

(71)   ***Principle of full interpretation***   (CHOMSKY 1986b)

     Elements at LF must be licensed by an interpretation.

, he implied that those elements may be *chains*. There are several wellformedness conditions on chains in terms of c-command and binding. *Selection from the lexical repertoire made available in UG*, CHOMSKY (1995b, 382) puts aside as being *computationally irrelevant*. Given that computations must converge on LF (CHOMSKY 1995b, 390) one might assume, however, that the constellation of lexical elements and their semantics is also a deciding factor for wellformedness.

     If we agree that lexical items are always representations of IFs selected from the lexicon and that the interpretation of elements on LF is not atomic but conclusive, we must assume that there is at least a principle granting a proper grouping of IFs represented as lexical items in an SD (thus excluding also convergence as "gibberish"). We think that there is a universal mechanism granting their convergence on a conclusive interpretation of the SD. This mechanism parallels the process of *chain formation* in a derivational approach.

     Related IFs are formally represented as a well-formed dependency (WFD). This idea goes back to a proposal on syntactical representation of tense by ROBERTS & ROUSSOU (2002), who assume that temporal relations are interpretable if they are in a well-formed structural dependency. A dependency is a relation between heads that belong to a complex expression. We give their definition in a simplified version.

(72) (α, β) is a WFD iff:

     i. α asymmetrically c-commands β;

     ii. α and β share at least one type of Fs that belong to a natural class.

     iii. Minimality is respected.

Examples for natural classes of IFs could be all φ-Fs, like *numeral Fs* ($F \in \{sg, pl\}$) or *person*-AGR ($F \in \{1^{st}, 2^{nd}, 3^{rd}\}$). They are lexically specified for a syntactic dependency relation. A good example may be number agreement in DPs.

(73) $[_{DP}\ a_i\ [_{NP}\ [_{AP}\ big\ ]_i\ house_i\ ]\ ]$

Here a number dependency is established between at least three items contained in the DP. We propose that this definition can be generalised over all semantic

relations in complex structural descriptions like phrases, clauses, or sentences. It is also the basis for our definition of the syntactical term *chain*:

(74) **Chain**

A structural relation between two items α and β that are correlated by a WFD is called a *chain*.

SDs consist of WFDs of semantic primitives (IFs). A dependency is not interpretable if the IFs are not compatible.

(75) **Convergence of Interpretations on LF**

The convergence of interpretations on LF is controlled through a well formed dependency (WFD).

(76) **Full Interpretation of Dependencies**

A WFD on LF must be interpretable.

A dependency is interpretable on LF if the wellformedness conditions like c-command are observed – in fact, they are the precondition. A WFD is only interpretable, if the IFs that belong to natural classes are compatible.

(77) **Interpretability of Dependencies**

i.   there is a set of features $\{F_i \dots F_k\}$ of the type F and

ii. α and β are co-members in a WFD by means of F,

⇒ F_α and F_β must be compatible.

If LF is transparent, convergent interpretation of WFDs prevents the insertion of illicit links of any chain ch_x. Examine our example above:

(78) *$[_{DP}$ a$_i$ $[_{NP}$ $[_{AP}$ big $]_i$ houses$_i$]]

The heads D° and N° form a WFD with AP by sharing the type of F^{NUM}. The dependency is not interpretable if within the chain there are incompatible representations of [NUM], i.e. [sg] and [pl]. Therefore an NP(pl) determined by a D°(sg) is ungrammatical. Subject-V agreement should work in the same way.

(79) *I sees the point.

Since the LF of WFDs is transparent, a V specified for pers. = 3rd will never be syntactically specified by a DP(1st).

Note that this view can compensate not only for the notion of checking. It also makes the configurational view of the positions of V_{FIN} and DP(NOM), which correlate them by SPEC/head agreement, a parameterisable option of

identification. Languages such as Gm., which obviously contradicts the EPP, may differ by identifying DP(NOM), i.e. the DP V_{FIN} agrees with, without positional licensing (cf. KIPARSKY 1997). AGR is then a condition on chains, which is in principle independent of the position of their links.

Note again that in our model we assume IFs that are purely syntactic and only formally/computationally relevant. Verbal AGR and *case* and the categorial IFs of lexical categories belong to them. They are computationally interpreted by C_{HL} during the projection of the structure where they express structural relations abstractly (if they are not morphologically identified). Thus, they play a role in the interpretation of LF even if they do not have an independent interpretation. The same should be true of Ps not assigning Θ-roles to their complements, i.e. those marking complements of V and N. Both *case* and AGR can be expressed morphologically or configurationally through positional licensing or even both.

1.2.2.4   Projection and Licensing

Thus, there are three kinds of licensing relevant for the structural description of a sentence. The first concerns the formal IFs (in the traditional sense, not in that of CHOMSKY 1995b), the other two concern mainly the semantic IFs that are interpreted at LF.

1. *Formal identification*: Elements in a syntactic structure must fulfil formal conditions in order to be identified as being in specific relations. Among the relevant formal features are the categorial ones (V, N) and case (subsuming prepositions), and also AGR between heads and specifiers (or even adjuncts, as in the case of adjectives) identifying the relation between functions and individuals in syntax.
2. *Selection*: The set of possible values for the replacement of variables is lexically/conceptually defined by specified semantic IFs.
3. *Dependencies*: Chains of IFs extending the projection line forming a dependency must be well formed with respect to shared types of IFs.

The role of the syntactic component is to compute the structure in which the elements can be related this way. The licensing conditions may interfere, therefore

AGR is formal licensing that is granted through a dependency relation, whereas *case* is related to selection, which it formally identifies. That there are syntactic IFs and conditions on chains is grounded on the autonomy of the syntactic module. The configuration of semantic IFs is clearly also subject to syntactic principles. This is a crucial point distinguishing PLG from categorial grammars. What semantic IFs are compatible with in the syntactic projection, however, is subject to licensing at the syntax/semantics interface.

It might be possible for *head dependencies* to be reduced to selection. If this was true, we could even do with two kinds of licensing: The syntactic one, which is formal identification, and the semantic one, which is functional selection. If we allow transparency of the FPs that do not belong to the head dependency for selection by higher functions, this is very possible. With respect to the Θ-dependency[20] between V and the Θs selected by it, something like this has to be assumed anyway. The Θ-role is assigned to the nominal head N°, forming a dependency [V° - N°] (which is formally identified through case assignment). We do not assume that D° which determines definite or indefinite reference of the Θ represented by N° is part of this dependency, but that DP is transparent to it. The same must be true for projections like AGRP intervening between C° selecting TP. We assume that there is a tense dependency between T° and C° (cf. ROBERTS & ROUSSOU 2002 and our detailed discussion on pp. 138ff). If there is a head AGR°, it does not belong to this dependency, however, AGRP seems to be *transparent* to selection of T° by C°. Thus, head chains can be reduced to lexical selection, since IFs that do not belong to the same class do not intervene.

1.2.2.5   XP-chains

We now want to extend the notion of classes of IFs determining WFDs to XP-chains, also a fair assumption with respect to economy. In fact, this is very much in the spirit of RIZZI's relativised minimality.

---

[20]   We agree with JACKENDOFF (1987) and HEIM & KRATZER (1998, 49ff) that Θ-roles as they are treated by GB theory cannot be true primitives of the LCS. We assume, however, that there must be some thematic function working between a predicate and its arguments, and this is represented as a WFD between V° and its arguments.

GB attempts to express both selection and binding in terms of government. One notion used to restrict the range of government was that of minimality.

(80)   **α governs β iff**   (cf. HAEGEMAN 1994, 442)

    a) α is a head c-selecting β (= head government)   or

    b) α and β are coindexed (= antecedent government)

    c) there is no intervening **Barrier**[21]

    d) **Minimality** is respected

(81)   **Minimality**   (cf. HAEGEMAN 1994, 479)

    A governs B iff there is no node Z such that Z is a potential governor for B.

As shown by RIZZI (1990, most recently in 2001), in order to achieve the result that in the following two sentences

(82)   a) How did you solve the problem t_i ?

    b) How do you wonder **who** could solve this problem t_i ?

none of the intervening positions block the chain in the well formed sentence (a), whereas at least one does so in (b), *minimality* must be relativised.

(83)   Y is in a minimal configuration with X iff there is no node Z such that

    a) Z is of the same structural type as X, and

    b) Z intervenes between X and Y   RIZZI (2001, 90f)

There must be at least two irreducible distinctions (RIZZI 2001, 90f):

(84)   a) between heads and phrases, and, in the latter class

    b) between positions of arguments (A-positions) and of non-arguments (A'-positions)

Minimality effects have been used to explain superiority in GB theory:

(85)   a) *What$_i$ did who read t_i?

    b) Who t_i read what?

    c) *What$_i$ did he give whom t_i ?

    d) What$_i$ did he give t_i **to** whom ?

    e) Whom$_i$ did he give t_i what?

Like head government, antecedent government can be expressed in terms of a WFD. A WFD is interpretable if it converges on LF, which may depend on the

---

[21]   We will return to the term *barrier* later.

presence of interveners. It might mean that there are potential antecedents of the *Wh*-traces, which intervene with the *Wh*-dependency corresponding to LF in the ungrammatical cases above , therefore making the dependency uninterpretable.

However, minimality must be relativised not only with respect to classes of Fs like *Wh*, but apparently also to the asymmetry of *Wh*-arguments and adjuncts.

(86)   a) Who$_i$ did you wonder *whether* John saw t_i ?
       b) *How$_i$ did you wonder *whether* John fixed the car t_i ?

Together with the following asymmetry

(87)   a) Which problem do you wonder *how* to solve t_i ?   (RIZZI 2001, 96)
       b) *How do you wonder *which* problem to solve t_i ?

(88)   *What the hell do you wonder *how* to say?

it seems clear that *Wh*-items differ in markedness, such that not all *Wh*-items are interveners to all *Wh*-chains. The cases above, RIZZI (2001, 96ff) explains through presuppositional markedness (discourse-linking in the terms of PESETSKY 1997) of a *Wh*-item lexically specified as *which*. Thus, there is already some evidence that *lexical specification* determines the membership of dependencies.

According to HAIDER (2000a), there are exactly three factors which determine whether or not 'superiority' is offended. He treats this in a framework of *Wh-in-situ* licensing.

(89)   a) the position of the intervener (SPEC vs non-SPEC)

       b) the semantic type of the Wh-item

       c) interaction of Wh-items in-situ

The following sentences show that only the *wh*-subject, but no other argument, interrupts the *Wh*-chain.

(90)   a) *When is **who** celebrated t_i ?
       b) When do they celebrate **whom** t_i ?

(91)   a) *Who remembers where$_i$ **who** bought the book t_i ?
       b) Who remembers where$_i$ he bought **what** t_i ?

HAIDER (2000a) assumes that as soon as a *Wh*-item is in the SPEC-position of an FP, it is an operator, but not if it is in a complement or adjunct position. Thus even if the *Wh*-subject is in-situ, it is a secondary operator as SPEC/ I. Only a *Wh*-item in SPEC position is an intervener, therefore there are no superiority effects between temporal and local adverbials.

(92)   a) When did he fix it where?
       b) Where did he fix it when?

Note that this account gives independent evidence for Larsonian shells in Eng., since it predicts that a *Wh*-Spec of an FP is an intervener whereas a lower *Wh*-item is not.

(93)   a) *Where did you [$_{vP}$ give whom a kiss t_i] ?

       b) Where did you [$_{vP}$ give a kiss to whom t_i] ?

That the asymmetry cannot be due to extraction of a right adjunct higher than the second object can easily be shown through binding.

(94)   a) Did you give a kiss to Mary$_i$ on her$_i$ couch?
       b) Did you give a kiss to her$_i$ on Mary$_i$'s couch?

It is thus rather the asymmetry between the lexical head V° and the higher functional heads (such as v°) making a *Wh*-item an operator, which causes the superiority effect. Since an operator has to bind something, there has to be an element depending on it. Amazingly, it can either be an anaphor or a second *Wh*-element that licenses the *Wh*-subject operator (cf. HAIDER 2000a, references cited from there).

(95)   a) I'd like to know **where**$_k$ **who**$_i$ hid *it/ ?[**his**$_i$ birthday cake]···] t_k (HORNSTEIN 1995)

       b) I'd like to know **where who** hid *it/ ?**what** t_i (cf. KAYNE 1983, 235)

Even if the constructions with an anaphor or a second *wh*-item are marked, they are more acceptable than those with the pronouns – which is an unexpected improvement (cf. KAYNE 1983, 235)[22]. The intervening antecedent is licensed if there is a second *Wh*-argument preceding the *Wh*-trace. The question is why a *Wh*-operator should bind an anaphor or another *Wh*-item. The answer is WFDs, together with RM. Two correlated elements are in a minimal configuration if the first one c-commands the other. Two *Wh*-items can be correlated through the *Wh*-F they share. Thus, a *Wh*-operator in SPEC/I can form a WFD with a lower *Wh*-item and bind it. What is striking is that it does not depend on the position of this item relative to the trace.

(96)   a) I'd like to know **what**$_i$ **who** hid t_i *(**where**).   (cf. KAYNE 1983, 235)

---

[22]   Note, however, that not all Eng. informants agree with KAYNE's judgements here.

b) John wonders **what**$_i$ **who** bought **t**$_i$ *(**where**). (cf. CHOMSKY 1981, 238)

c) **What**$_k$ did **who**$_i$ reveal **t**$_k$ about *Paul/ **his**$_i$ mother. (HORNSTEIN 1995, 144)

Thus, it does not really seem to be a condition on the intervener but a condition on the presence of interpretable WFDs, that makes the sentences without the second *Wh*-item ungrammatical. A syntactic operator must be head of a WFD. However, the WFD may obviously include other elements with which its head shares a certain class of IFs – as long as the foot of the chain is a bound variable.

In addition, *Wh* seems not to be marked enough to classify all elements in S as a single set. The lexical properties of *Wh*-elements also determine whether or not they can be in a dependency. E.g. cause and manner adverbials cannot license each other.

(97) a) *How/ when did he fix it why?
      b) *Why did he fix it how?

There seems to be a lexically determined scope hierarchy that is criterial for the interpretability of the dependency – such that there are cases where the intervener is filtered out, yielding a grammatical SD of an interpretable LF. This lexical scope hierarchy is also the basis for what has been formulated as binding principles in GB.

(98) ***Binding Principles***

    A anaphors must be locally bound.

    B pronouns must be locally free.

    C referential expressions must be free in S.

In the following paragraphs we discuss binding theory in terms of WFDs and the assumptions made above.[23] Note that in our terms binder and bindee are in a chain relation because they are in a WFD. There is always a WFD between antecedents and anaphors, and it is a lexical property of heads whether or not they can be the *head* or the *foot* of this dependency.

---

[23] Although this discussion cannot go into every detail of the different licensing conditions for pronouns and anaphors (cf. REINHART & REULAND 1993), the following paragraphs should show that the concept of WFDs accounts more adequately for the distinction than the principles developed in GB.

What is puzzling in this respect, is the definition of the domain where this dependency holds (in GB terms 'binding domain', BD). The BD of referential expressions seems to be S universally.

(99)   *Peter$_i$ thinks that John loves Peter$_i$.

That anaphors have a BD smaller than S seems clear. How and on what grounds it is defined is arguable, however. There have been syntactic definitions proposed such as those within GB, that identify the BD with the *governing category*, a special case of the *complete functional complex* (CFC) of a head.

(100) **CFC**   (cf. CHOMSKY & LASNIK 1995, 552)

A CFC is a projection containing all grammatical functions compatible with its head.

(101) **Governing Category**   (cf. CHOMSKY & LASNIK 1995, 552)

The governing category for α is the minimal CFC which contains α and a governor of α and in which α's binding conditions could, in principle, be satisfied.

There are some difficulties with this, however, which is shown by the graph below, which is that a VP containing V and all Θs (IP and dislocation of the SBJ to its SPEC is neglected, since in a derivational account the dependency would be constituted through the subject trace anyway).

(102)
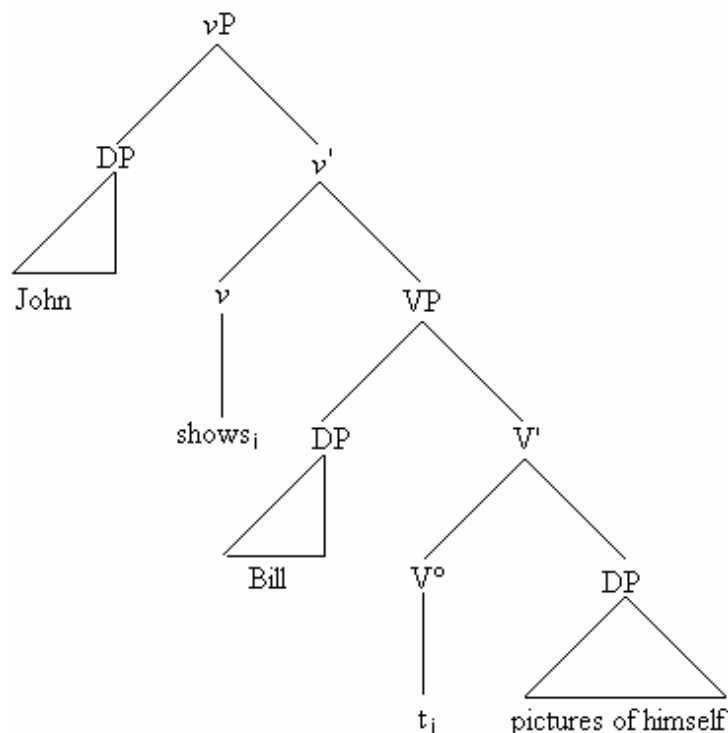
If we assume a shell structure for double object verbs as proposed by LARSON (1988), the anaphor *himself* has a potential governor in VP which is the smallest XP: The potential antecedent *Bill* in this case. If we do not want to make co-indexation computationally criterial, in order to account for a BD as proposed above we have to restrict *government* to *head-government*.

But even the head V° is a potential governor unless we restrict government to lexical heads which is implied by this of course, but not necessarily plausible. Then one would have to wonder how the second object is assigned case if not through head government; the higher head which is usually analysed as a causative one (as first proposed by KAYNE 1983a) should not be able to assign case to the complement of the lower head. Moreover, looking at this structure from LARSON (1988)'s point of view, one even could regard the lower VP as a CFC, since if *v°* is a causative head, the lexical head V° is fully specified with respect to the GFs associated with it.

(103) Peter gives Mary a book.
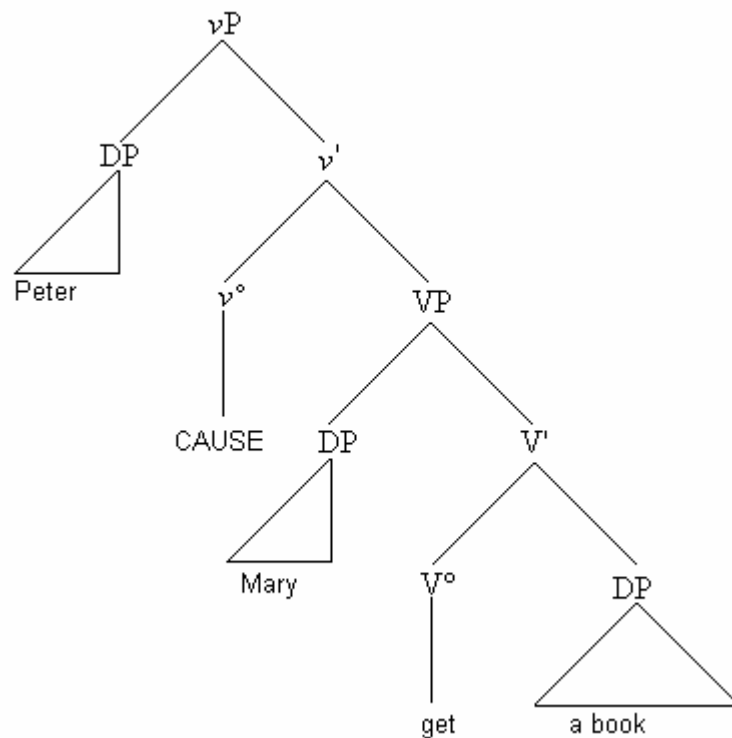
This shows the problem of defining BDs in terms of governing categories. Of course, both *Bill* and *John* in (102) can serve as antecedents for the anaphor. Instead, we suggest that any anaphor must be in a WFD with an antecedent. This

WFD is interpretable if the antecedent binds the anaphor referentially. In our terms, the SD "John shows Bill pictures of himself" is ambiguous since there are two potential dependencies which would be interpretable and thus licensed on the corresponding LF. The DP in SPEC/ VP is not an intervener, although it is a potential antecedent and thus a potential governor in terms of the definition in (81).

The same holds if we extend the BD to IP, since SPEC/I can bind the anaphor mediated by the trace it leaves in SPEC/V due to the EPP. The dependency cannot be established, however, if a potential antecedent intervenes between an anaphor and a coreferent outside IP.

(104) *John$_i$ thinks [$_{IP}$ Bill loves himself$_i$]

Why is a coreferent outside IP not a potential antecedent? Descriptively the BD in languages like Eng. can be defined as:

(105) **Binding Domain**   (ROBERTS 1997, 130)
        The BD of α is the smallest XP containing α and
        either (a) a subject (distinct from α)
        or   (b) an I° that assigns Nominative Case to α

This account does not provide an explanation, however. We suggest instead defining the BD through Θ-assignment within the lexical domain projected by V (in GB terms, its *m-command* domain).

(106) **m – command**
        α m-commands β iff α does not dominate β and some projection of α dominates β.

Since we assume that I is in a chain relation with V, this should itself account for SPEC/I being a Θ-position. Extension of VP to IP also extends the Θ-domain. Note again that the subject trace in SPEC/ V (which is in a WFD with SPEC/I) is in a WFD with the anaphor. All Θs are in the 'BD'. Thus it is plausible to assume that a relationship is established between them as a result of the lexical property of the verbal head Θ-marking its arguments, such that the dependency can skip a potential antecedent, if there is another one in a higher position of the domain.

Moreover, BDs vary parametrically, as shown by VIKNER (1985). Whereas in Gm. (like in Eng.) an antecedent can never bind an anaphor inside a CP c-commanded by it, Icelandic allows this, if V is inflected for subjunctive (*SJT*).

(107) a) *Hans$_i$ sagt, [dass Maria nur sich$_i$ liebe]
       John – says – that – Mary – only – self – loves

    b) Jón$_i$ segir [að Maria elski sig$_i$]   (Icl.)
       *John – says – that – Mary – loves*SJT *– self*

In Danish, infinitival V does not project a BD, whereas in Gm. (like in Eng.) it does.

(108) a) *Hans$_i$ bittet Maria$_j$ [PRO$_j$ sich$_i$ zu küssen].
       John – asks – Mary – PRO – self – to – kiss

    b) Jan$_i$ bad Maria$_j$ [PRO$_j$ elske sig$_i$]   (Dn.)
       John – asked - Mary – love – self

Obviously, it depends on the parametric *lexical* properties of X (in the case of subjunctive and infinitival INFL) whether an XP is a *barrier* for antecedent government or not, i.e. whether it interrupts a potential syntactic dependency relation. We give a definition of *barriers* from CHOMSKY (1986b).

(109) A is a barrier for B iff   (cf. CHOMSKY 1986b, 14)

    a) A is a BC for B, A is not **IP**.

    b) A is a maximal projection and A immediately dominates C, C is a BC for B.

(110) **BC** ('blocking category')

    C is a blocking category for B iff C is not L-marked and C dominates B.

Since long distance binding cannot result from cyclic movement, one has to account for the fact that it can skip the barrier CP only if I° has these lexical properties. According to this account I° should even parametrically determine the ability of CP to be a barrier, which might be possible since it is in a chain relation with C°.

The idea of parametric barriers has been exploited to explain variation of grammatical antecedent government in so called cases of *subjacency*.

(111) **Subjacency**

    Movement may not skip more than one barrier.

Independently from whether one accepts the plausibility of such a principle, one has to concede the existence of the following asymmetry. Apparently, in Italian,

IP does not constitute a *barrier,* which should be a parametric property of the head C°. In Eng. and Gm. it is, therefore *Wh*-movement is ungrammatical in cases where it cannot be cyclic.

(112) a) tuo fratello [$_{CP}$ a cui$_i$ [$_{IP}$ mi domando [$_{CP}$ che storie$_j$ [$_{IP}$ abbiano raccontato t$_j$ t$_i$]]]]
your − brother − to − whom − myself − [I-ask] − what − story − [they-have] − told

b) *your brother [$_{CP}$ to whom$_i$ [$_{IP}$ I wonder [$_{CP}$ which stories$_j$ [$_{IP}$ they told t$_j$ t$_i$]]]

c) *dein Bruder, dem$_i$ ich mich frage welche Geschichte sie e$_i$ erzählt haben
your − brother − whom − I – myself − ask − what − story − they − told – have

One might also explain asymmetries of extraction from PP complements as intervention of a parameterised barrier, cf. the difference between Eng. and Gm.:

(113) a) Who$_i$ did John see [$_{DP}$ a picture [$_{PP}$ of e$_i$]]?

b) *Wem$_i$ hat Hans [$_{DP}$ ein Bild [$_{PP}$ von e$_i$ gesehen]]?
who – has – John – a – picture – of – seen

In a representational account these asymmetries can be accounted for by the lexical parameterisation of transparency of functional heads to WFDs. As certain heads must be transparent to allow for a dependency established by selection (see above, pp.68f), the same may apply to heads of projections intervening between SPECs and COMPLEMENTS of heads licensing their dependency relation. A SPEC of a higher CP may bind a SPEC or a COMPLEMENT of a head it c-commands exactly if no head intervenes between them that is not transparent to a dependency relation between them.

Thus in our model we can reduce structural relations between antecedents and XP anaphors, i.e. *binding* of both overt and covert elements of referential identity, and related phenomena like *superiority* and *subjacency*, to parameterised or universal properties of functional and lexical heads. It should be worth investigating the implications of this for other scope sensitive licensing effects, such as that of polarity items or ambiguous quantification and structural dependencies.

(114) a) Paul has *(not) met **anybody**.

b) Paul sang one song in every concert hall.   (ambiguous: $\forall > \exists \lor \exists > \forall$)

This will partly be done in this dissertation. First, however, we have to theoretically argue our case for a representational system of structural description.

1.2.2.6   Representational Generation of SD

So far, we have argued for a representational system only from the conceptual point of view. Now we are able to add the theoretical account of how PLG is able to do without movement. First, we will discuss XP-movement. We start out by demonstrating the generation of complex expressions in PLG with a simple example.

(115) I heard [VP Caesar [V' report [DP the [NP Roman [N' conquest [PP of Gaul]···]

Conquest is a two-place predicate of the category [N]. This means that it is a function with two individual arguments. In addition, we assume an event argument, since the noun denotes the same event that the underlying verb does.

(116) f(e,x,y) = ⟦ conquest (e,x,y) ⟧

Gaul[24] and ***Roman*** replace the variables, which yields two levels of projection (under the assumption that two variables cannot be replaced as a single operation). Note that the preposition 'of' represents no logical function but an IF of formal identification (like *case*). Therefore, it has no LF-representation.

(117) [NP Roman[25] [N' conquest [PP of Gaul]···]

---

[24]   Since we assume that P° in this case represents an FF of structural licensing equalling case (maybe also expressing a Θ-role), it does not stand for a semantic function, does not assign a Θ-role and therefore needs no specific functional representation on LF. If we change the preposition to a Θ-assigning one, as in

(i) the Roman conquest without losses

the whole LF representation changes, since the internal argument remains implicit and the PP has an adverbial function. In this case, it must be merged (adjoined) in a separate operation, modifying the whole NP.

[25]   It is an interesting property of NPs that the logical subject specifying the predicate can sometimes be formally represented as an AP, whereas it would be represented as a DP in SPEC/ D°. This is presumably because there is no case assigned to SPEC/NP, so that AP is the only way to PF interpret SPEC/ NP. This shows that the categorial property of the saturator does not play a role for the process of saturation but must be syntactic. To avoid accounting for that now, we denoted this SPEC as an XP in the structure.

(118)

$$NP = \lambda e \, [conquest \, [e, \, Romans, \, Gaul] \,]$$

XP

Roman

$$N' = \lambda x \lambda e \, [conquest \, [e, \, x, \, Gaul] \,]$$

N°

$$\lambda y \lambda x \lambda e \, [conquest \, [e, \, x, \, y] \,]$$

PP = [Gaul]

P°

of

DP

Gaul
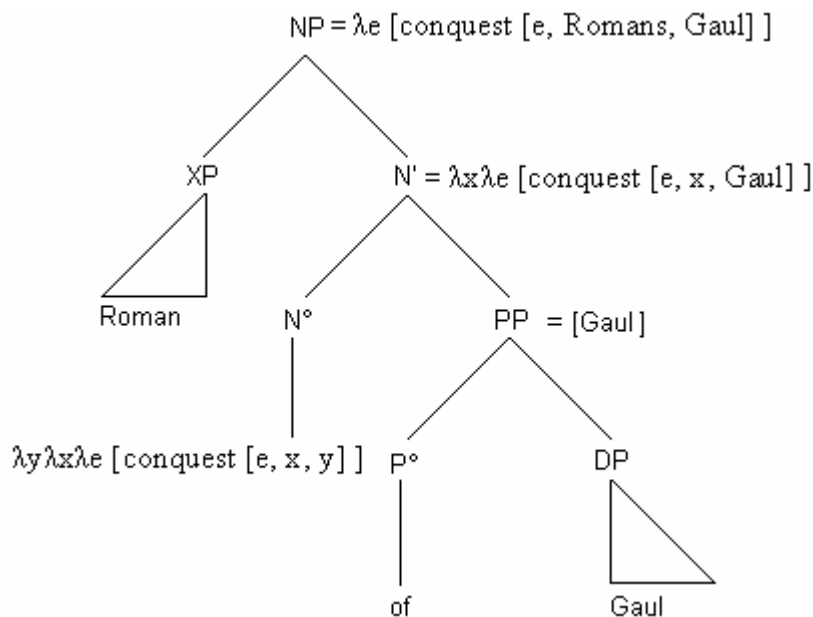
After projecting and saturating the LCS of *conquest,* there is an NP representing a complex term, which can be quantified over or be made definite. These operations we regard as functions implemented by the head D° that contains Fs representing operators $\Omega \in \{\forall, \exists, \iota\}$. The event argument *e* is saturated by binding through e.g. ι. Its projection by the selection of NP yields another individual DP that can again saturate a function, e.g. the two place predicate ***report*** with the categorial F [V]. Since it is a verb, we assume a temporal argument in addition to the two individuals and the event.

(119) a) $f(t,e,x,y) = [\![\,report \, (t,e,x,y)\,]\!]$

   b) $[_{VP}$ Caesar $[_{V'}$ report $[_{DP}$ the $[_{NP}$ Roman $[_{N'}$ conquest $[_{PP}$ of Gaul $]\cdots]$

   c) $\lambda e_2 \lambda t^*[report \, (t^*,e_2,Caesar, \iota e_1[conquest(e_1, Romans, Gaul)])]$

Thus the head V° can project to VP in the same fashion. The individual 'VP' can again be part of the saturation of a function whose variables it is licensed to replace. This could be T° (i.e. IFs $\in \{T \mid T^{PST}, T^{PRS}, T^{FUT}\}$), or, like in this case, an ECM verb like *hear.* Interpretation may apply to every single node, since the nodes are products of their daughters. There are two relevant processes when functions are applied during projection:

1. Saturation through replacement of variables.

2. Inheritance of semantic features by the mother nodes.

Note that the product of a function and an individual yields a function with one variable less than the daughter function. Thus, projection from zero level to a bare level also yields a function, such as turning a two-place-function into a one-place one. In order to grant this, the Fs must be inherited by the mother node.

Inheritance can also lead to procrastination of function application. An obvious example is *NEG*, which as sentence negation may be inherited until it is interpreted at the interface with cognition. It is applied at the uppermost node, after the whole proposition has been projected to a sentence, and switches the truth-value to zero. Therefore, only sentence negation can have wide scope.

(120) a) Caesar did not conquer Carthage.

b) $= \neg \exists t^*[t^* < t_0 \& \text{conquer}(t^*, \text{Caesar, Carthage})]$

c) $\neq \exists t^*[t^* < t_0 \& \neg \text{conquer}(t^*, \text{Caesar, Carthage})]$

Of course, there is no necessary LF movement of NEG to its scope position. FREGE's semantic principle adapted to generative syntax can thus be summarised as follows:

(121) **Frege's Principle** (adapted)

1. The semantics of a node is a product of the semantics of its daughters.
2. Interpretation applies to the dominating nodes.
3. Projection is either selection or unification of functions
4. Selection is (sometimes recursive) application of a function (represented by X°) to individuals (represented by YP, ZP).

Inheritance of Fs in our system does not only account for bar-levels and procrastinated application of functions, it can (together with the assumption that parameterisation applies to PF) replace the notion of movement. Consider the sentence

(122) $[_{IP}$ Asterix$_i$ $[_{I'}$ I°$_k$ $[_{VP}$ e$_i$ $[_{V'}$ reported$_k$ $[_{DP}$ Caesar$_l$ $[_{D'}$'s^{26} $[_{NP}$ e$_l$ $[_{N'}$ conquest $[_{PP}$ of Gaul $]\cdots]$

Above we assumed a representation like

(123) $\iota x[\text{conquest}(e, \text{Romans, Gaul})]$

for the definite DP

---

[26] We adopt ABNEY's (1988) account of PTC 's' which had formerly been analysed as having a genitive case ending, but is in fact the head D°.

(124) [$_{DP}$ the [$_{NP}$ Roman [$_{N'}$ conquest [$_{PP}$ of Gaul]]···]

, which implies that *definiteness* is a one-place function. However, definite DPs can be specified by the logical subject of the NP by further extending the functional extension of NP, i.e. DP. If they contain a specified NP, definite DPs always have two potential positions where the subject of NP can be realised, i.e. the SPEC position of either of them.

(125) a) [$_{DP}$ [$_{D'}$ the [$_{NP}$ Larsonian [$_{N'}$ assumption [$_{PP}$ of the VP shells]···]
      b) [$_{DP}$ Larson$_I$ [$_{D'}$'s [$_{NP}$ e$_I$ [$_{N'}$ assumption [$_{PP}$ of the VP shells]···]

It seems that in (b) the term *Larson* causes two projections of a head to a higher level since it saturates two functions. First, it saturates the Θ-grid of the conceptual structure of the predicate. Second, it specifies the definiteness of the predicate's reference, which is not only definitely *Larson's assumption*, but also the assumption that is *defined through being attributed to Larson*. Definiteness is inherently a two-place function. In this case, the NP is made definite by the attribution to Larson and cannot be further attributed the same way, e.g. by appositive relatives.

(126) a) I mean the Larsonian assumption of the VP shells that was revised later on.
      b) ?? I mean Larson's assumption of the VP shells that was revised later on.

Such configurations have since ABNEY (1988) been interpreted as movement of SPEC/NP to SPEC/DP. This means that the argument could be *externalised* in order to saturate a higher function. This, however, is problematic for both compositional semantics and Θ-theory not only because an argument that denotes only one single referent is represented twice, but also because there is no means to logically account for the identity of the two.

   In order to resolve this, we have to slightly modify our analysis of nominalised predicates suggested above. A function such as *definiteness* does not assign Θ-roles. In a specified DP there is no external Θ of N° lexically realised, but it is in some way identified by its functional extension. If we assume that a nominalised V does not project a complete Θ-grid, but always has an implicit subject that is syntactically suppressed, we not only have an explanation as to why

it is in contrast to subjects of V always being optional[27], but it also accounts for the fact that this logical subject must be secondarily introduced to the structure through either adjectival modification of NP or through two place referential definiteness represented by D°. It can never be a nominal SPEC of N.

(127) a) *The Larson(s) assumption of the VP shells.

       b) *The Caesar(s) conquest of Gaul .

The AP [Larsonian] does thus not realise a Θ-role of *assumption* but introduces its logical reference through adjunction to the non-recursive projection of N°. The predicate *R* in the graph stands for some unspecified relation between the two arguments.

(128)
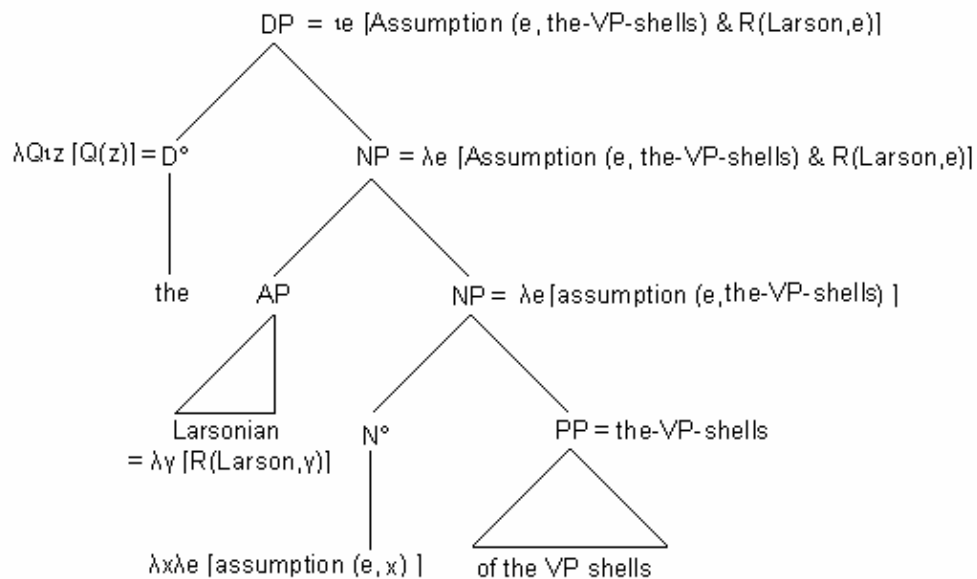
In this case, *Larson* is denoted as the actor of the assumption, but not as the restrictor yielding definiteness. It could be the Larsonian assumption he developed in 1987, or the one he revised later on.

     One could assume that in the case of an explicit two-place-function a more elaborate F-structure is projected to D° than only $\lambda Q(\iota x[Q(x)])$. It must be able to extend the predicate it specifies by introduction of a further variable.

---

[27]   This often neglected property has been brought to my attention by JÜRGEN PAFEL (p.c.).

(129)

$DP = \iota e[\text{ assumption}(e, \text{the-VP-shells}) \& R(\text{Larson}, e)]$

DP

Larson

$D' = \lambda y[\iota e[\text{ assumption}(e, \text{the-VP-shells}) \& R(y, e)]]$

$D°$

$NP = \lambda e[\text{ assumption}(e, \text{the-VP-shells})]$

's

$= \lambda y \lambda Q[\iota z[Q(y) \& R(y, z)]]$

$N°$

$PP = \text{the-VP-shells}$

$\lambda x \lambda e[\text{ assumption}(e, x)]$

of the VP shells
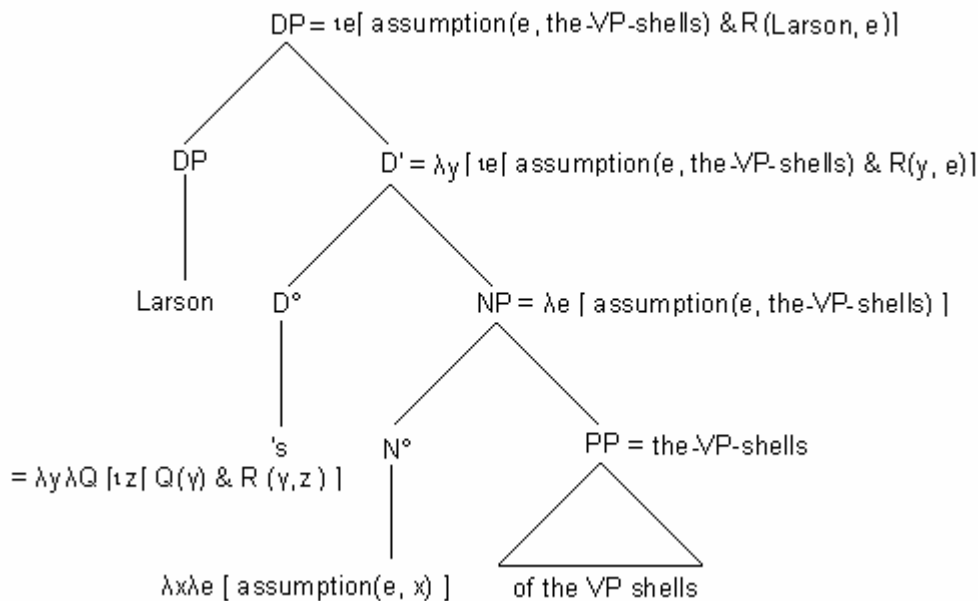
That the property R of the variable x introduced by D° is interpreted as AGENT must be due to conceptual knowledge. In order to avoid the implication of presupposition of R through D°'s lexical information, we must not restrict this variable to an argument of the lexical predicate. Definiteness therefore may be specified by any logical relation, which can be *possessiveness*, *origin*, *authorship*, *family relations etc.* .

(130) a) Paul's money actually belongs to his wife.
      b) Ireland's beautiful red haired girls.
      c) Shakespeare's beautiful sonnet about love.
      d) Hamlet's uncle married his mother.
      e) Hamlet's darling was Ophelia.

Therefore these relationships are not simply attributes of N°. They always precede all APs adjoined to NP, and also the determiner.

(131) a) Hamlet's beautiful sad darling was Ophelia.
      b) Hamlet's sad beautiful darling was Ophelia.
      c) *The beautiful sad Hamlet's darling was Ophelia.

Moreover, quantifiers with D° status can neither precede nor follow them.

(132) a) Paul's money actually belongs to his wife.
      b) Much/ some (*of) Paul's money actually belongs to his wife.

Note that the complementary distribution with quantifiers preceding D° implies that they are also specifiers defining the reference of N.

(133) a) All the beautiful red haired girls of Ireland.

   b) *All Ireland's beautiful red haired girls.

The different representation of the function of either *the* or *'s* thus cannot be due to the status of two-place definiteness, but rather depends on the nominal category specifying it. Definiteness is an inherently two-place-relation.

Since a logical subject is not projected by N° to saturate its Θ-grid, there are no expletive like elements in SPEC/ DP licensing a nominal subject – unlike in the extension of VP.

(134) *There's Larson assumption of shells.

IP can remain unspecified if an expletive is inserted. In this case the subject is generated in SPEC/VP. In a derivational account, the default case is externalisation of the uppermost argument of V in order to specify I°.

(135) a) There are always some unresolved problems remaining in every model.

   b) [Some unresolved problems]$_i$ are always t_i remaining in every model.

The derivational concept of the EPP implies movement of an argument of V to SPEC/I such that the function forming the extension of a lexical projection can be applied to an argument of it. This yields the same problem as has lead us to the assumptions about projection of specified DPs, i.e. that there are two positions where a Θ is logically interpreted. Only one of them should be interpreted on LF.

In our representational system, this can be resolved through procrastination of saturation. Function application may be procrastinated through inheritance of the unsaturated function by the dominating nodes. To allow for selection of an unsaturated function, we need some tolerance with respect to the distinction of the projectional levels X' and XP suggested above. However, in terms of our bare phrase structure, levels of projection do not play a relevant role for the computational system. Categorial labels are simply inherited from the categorial Fs in the lexical entry of the items projected to syntax. The XP level of a phrase should be defined by the potential of being a complement of a head representing a

higher function and saturating it. An XP may be unsaturated only if it is selected by a function that licenses this.

Beyond SPEC/head agreement, there *must* be another reason for the externalised argument of V specifying I°. Otherwise, in languages like Gm. subject-'movement' out of VP would not be optional and would be restricted to sentences with specific information structure. We assume that this has to do with the specification of the proposition according to the individual over which is predicated, i.e. predicate linking. Sentences with expletives are always predications over the event or the situation. We will discuss this issue at several other stages in this thesis.

This distinction presumably applies to subject expletive constructions universally. In any case our analysis can be applied to the explanation of the subject position in SPEC/IP in languages like English. The logical interpretation of SPEC/IP as the point of reference that the predicate is linked to is totally independent from the level of projection where the 'subject'-Θ is represented in the SD. The analysis should also hold for a structure with a VP internal subject. Compare the following SDs:

(136) $[_{IP}$ Asterix$_i$ $[_{I'}$ I°$_k$ $[_{VP}$ reported$_{i,k}$ [28] $[_{DP}$ Caesar$_l$ $[_{D'}$'s $[_{NP}$ conquest $[_{PP}$ of Gaul]···]

Here we have a proper name in subject position, and the logic of this sentence implies linking of the predicate to the argument which is the actor in this event of reporting. At first glance, this is not reflected by predicate logic.

(137) $\exists t^* \exists e_2[t^* < t_0$ & report'(t^*,e_2,Asterix',ιe_1[conquest'(e_1,c,g)])]

Now note that if the subject is indefinite or existentially quantified, it may stay VP-internal in a similar sentence. Then there is an expletive in SPEC/IP. If the subject is fronted, this sentence gets a slightly different interpretation. We claim

---

[28] This notation implies that both I° and the subject inserted in a higher position are coindexed with V. In our model, V forms a head chain with T, so we will keep to this coindexation. The coindexation of V and the subject simply denotes that there is a variable in the frame of V, which is replaced by the referent denoted by the subject. Since this is inherited by the dominating nodes, we can in principle dispense with empty positions in the tree. However, for the sake of the transparency of the presentation and to avoid much more confusion, we will return to the traditional *trace*-notation later on.

that the first sentence denotes a predication over the situation (i.e. the frame given by *reference time*), the second one over the subject *one man*.

(138) a) There was one man reporting C's conquest of Gaul.

   b) One man was reporting C's conquest of Gaul.

Since *expletives* do not have a representation on LF (which is a rather common assumption), but nevertheless the two sentences have two different logical interpretations, there should be specific LFs on the grounds of quantifier scope for each interpretation. In this case, the scope relation can easily be formalised, since predicates in the scope of *past* must have intensional reading (they cannot be assigned a truth value, cf. LOHNSTEIN 1996, 276ff). This means they are in the scope of an intensional quantifier (the 'intensor' of MONTAGUE 1973), which we notate as λ-abstraction over the set of possible worlds of our event.[29] We assume that if in SPEC/IP, an individual subject is outside the scope of T, it is therefore then also outside the scope of the intensor. This yields the two following possible logical structures.

(139) a) $\exists t^*[\ t < t^\circ\ \&\ \lambda w \exists e_2 \exists x[\ man'(x)\ \&\ report'(w,t^*,e_2,x,\iota e_1[conquest'(e_1,c,g)])\ ]\ ]$

   b) 'there is a time t* before speech time and a class of worlds *w* where there is an event e_2 and an individual x, x is a boy, and in *w* at t*, e_2 is x reporting Caesar's conquest of Gaul.'

(140) a) $\exists x \exists t^*[man'(x)\ \&\ t^* < t^\circ\ \&\ \lambda w \exists e[report'(w,t^*,e_2,x,\iota e_1[conquest'(e_1,c,g)])]\ ]$

   b) 'there is an individual x, x is a boy, and a time t* before speech time and a class of worlds *w* where there is an event e_2 and in *w* at t*, e_2 is x reporting Caesar's conquest of Gaul.'

Our view of *procrastinated saturation* assigns two different LFs to the sentences which are transparent in the SD. Only if merger of the subject is procrastinated and thus generated outside the scope of tense, the predicate will be linked to it, and reading (b) is available. It is not even necessary to assume a trace – which might even explain the essential differences between A- and A'-'movement'. This issue will also be discussed below.

---

[29] cf. STECHOW's (1992, 97) account of abstraction over worlds *and* times, which makes use of a covert adverbial of reference time. Our simplified proposal treats times as existential (as long as this does not lead to contradictory logic), which allows a more convenient presentation.

Thus, the concept of anaphoric variables or traces bound by antecedents is replaced here by procrastination of saturation. Note that the syntactic principle EPP can thus be reduced to a property of functions of the type [I] licensing an unsaturated expression, if the predication has to be specified. In principle, all kinds of Θ-dependencies usually accounted for by A-movement should be explainable in that way.

1.2.2.7 'Head Chains'

We now turn to *head chains*. In order to replace the derivational notion of head movement we amend our model with the concepts of syncretic heads and parameterised PF interpretation of chains. First, we continue our discussion of functional projections given by syntax. There is some well-known empirical evidence since POLLOCK's (1989) work that there are more positions for V available in the I domain of Romance than is shown by languages like Eng. INFs have a distribution (optionally) different from that of participles (PCPs). This has been taken as proof of more than one inflectional phrase above VP.

(141) a) Je sais [$_{CP}$ qu' [$_{AGRP}$ il [$_{AGR'}$ va [$_{TP}$ étudier [enthusiastement [$_{VP}$ la   linguistique]···]
          I – know – CMP – he – goes − study − enthusiastically − the − linguistic

      b) Je sais [$_{CP}$ qu' [$_{AGRP}$ il [$_{AGR'}$ a [$_{TP}$ [enthusiastement [$_{VP}$ étudié la   linguistique]···]
          I – know – CMP – he – has − enthusiastically − studied − the − linguistic

This idea gets some support from stranded quantifiers (cf. SPORTICHE 1988), which, according to a derivational analysis, indicate intermediate landing sites.

(142) [$_{AGRSP}$ (tous) les enfants$_1$ [$_{AGRS'}$ n'$_2$ ont $_3$ [$_{NegP}$ pas [$_{Neg'}$ t$_2$ t$_3$ [$_{TP}$ (tous) t$_1$ [$_{T'}$ t$_3$ [$_{VP}$ toujours [$_{VP}$ (tous) t$_1$ [$_{V'}$ fait leurs devoirs]···]

all – the – children – NEG – have – NEG – (all) – always – (all) – done – their – homework

'the children have not always all done their homework.'

Evidence for many more functional phrases in the IP system has been found in Celtic languages (AspP, HENDRICK 1991) and others (ModP, MoodP . . . ; CINQUE 1999). RIZZI (1997) argues for a layered CP on the base of Italian evidence. He gives as evidence that there are at least two sites that can serve for topicalisation; between them there is a position for focussed constituents. In addition, he proposes that FORCEP is a universal FP hosting CMPs and that there is another

universal phrase FɪɴP which is occupied by V_{FIN} in V2 languages but empty in the declarative sentences of other languages. The TᴏᴘPs are even potentially recursive (which is indicated by *).

(143) Credo [_{ForceP} [_{Force'} che [_{TopP*} domani, [_{FocP} questo, [_{TopP2*} a Gianni [_{FinP} [_{IP} gli dovremo dire]
       think1^{st}sg – CMP – tomorrow – this – to – John – himDAT – must1^{st}pl-FUT – sayINF

Strong universalist hypotheses about functional projections (cf. Cɪɴǫᴜᴇ 1999) assume that the number of FPs in syntax is universal, from which it follows that as soon as there is evidence for an FP in one language one has to assume that it is there in UG and thus in every language. Cʜᴏᴍsᴋʏ (1989) and Bᴇʟʟᴇᴛᴛɪ (1990) were the first to first propose that there is also AɢʀᴏP where the object may move, on the basis of a generalised case-checking hypothesis.

But does data for which there is evidence from only very few languages allow us to make such strong generalisations over universal syntax – i.e. the formal principles that allow and restrict variation? These options and restrictions may be predictable by a theory assuming a universal number of FPs, but it is a very strong claim predicting much more than is necessary to explain.

Since in our theory there are no labels of syntactic nodes, the number of functional projections cannot be predetermined by FFs that potentially only exist in HL. Such assumptions are not necessary, since there is not anything like the checking of formal Fs. One basic assumption of PLG is that only interpretable IFs expressing markedness of the SD are in fact projected from the lexicon and thus can make up a functional phrase. The number and the content of nodes in an SD depend on the intension of IFs.

Since languages obviously vary in the number of functional heads, which are evident through lexical elements, we think that the represenation of IFs in syntax must be subject to lexical parameterisation. We think the difference between languages like Eng. and Fr. with respect to the landing sites of V/ AUX and the subject is not due to different constraints on movement, but due to the actual number of these sites. Already Gɪᴏʀɢɪ & Pɪᴀɴᴇsɪ (1997) assumed, on the basis of contrastive data, that in Romance there are in fact more FPs above VP than in Germanic. Therefore they proposed the

(144) ***Feature Scattering Principle***   (GIORGI & PIANESI 1997, 15)

   Each feature can head a projection.

This implies that there are also parametric options to syncretise functional heads. Therefore, the natural counterpart of this principle must be an assumption that functional features can be syncretised in one functional head, if they are neighbours in a logical hierarchy. [30]

(145) ***Principle of Feature Syncretism***

   F_1 and F_2 can syncretise a node $F°$ iff there is no $F_3 \neq F_1 \lor F_2$ logically superordinate[31] to F_1 and subordinate to F_2. F_α and F_γ may not syncretise if there is a F_β and a logical hierarchy $\alpha > \beta > \gamma$.

It is a natural consequence of representational economy that if the representation of the IFs relevant for logical convergence can be carried out by a smaller syntactic extension of functional heads than implied by the number of functional features, a system parametrically specified for this possibility will use it. There is evidence from many languages that a number of Fs can be expressed by a single head. Our notion of projective economy developed above (pp. 48f.) would make children assign a minimal convergent structure to such representations during L_1A, where adjacent features that are regularly expressed by a single item have parametric lexical representation as one head.

   Thus the Fs AGR and T are syncretised in Eng. but scattered in Fr. and It.. In terms of functional application, the difference between *scattering* of Fs over several syntactic heads or *syncretism* within a single one is a difference in parametric composition on either the syntactic or the lexical level. We assume that there is indeed a certain universal range of options as to how features can be

---

[30]   We do not assume that Fs can be syncretised arbitrarily, but that there is a *logical scope hierarchy* of Fs – the same as is reflected in the hierarchy of functional phrases (as e.g. elaborated by CINQUE 1999). This hierarchy also restricts the composition of Fs on the lexical level. As a CP never intervenes between, say, a TP and an AspP, an F would never be syncretised if intervening Fs are scattered.

[31]   Superordinacy may be expressed in terms of implication. E.g. aspect implies time, or better, a relationship between times, whereas time does not imply aspect. Thus aspect is logically subordinate to time. This criterion is in vain, however, if semantic Fs interact with purely syntactic Fs, like T and AGR. Since the nature and legitimacy of the position SPEC/AGRP are being discussed anyway (cf. CHOMSKY 1995, 349ff), and facing the fact that subjects in situ also agree with V, one might agree that the the head called AGR° may in fact contain something else. In our view, the data strongly suggests that this functional phrase is specified

combined in one or scattered over several projections.[32] We will discuss this variation at several stages in the course of this dissertation.

1.2.2.8   PF-Interpretation of Chains

Thus, the syntactic output is determined by the content of lexical and functional IFs and their lexically parameterised representation as heads or as phrases the heads project. We have external access to this output since it is translated to a phonological form by the interpretational module PF, and what we assume is that idiosyncratic properties of linguistic systems can all be reduced to the parameterisation of the lexicon and of the translation function to phonetic symbols. In fact, we will argue that apparent syntactical parameterisation may also be attributed to the phonological module PF (as proposed before by ROBERTS & ROUSSOU 1999, 2002).

If only the lexicon and the PF are idiosyncratic, speakers of a specific language can have direct access to the LF of S, which is the structure underlying the phonetic string computed or composed of semantic primitives from the lexicon. Interpretation applies directly to the PF/LF interface, not to a virtual structure LF that has to be derived from this interface.

This means that syntactic principles which are not directly correlated to the computation of structure may directly follow from the lexical properties, not from their effect on the configuration in SD. Compare the often observed asymmetry between Eng. and Fr. that V_{FIN} can be realised either in VP or in an inflectional phrase, which is in derivational theories accounted for by parameterised V-movement to I.

(146) a) $[_{IP}$ John $[_{I'}$ I°$_k$ [often $[_{VP}$ sang$_k$ $[_{DP}$ a $[_{NP}$ song $[_{PP}$ of love]···]

      b) $[_{IP}$ Jean $[_{I'}$ chantait $_k$ [souvent $[_{VP}$ t$_k$ $[_{DP}$ un $[_{NP}$ chanson $[_{PP}$ d'amour]···]
         John – sang – often – a – song – of – love

---

     by predicate linking in the way demonstrated above (pp.85f.) and below, 1.3.5, and thus must provide a position outside the scope of tense.

[32] Which again raises the important issue of natural classes of IFs; this would not only be suggested by constraints on syncretism, but also by *relativised minimality* effects and *well-formed dependencies*, s.a. pp. 66ff.

Our account here basically follows ROBERTS & ROUSSOU'S (1999, 2002) model, though adapted to our system with feature scattering and projective licensing. We assume that the A-P system structures the PF by assigning sounds to (complexes of) phonetic features associated with (complexes of) IFs that are bound to the dependencies of the SD. It is possible that IFs are not separately PF-interpreted even if they are represented as single heads. PF-interpretation applies to chains, i.e. well formed dependencies of correlated heads. There is an obvious dependency in an SD e.g. between I° and V°. Variation in the position of V can be explained through idiosyncratic PF-realisation of INFL. *Parameterisation is variation in PF-realisation, i.e. in morphophonological properties of functional heads* (cf. ROBERTS & ROUSSOU 2002, 132).

(147) ***PF-interpretation***

    PF-interpretation applies to structural descriptions of relations between features in a syntactic unit, i.e. chains in a WFD which are idiosyncratically realised on PF.

Thus, it is PF-interpretation which is language specific (in contrast to LF-interpretation). PF realisation of IFs is a lexically specified property of the assignment of phonological Fs according to the morpho-phonological properties of the lexical entries for the IFs. They may be either lexicalised as heads, or their phonological specification is realised within a WFD which they are co-members of. A whole chain that is related by a WFD can be lexicalised as one word in one position of the SD.

(148) ***PF – Realisation of IFs*** **(F*)** [33]

    a) SPELL **α**: Lexicalisation of a terminal node through an item expressing α, which is inserted as a head F°. In this case F* takes place as a word.

    b) SPELL **(α+x)**: α is part of a bundle of Fs parametrically specified to have PF interpretation as one term. F* takes place as a component of a word's semantics.

    c) SPELL **ch(α,x)**: F°, the extension of X°, heads the chain F° – X°. The whole chain is spelt out in a position parametrically specified for PF realisation. In this case F* takes place as an affix of X° or a Y(P) c-commanded by F.

This means that there are three ways of realising Fs overtly (F*). F* can correspond to a lexical item in the SD (spell α or α*). Secondly, Fs can be

---

[33] This is adapted from ROBERTS & ROUSSOU (2002, 9) who use the terms *merge α* and *move α*. Some more minor modifications fitting their model to ours have been made.

lexically bundled and projected as one lexical head (spell α+x or [α+x]*). Thirdly, the F α can head a chain whose members are Fs lower in the structure. This is a special case of [α+x]* where Fs are not lexically bundled but merged at PF. Morphologically, α* is affixed to a lexical item. There are parameterised options for the position of α*, as long as it belongs to the chain headed by it. The system can easily be exemplified by the well-known facts from V-movement in English and French.

(149) a) The aspectual AUX have in the following sentence is representing one single F as scattered head (spell α):

John will soon **have** read the books.

b) In the same sentence, Future tense T and **AGR** are specified for PF realisation by SPELL **(α+x)** in modern English.

John **will** soon have read the books.

c) Present tense I, AGR and V are specified for PF realisation by SPELL **ch(α,x)** in both modern French and English. In the first case PF-interpretation takes place in a higher position, in the second in a lower one.

Jean **lit** souvent des livres.
John **I°** often reads books.

Lexical items are used for PF-interpretation of F (symbolised as F*) whenever the lexicon contains them. If an **F α** has a lexical entry, it is specified either as **α*** **(SPELL α)**, i.e. as a word, as **[α+x]***, i.e. an F contained in a word or an affix, or as **ch[α+x]*** **(SPELL ch(α,x))**, i.e. as an affix to a word. Typological variation thus can follow from the parametric morpho-phonological properties of lexical entries of Fs. This assumption allows us to also dispense with the notion of head movement, such that we can work in a fully representational model.

Note that the notions of *syncretised heads* and of parametric PF realisation of chains yield an explanation of syntactic variation. It allows us to work with a *directly compositional model* of semantic IFs that does not neglect syntactic configurations – which is the major point of criticism that all categorial grammars including that of MONTAGUE (1969, 1973) must face.

1.2.2.9   Quantifier Scope

That procrastination of saturation can account for many cases of apparent 'movement' is also shown by certain scope ambiguities of quantifiers. Even scope

ambiguities through so called 'quantifier raising' (QR) need not be explained through antecedents and traces. We want to show that this can be explained as the dislocated interpretation of quantificational operations in language specific scope positions.

To have a transparent LF, the scope of quantified expressions must be structurally encoded. This may be achieved through abstract IFs that c-command the part of the structure in their scope. They are representations of specific operators that are in a chain relation with quantified expressions. These IFs are then PF-interpreted according to idiosyncratic options. If the IF of the universal quantifier $\forall x$ is not PF interpreted locally, it binds a referential element whose lexical semantics is interpreted in base position. Then its scope will be ambiguous. An example for ambiguous quantification is:

(150) John sang one song in every concert-hall.

The two possible readings are:

(151) a) $\exists t^* \exists y \forall x \exists e\ [t^* < t^\circ\ \& S(y)\ \& C(x) \rightarrow sing'(t^*,e,j,y)\ \& IN(e,x)]$

'For at least one time[34] before t° and at least one song and all concert halls it is true that there is an event of John's singing the song there.'

b) $\forall x \exists t^* \exists e \exists y\ [C(x) \rightarrow t^* < t^\circ\ \& sing'(t^*,e,j,y)\ \& S(y)\ \& IN(e,x)]$

'For all concert halls it is true that there is a time before t°, where there is an event of John's singing at least one y, y a song, there.'

According to the assumption that every interpretation corresponds to an LF, one should wonder what LF corresponding to (b) above might underlie the string in (150). The most common assumption in GG is that there is a site in the structure where the relative scope of quantifiers is logically interpreted and that all quantifiers are moved there, each to its relative scope position (cf MAY 1985). In (150), $\forall x$ that is in a chain relation with the local adverbial seems to be able to c-command $\exists y$ on LF. Therefore, the scope is ambiguous.

(152) $(\forall x_i)$ John sang one song [$_{PP}$ in every concert hall$_i$] (ambiguous:$\exists > \forall \vee \forall > \exists$)

---

[34] If not logically excluded, we keep on using the existential (extensional) reading of past tense events.

If the expression quantified by $\forall x$ is PF-interpreted *in situ* (i.e., within the VP it modifies), the sentence is ambiguous, since it simply does not show whether $\forall x$ is merged above $\exists x$ or not. If the quantified expression is PF-interpreted at the head of this dependency [$\forall x$ – PP], it interprets $\forall x$ locally and the scope is unambiguous however.

(153) In every concert hall, John sang one song.   ($\forall > \exists$)

This raises the question why not all sentences with two different quantifiers are ambiguous in the same way. What prevents QR of $\exists$ over $\forall$? The same contrasts are also there in Gm.. (154a) is unambiguous, since the scope of $\forall x$ is identified by the DET of [$_{NP}$ Konzerthalle]. In (154b) there is the same ambiguity as in (152).

(154) a) Hans hat in jeder Konzerthalle ein Lied gesungen.   ($\forall > \exists$)
       John – has – in – every – concert – hall – at – least – one – song – sung

       b) $\forall$**x** Hans hat ein Lied in jeder Konzerthalle gesungen.   ($\exists > \forall \lor \forall > \exists$)

Both languages show that the ambiguity can be resolved, if the $\forall x$ is lexicalised in a logical position that we take to be a level of projection where its absolute scope is interpreted. This does not necessarily mean that it contains a functional head with the information [quantify here!], but can just be a SPEC or even an adjunct where a quantificational operator is generated. It is above IP in Eng. (this, and no more, is what the data shows) and even above CP in Gm., as is made obvious if the existentially quantified constituent is topicalised: This sentence is no less ambiguous than (154b) above.

(155) $\forall$**x** EIN Lied hat Hans in jeder KonZERThalle gesungen.

What determines whether a quantifier has wide or narrow scope? We would now like to analyse this asymmetry in terms of procrastinated merger. In this case, it is not saturation of the predicate which is procrastinated, but adverbial modification of the event *e*.

The crucial evidence that the ambiguity does not simply result from the dislocation of either $\exists x$ or $\forall x$ is that $\forall x$ preceding $\exists x$ is always unambiguous in these sentences. If an existential quantifier is fronted, the effect is the opposite:

(156) a) John sang every song [$_{PP}$ in one concert hall]   ($\forall > \exists$)

    b) In one concert hall, John sang every song.   ($\exists{>}\forall \lor \forall{>}\exists$)

This is even the case if $\forall x$ is in base position, which is shown by the Gm. data contrasted to the sentences in (154).

(157) a) Hans hat JEDes Lied in EINer Konzerthalle gesungen.   ($\forall{>}\exists$)

    b) Hans hat in EINer Konzerthalle JEDes Lied gesungen.   ($\exists{>}\forall \lor \forall{>}\exists$)

If quantifier scope is simply determined by raising to a higher scope position, why doesn't QR apply to $\forall x$ and $\exists y$ the same way? PAFEL (1997, 70ff) discovered that there are at least six factors determining the relative scope of two quantifiers. A higher focus potential is supported by FOC, syntactic precedence, subjecthood, agentivity, discourse linking and *distributivity*. PAFEL (1997, 82f, 87ff) showed that in the absence of the other factors, universal quantifiers like *every* and *jeder* with inherent distributive reading always have the highest scope value. This means $\forall x$ always has wide scope *relative to* $\exists y$, unless other scope sensitive factors apply. If the distributive $\forall x$ is lower in the structure than the unmarked $\exists y$, this forces us to give it wide scope. On the other hand, if a quantifier that is lexically ambiguous between the collective and the distributive reading has wide scope relative to $\exists y$, the distributive reading is preferred. This is shown by sentences with the Gm. quantifier '*alle*'.

    A collective quantifier is, in fact, not universal, but existential quantification over pluralities. How is it that the second reading with wide scope of *alle* is always distributive?

(158) Beethoven widmet EIN Lied ALLEN Frauen.
       B. – dedicates – one – song – all – women

(159) a) $\exists y \exists x[L(y)\&ALL(x,{}^{\otimes}F)\&W(b,x,y)]$

    b) $\forall x \exists y[F(x){\to}L(y)\&W(b,x,y)]$

If *alle* precedes $\exists y$, however, it is even almost impossible to get the collective reading.

(160) Beethoven widmet ALLen Frauen EIN Lied.
       B. – dedicates – all – women – one - song

(161) a) $\forall x \exists y[F(x){\to}L(y)\&W(b,x,y)]$

    b) ??$\exists y \exists x[L(y)\&ALL(x,{}^{\otimes}F)\&W(b,x,y)]$

In our representational account this can be done as follows: There is only one IF that is relevant for the scope relations in this kind of quantificational structure, which represents a function called the *distributor*:

(162) $\lambda\pi\lambda\varphi\lambda x\forall x^*[x^*\subseteq x\,\&\,\varphi(x)\rightarrow\pi(x^*)]$ (adapted from PAFEL 1997, 258f)

x* is by definition an atom of a set of individuals *x*. φ stands for any predicate that can have *x* as an argument (like *t**⊆*t*, see above, p. 59). The operator is characterised by the distributive function *x**⊆*x*, which means: "an atom which is in a proper subset relation to *x*". It is always merged above ∃x, if the other quantifier has a distributive reading – which is simply defined by the lexical entry of distributive quantifiers. Since a distributive quantifier has two logical positions in the structure, representing the head and the foot of an XP chain, there are two positions where it can be PF-interpreted. Even if a quantifier with distributive reading is PF interpreted in the Θ-position below ∃*x*, this scope feature merged in a higher position yields wide scope of ∀x. The ambiguity of the sentence in (158) arises, since the scope feature is not transparently PF interpreted and *alle* can be interpreted as *collective*. If ∀*x* is merged above ∃*x*, there is only one reading, since this forces us to also merge the distributor. This should not be true if an ambiguity effect was due to two positions through movement.[35] The two possible readings of

(163) John sang at least one song in all concert-halls.

are thus in fact:

(164) a) $\exists t^*\exists y\forall x\exists e\,[\,t^*< t_0\,\&\,S(y)\,\&\,C(x)\rightarrow sing'(t^*,e,j,y)\,\&\,IN(e,x)]$

'For at least one time before t° and at least one song and all concert halls it is true that there is an event of John's singing the song there.'

b) $\forall x^*\exists t^*\exists y\exists e\,[x^*\subseteq x\,\&\,C(x)\rightarrow t^*< t_0\,\&\,S(y)\,\&\,sing'(t^*,e,j,y)\,\&\,IN(e,x)]$

'For all x* that are atomic representatives of the class of individuals x that are concert halls it is true that there is at least one time before t° and at least one song and at least one event of John's singing y there.'

This view has a big advantage: First, the item inserted in SPEC/IP in order to saturate the Θ-grid is not the operator that introduces the quantificational function

---

[35] Note that this is independent evidence that the topic position in Gm. is a base position, which will be referred to in a discussion of Θ-positions further below, pp. 152ff.

yielding the conditional relation between φ and π. Therefore there is no conflict of functional application. This means that merger of the distributor in its scope position does not only create a new position independently from the Θ-position without movement, it also allows quantification as a simple functional application following the application of the predicate function ($\lambda y \lambda x[\text{sing}'(x,y)]$).

What remains to be explained is not why the inherently distributive quantifier *every* can have *wide scope* in (150), but why it can have *narrow scope*: Why doesn't the *distributor* automatically trigger the logical interpretation $\forall x >$ $\exists y$? The answer is *focus*: If $\exists x$ has scope over a distributive $\forall x$, this means there is not the usual *pair*-reading of distribution, but the *choice*-reading focussing the existential.

(165) *Choice*- and *Pair* – **Reading**
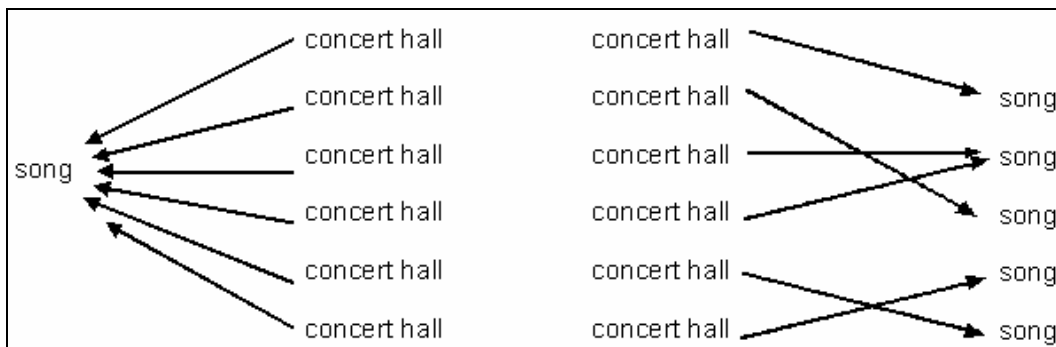
There is no better explanation than to assume that this *choice focus* leads to procrastinated merger of $\exists x$ above the *distributor*.

1.2.2.10 Tense Revisited

We now want to return to the issues we left open when we discussed tensing in 1.2.2.1. As noted there, adverbials like *today* can serve to specify the reference time t, which again, like all information represented by the single nodes, is inherited by the upper nodes. This sentence clearly shows that t cannot be logically formulated as a simple relation $(t,t°)$. However, although t here is a contribution made by the adverbial, it would be desirable to represent t, t^* and $t°$ as a general relation – for the sake of logical compositionality. It would be an

elegant solution to do this in a functional head like I°. This is necessary anyway if we treat complex tenses, like *progressive PST*.[36]

(166) a) Robert was reading a book.

b) $\exists t \exists t^* \exists e[\ t \subseteq t^* \ \& \ read'(t^*,Robert',x) \ \& \ book'(x)]$

c) *PST-PRG*: $\lambda \varphi \lambda t \lambda t^* \exists e[t \subseteq t^* < t° \ \& \ \varphi(t^*,e)]$

Simple *PST* is one of the simplest relations according to the REICHENBACHian system, since ET equals RT, and both precede ST (cf. LOHNSTEIN 1996, 211). The IF (simple) *PST* represents the following logical function:

(167) PST: $\lambda \varphi \lambda t \exists e[t < t° \ \& \ \varphi(t,e)]$

φ stands for any predicate that can have *t* as implicit argument. We assume that existential binding of *e* takes place through selection of VP by I°, which must be defined through I's lexical entry. *t* is related to *t°* by precedence. The adverbial *today* is then the name of another function yielding the temporal restriction t^R of this relation.

(168) a) TODAY: $\lambda t \exists t^R[t,t° \in \{t^{0h} \leq t^R \leq t^{24h}\}]$

b) 'the class of points of time that are element of the restriction *day* $(t^{0h} \leq t^R \leq t^{24h})$ together with speech time'

The formula then looks as follows:

(169) a) $\forall t^* \exists t^R \exists e\ [\ t^* \subseteq t \ \& \ t < t° \ \& \ t,t° \in \ \{t^{0h} \leq t^R \leq t^{24h}\} \rightarrow smile(t^*,e,Charlotte)]$

b) 'For all atomic representatives t* of the set of times t before the (speech) time t°, where both t and t° are in a set of times t^R restricted by t^{0h} and t^{24h}, there is an event e such that Charlotte smiles at t*.

In our model, the transparent LF of the IP in 1.2.2.1 looks like:

---

[36] In durative contexts *t* is in a subset relation with *t**, which defines an open truth interval (cf. CANN 1993, 253). That the relation $t \subseteq t^*$ is encoded in I° forces the selection of the –ing form in Eng., which yields the progressive inflectional paradigm in Eng.. One language that had *synthetic* progressive PST was e.g. Latin (cf. BAYER & LINDAUER 1990, 194):

(i)   Librum legēbam, tum tū intravistī.
     *book – read*PST-PRG *– then – you – come-in*PRF

Note that perfect inflection, however, was used as simple PST form in classical Latin (ibd.).

(170)

$$IP = \exists t^R \forall t^* \exists t \exists e[t^*<t°\&t^*\subseteq t\&t,t°\in\{t^{0h}\leq t^R\leq t^{24h}\}\to smile'(t^*,e,Charlotte')]$$

DP — Charlotte

$$I' = \lambda x \exists t^R \forall t^* \exists t \exists e[t^*<t°\&t^*\subseteq t\&t,t°\in\{t^{0h}\leq t^R\leq t^{24h}\}\to smile'(t^*,e,x)]$$

$$VP = \lambda x \lambda e \exists t^R \forall t^* \exists t[t^*\subseteq t\&t,t°\in\{t^{0h}\leq t^R\leq t^{24h}\}\to smile'(t^*,e,x)]$$

I°: $\lambda\varphi\lambda t^*\exists e[t^*<t°\&\varphi(t^*,e)]$ (= past)

DP: $\lambda t\exists t^R[t,t° \in \{t^{0h} \leq t^R \leq t^{24h}\}]$ (= today)

AP: $\lambda\varphi\lambda\pi\forall t^*\exists t[t^*\subseteq t\&\pi(t)\to\varphi(t^*)]$ (= always)

V°: $\lambda x\lambda e\lambda t^*[smile(t^*,e, x)]$
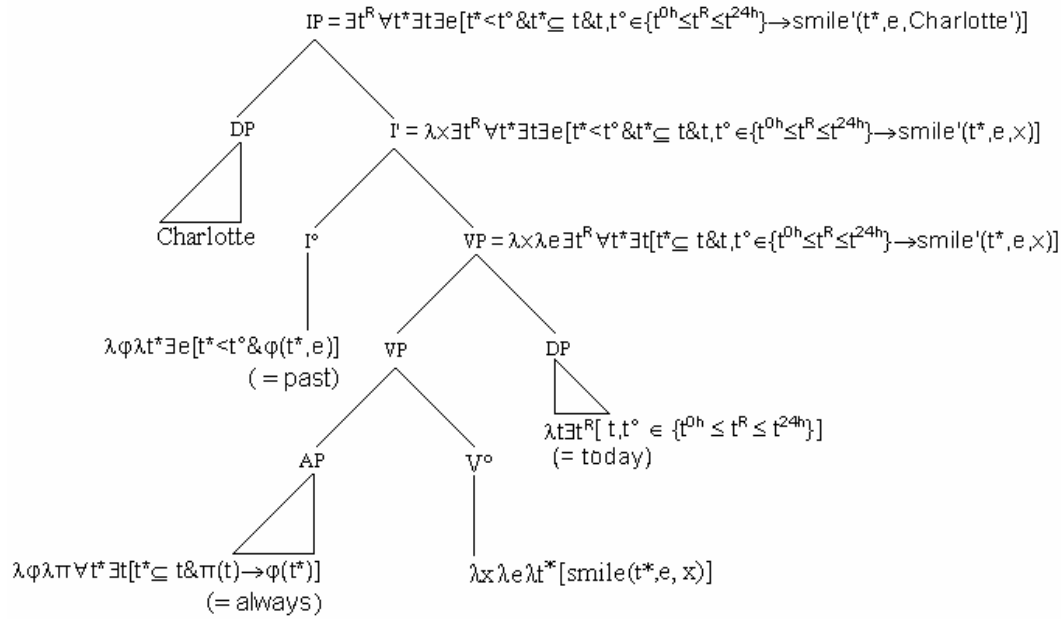
During the projection of VP there are two functional applications of the distributive function 'always'. Note that 'Charlotte' is not moved to its subject position, but gets there through procrastination of saturation. We assume that procrastination uses some means to change the order of λ-reduction. Therefore, there is only one structural position, which has been created through FA. We assume that every FA on arguments yields their prominence in the intermediate structure. The extended projection IP of VP is created through projection of the function represented by T° selecting VP. Its FA creates a chain between T° and V° by means of a WFD. Eng. PF parameterisation causes the apparent presence of *t** in the position of V°, which used to be interpreted as *affix hopping*. In our model, V° is just the foot of the chain [T-V] , but the whole chain is spelt out in V°.

After this overview of the theory we use in order to account for certain essential characteristics of SDs in HL, we give a short preview of what our research will be: The *object of investigation*.

1.2.3.   The Object

In this dissertation, we will apply our theory in order to explain different aspects of licensing elements in complex expressions. In the next section of this chapter

we introduce and discuss some syntactic preliminaries and the implications for them following from the model we propose. In the following chapter, we give a general analysis of finite complementation and the category CMP and its computational relevance. This includes investigation in finite embedding, how it is licensed, and what the function and semantics of a lexical category *complementiser* (CMP) can be.

It will be shown that the head C carries information which is relevant for interpretation of tense and that it can be associated with Fs syntactically computing information structure, which can explain V2 languages. Another central claim is that lexical CMPs are of the category [N] and thus criterial for the syntactic selection of phrases representing propositions as subjects and complements, since arguments are always assigned abstract case. The fact that there are languages determining and case marking argument clauses overtly is explained as parametric morphological PF realisation of abstract case.

In the third chapter, we discuss syntactic clause typing of questions. In contrast to generative analyses regarding questions as representations of clauses marked by a specific formal typing feature, we propose a more specific, integrational analysis of syntax, semantics, and pragmatics. We suggest that interrogatives are marked by a semantic F *nonveridical* (*Q*) that is in a chain relation with I and V. It is far more than a syntactic FF of questions, since nonveridicality can be represented in various ways in main and embedded clauses. The analysis of licensing of *nonveridicality* in complement clauses yields the result that interpretation of clause mood applies to a dependency, i.e. a chain of semantically contentful heads. Asymmetries between Y/N-Qs and *Wh*-Qs can be explained through the lexical specification of *Wh*-marking, which contradicts earlier proposed analyses treating both clause types as realisation of an F such as [+*Wh*].

Lastly, we attempt a vague generalisation of the results over the system of clause mood in natural language. Although such an account should be elaborated in a broad typological investigation that needs much more room than this dissertation can provide, we think we can present some arguably feasible

suggestions, which of course (like everything in theoretical linguistic work) has to be both theoretically and practically tested to succeed in accomplishing research.

We use data from English, French, Italian, Norwegian, Swedish, German, Dutch, Welsh, Icelandic, Russian, Latvian, Greek, Persian, Japanese, Urdu, Bengali and Mandarin Chinese. Some of the languages in our corpus certainly belong to the best-investigated languages in generative grammar. We present the relevant data contrasting them to the structures of the less explored languages. Since the presentation of data from such a number of different languages with their syntactic properties may be confusing without any background, we give a short tabular overview of the most important typological properties.

Type / Lang.	Pos. of V_{FIN}	Pos. of V_{INF}	CMPs	position of *Wh*	V in C in Qs	interrogative PTCs
1. English	SVO	SVO	front	front	✓ (do-supp.)	Spec. CMP
2. Fr., Ital.	SVO	SVO	front	front	✓	Spec. CMP
3. ML Scand.	V2	SVO	front	front	✓	Spec. CMP
4. German	V2	SOV	front	front	✓	Spec. CMP
5. Dutch	V2	SOV	front	front	✓	Spec. CMP
6. Welsh	V1	SVO	front	front	✓	Spec CMP
7. Icelandic	V2	SVO	front	front	✓	Spec. CMP
8. Greek	SVO	SVO	front	front	✓	Spec. CMP
9. Russian	SVO	SVO	front	front	✓	✓
10. Latvian	SVO	SVO	front	front	–	✓
11. Persian	SOV	SOV	front	in situ	–	✓
12. Bengali	SOV	SOV	–	in situ	–	✓
13. Hindi	SOV	SOV	front	in situ	–	✓
14. Japanese	SOV	SOV	final	in situ	–	✓
15. Mandarin	SVO[37]	SVO	–	in situ	–	✓

---

[37] Chn. has a number of OV-properties, however, since the direct object always follows V, we classify it with the SVO-languages; nevertheless Chn. could actually be head-final, which is also indicated by the clause final PTCs which parallel it to the OV languages Jps. and Korean.

1.3.   Some Preliminaries of Syntactic Analysis

1.3.1.   SVO and SOV

Accounts like that of KAYNE (1994) reject basic OV structure accounting for sentences in verb final languages. Since this issue is an important one for a number of our accounts presented below, we have to discuss it now.

As pointed out above, the ideal of generative research has been sought in economising the theory by reducing the assumptions of structural diversity. One of the most prominent examples is KAYNE's (1994) LCA. It has been accepted by many minimalist researchers, but has also caused much controversy. Our objection that through the restrictions following from it we might loose more by the loss of explanatory potential than we gain by methodological economy reportedly gets such prominent support as that of NOAM CHOMSKY.

There is a short overview of KAYNE's theory in ROBERTS (1997, 27ff) that we refer the reader not familiar with it to. In short, KAYNE rejects parameterisation of directionality (KAYNE 1994, 47ff). He proposes a theory which is based on the central idea that asymmetric c-command determines linear order.

(171) **c-command**

> α c-commands β iff α does not dominate β and every category dominating α dominates β.

Asymmetric c-command means that α and β may not *mutually* c-command each other. Asymmetry is a relationship that always exists between *terminal nodes*, but not between heads and phrases, given that heads and their complements (which are always complex) always *mutually* c-command each other. KAYNE's axiom is that precedence of elements in a linear order is determined by *asymmetric* c-command. This he phrases as the:

(172) **Linear Correspondendce Axiom**   (KAYNE 1994, 6)

> d(A) is a linear ordering of T.
>
> , where *d(A)* is the dominance relation between ordered pairs of nonterminals ⟨X,Y⟩ and T is the set of terminals.

A less abstract version could be:

(173) ***Linear Correspondendce Axiom***   (ROBERTS 1997, 28)

> If a non-terminal node A asymmetrically c-commands another non-terminal node B then all terminals *a. . .* dominated by A precede all terminals *b. . .* dominated by B.

This means that a node always precedes its sister node if it is able to asymmetrically c-command its terminals. Therefore, a head always precedes its complement since it asymmetrically c-commands everything which is dominated by its sister node. In addition, two phrases cannot be sister nodes since their heads cannot asymmetrically c-command any terminal of the sister node. Thus this derives strict antisymmetry of syntax, which not only means that heads must have maximal projections as their sisters whose heads they asymmetrically c-command, but also that complements cannot precede their heads. The assumptions that clause structure is uniform and that linear order can be derived from c-command are regarded as the conceptual gains of this model; the empirical advantages are in our view less obvious. [38]

Although much research has been done for the sake of its empirical support since then[39], one must admit that the LCA came into being through theoretical considerations by KAYNE (1994) about the generative system and its way of ordering elements linearly. The hypothesis of strict antisymmetry of syntax has had to face much empirical criticism. The most striking of which is the existence of SOV languages, where adjuncts and arguments precede the verb in linear order, cf. the following Gm. example.

---

[38] For example, it has been suggested that a correlation of *wh-in-situ* and clause-final complementisers like in Japanese can be explained through movement of IP to SPEC/C.

  (i) watasi wa John ga   **nani** o benkyosi-teiru **no ka to**   omou
     I − TOP − *J.* − NOM − *what* − ACC − *study*IPF − CMP − *Q* − SPEECH − *think*

    "I am wondering, what John studied ".

In this sentence, the whole clause seems to have moved in several steps to the front of V, the *speech*-marker, the *Q*-marker and CMP. Two objections can be made to this: First, what triggers this movement? Second, not all *wh-in-situ* languages have final CMPs (e.g. Hindi).

  (ii) muje malum nahin **ki** wo ladka **kya** padh raha hain?
     *I*DAT − *know* − NEG − CMP − *this* − *boy* − *what* − *studies*

If there is evidence for another *wh-in-situ* parameter, one should rather find evidence for more parallels between all *wh-in-situ* languages than only those supporting the LCA.

[39] e.g. ZWART (1994), HRÓARSDÓTTIR (2000);

(174) . . . dass eine Studentin [mit allen Mitteln einen alten Mann in einen D-Zug verwandeln] muss

that − a − student(f) *− with − all − means − an − old − man − in − a − corridor-train − convert − must*

". . . that a student must with all means change an old man into a corridor train." [40]

KAYNE's approach implies that superficial head final typologies must be *derived structures*. According to his assumptions, the Eng. translation should more or less represent basic word order (with the subject moved to SPEC/AGRS of *must* and a covert verbal head between the objects of *change*). From this it follows that in the Gm. sentence everything must somehow have been moved to the front. Minimalists like ZWART (1994) suggested that in such sentences everything moves to SPECs of functional projections dominating V. In the sentence above this would mean that at first within the clause [. . . *change* . . .] the direct object has to move to AGRO to check its case and the prepositional object has to move to some functional projection to check whatever, and then the whole clause has to move to a SPEC in front of *must*.

There are several movements not motivated by what has previously been assumed as attraction for feature checking (i.e. object case), but takes place on the grounds of the theoretical assumption about antisymmetry. First, if fronting the prepositional object is explained by case checking, one has to postulate another FP specific for PP-objects. Second, Gm. *müssen* is a modal like Eng. *must*, and it also contradicts the evidence from SVO languages that modals embed clauses with a complete functional extension and assign object case to them.

(175) [IP a student [I' must [VP change an old man into a corridor train]···]

To derive the Gm. order, the VP must not only get to the front of I°, we have also to assume functional extensions of VP to get the complements to the front of V. The only way to account for this is to assume that the LCA allows clause union by head-adjoining *change* to the left of *must* and move the complements to the functional extension of this complex. Of course there is abundant cross linguistic evidence that modals in SOV languages are parametrically clause union triggers. If this is a parametric property, however, it is even more elegant to account for the

---

[40] Gm. Idiom, meaning *make him act more quickly.*

structure in (174) by a right-headed base generated structure. If V° and I° form a complex head, everything to the left of it can stay in base generated position. We will return to this issue in the next chapter.

If clause union is possible, one has to explain how to derive the following structures where what is called a 'remnant VP' is fronted:

(176) a) [$_{CP}$ [$_{VP}$ in einen Zug zu verwandeln versuchen] [$_{C'}$ will [$_?$ sie [$_?$ den Mann
$\qquad\qquad\qquad$ [$_?$ ~~in einen Zug zu verwandeln versuchen~~] ~~will~~]···]

b) [$_{CP}$ [$_{VP}$ ein Buch gelesen] [$_{C'}$ hat [$_?$ er nicht [$_{VP}$ ~~ein Buch gelesen~~] ~~hat~~]
a – book – read – has – he – not

To account for the constituents fronted before V$_{FIN}$ in a head initial structure one would have to assume SDs like:

(177) a) [$_{CP}$ [$_{?P}$ in einen Zug [$_{VP}$ [$_V$ zu verwandeln versuchen] ~~in einen Zug~~···] [$_{C'}$ will [$_{AGRSP}$ sie [$_{AGROP}$ den Mann [$_{?P}$~~in einen Zug~~ [$_{VP}$ [$_V$ ~~zu verwandeln versuchen~~] ~~den Mann~~ [$_{vP}$ v°~~in einen Zug~~]···]

b) [$_{CP}$ [$_{AGROP}$ ein Buch [$_{VP}$ gelesen ~~ein Buch~~]···] [$_{C'}$ hat [$_{AGRSP}$ er [$_{NegP}$ nicht [$_{AGROP}$ ~~ein Buch~~ [$_{VP}$~~gelesen ein Buch~~]] ~~hat~~]···]

What is fronted is then not a fronted VP but the functional projections dominating the remnant VP. Of course, a true KAYNEian will assume this anyway, but what determines the level of projection that can be fronted? Why does the order of case marking vary with verbal semantics? And why does whether or not the fronted constituent may contain a subject depend on verbal semantics?

(178) a) Kindern das Taschengeld kürzen sollte man nicht ohne Grund.
*children*DAT-*the-pocket money*ACC-*reduce-should-one-not-without-reason*

b) Joghurt der Sonne aussetzen sollte man nicht zu lange.
*yoghurt*ACC-*the-sun*DAT-*expose-should-one-not-too-long*

(179) a) *Linguisten begangen haben Fehler schon oft.
*Linguists*NOM-*commitet-have-mistakes*ACC-*already-often*

b) Fehler unterlaufen sind Linguisten schon oft.
*mistakes*NOM-*happened-are-Lingusts*DAT-*already-often*

For the little gain of theoretical elegance by explaining linear order through asymmetric c-command, one has not only to impute very uneconomical movement operations (even involving unexplained crossovers) to languages that for dubious reasons apparently do not want to behave like the much more economical SVO languages. To motivate the movement yielding head-final structure, the LCA must be supported by assumptions about abstract FFs that have

to be checked only for the sake of the theory. What remains unexplained is why only the phrasal constituents move overtly and why V always stays in base position in clauses introduced by a complementiser (CMP), whereas it moves up to C in all root clauses. If V moves to C°, according to the derivational accounts in MP theory, it has to move to the intervening X°s.

(180) ***Head movement constraint***   (ROBERTS 2001a, 113)
      Head movement of X to Y cannot "skip" an intervening head Z.

(181) a) dass [Paula] ? [einen alten Mann] ? [in einen D-Zug] verwandelte.
      b) [Paula] verwandelte [einen alten Mann] ? [in einen D-Zug] ?

However, according to the minimalist economy principles discussed above, C° should not be able to attract V if there are intervening heads, and since V is obviously not attracted by any of them, it should stay in base position also in root clauses. Without accounting for this apparent exception, X° raising to intermediate functional projections is simply stipulated.

Speaking of the restrictiveness of theories, one certainly has to state that for justification of the LCA the account of SOV has given up several restrictions that were developed to explain SVO languages just in order to parallel them. Therefore, this explanation of SOV order is not elegant. As long as all empirical evidence against this model is rejected in such a way, there is neither a way to falsify nor to prove it – it remains a stipulation which in our view demonstrates that theoretical considerations should be made on the base of empirical explanation, but not the other way round. We think we can provide a justifiable account for projection of multiple complement constructions in both SVO and SOV languages. We start out with a short discussion of binary branching.

The semantic phenomenon of more-than-two-place predicates like *give* raises the syntactic question whether there can be more than two bar-levels projected by a head, in order to generate positions for more than one complement. KAYNE (1981) was the first to suggest splitting up projections of three place predicates, especially causative V, into two distinct phrases. This was elaborated on and became the theory of VP shells by LARSON (1988).

In a head initial structure, a head cannot have two complements, given the condition of unambiguous paths from KAYNE (1981) and the principle of binary branching following from that.

(182) A path is a sequence of adjacent nodes.

(183) *Unambiguous Path*: P in T = $(A_0...A_i, A_{i+1}, ...A_n)$; $\forall$ i 0 $\leq$ i $\leq$ n

    a) If A_i immediately dominates A_{i+1}, then A_i immediately dominates no node in T other than A_{i+1}, with the permissible exception of A_{i-1}.

    b) If A_i is immediately dominated by A_{i+1}, then A_i is immediately dominated by no node in T other than A_{i+1}.

    ", such that, in tracing it out, one is never forced to make a choice between two or more unused branches." KAYNE (1981, 132)

One consequence of this assumption is the exclusion of ternary syntactic structures.

(184)   *
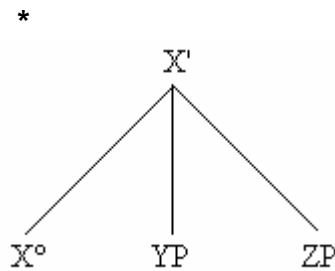
Note that in our framework the same follows from a semantic condition that saturation of functions is unambiguous since two variables are never replaced as one single operation. Replacement of a variable always leads to projection of a higher node (s.a., pp. 56ff).

To yield a binary structure for double object constructions, LARSON (1988) suggested that there was a causative head $v°$ selecting a head $V°$ with lexical semantics. In terms of predicate logic, this means implication of a proposition *p* by a complex predicate that can be decomposed to a primitive predicate CAUSE and its two arguments, an 'actor' and the implied proposition. A double object construction thus is always a complex function like

(185) Peter gives Mary the book:

    a) f(x, p) = [[cause (x, p)]]; ([[get(y, z)]], Peter)

    b) f(y, z) = [[get (y, z)]]; (the-book, Mary]

Projection then corresponds to four λ-conversions instead of three (*t** neglected):

(186) a) GIVE: $\lambda z\lambda y\lambda e_k\lambda x\lambda e_i[CAUSE(e_i,x,e_k)\&AGENT(e_i,x)\&GET(e_k,y,z)$
$\&RECIPIENT(e,y)\&THEME(e_k,z)]$

     b) $[\![\,give'(Peter,\ Mary,\ the\text{-}book)]\!] = \lambda e_i\exists e_k[CAUSE(e_i,Peter,e_k)\ \&AGENT(e_i,Peter)$
$\&GET(e_k Mary,\iota z[book(z)])\&RECIPIENT(e,Mary)\&THEME(e_k,z)]]$

If it is useful, arguments can be labelled with notions of Θ-roles (which work as functions on binary relations in such a case), in order to distinguish them from implicit arguments and to specify the lexical entry. For a simplified demonstration of syntactic saturation we neglect them; we also neglect T and IP and give a graphical account of the shell structure with the three-place argument structure [GIVE (x,y,z)].

(187)
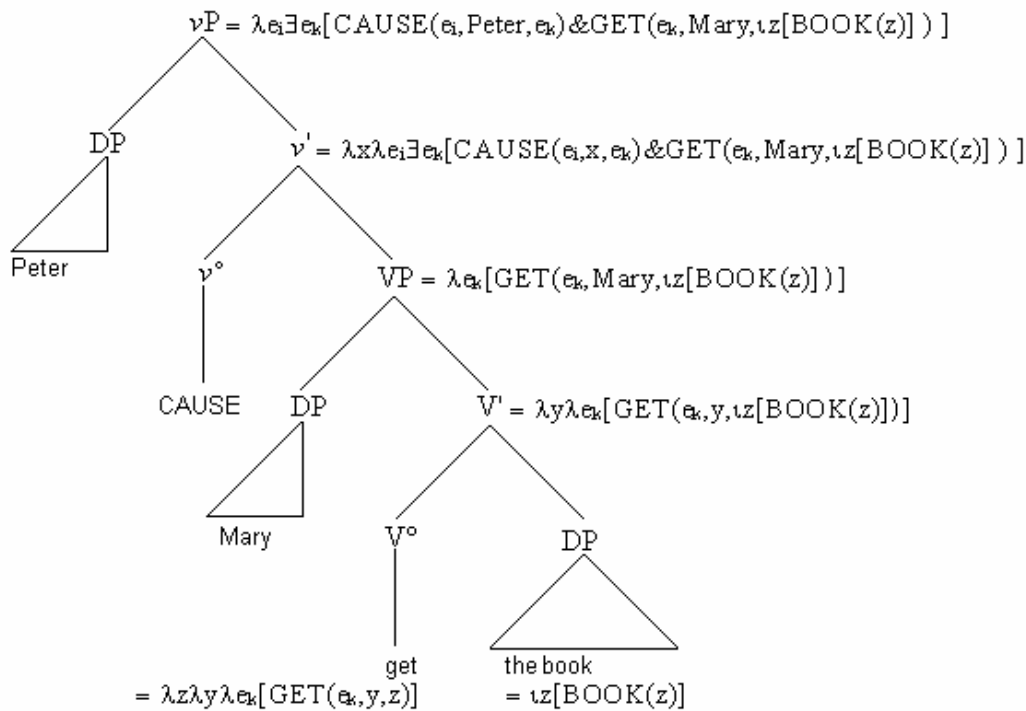
We assume that selection by the causative head binds the event of the implied proposition existentially, which corresponds to its λ-conversion. λ-conversion of the event CAUSE would apply through selection by T°. We assume that this process of selection forms a chain between the heads v° and V° which is spelt out in v° as 'give' (the details of this account are given further below). The complex concept 'give' then has a lexical entry as CAUSE specified for selection of GET in English. This shows how our model is not only compatible with the shell model

allowing binary branching of double object constructions, but also gives it a compositional justification.

However, only under the assumption that all structures are head initial, binary branching actually excludes three place functions. In a head final structure, binary branching can be granted through iteration of the projection, as first suggested by FUKUI & SPEAS (1986) and elaborated for the syntax of German by HAIDER (1993 ff). With only one additional assumption that the order of replacement is lexical-conceptually constrained by the Θ-grid, we can project a well formed double object construction by iteration of V' in OV languages.

A syntactical account for this difference, on the basis of directionality of licensing, is given by HAIDER (2000e), who claims that in fact OV is more basic than VO. In VO languages not licensing their complements to the left of V, it must rise to license its complements to the right. Note that also in a theory assuming the LCA, a structure must end in a head that is asymmetrically c-commanded by the heads of the dominating phrases. Therefore, the lowest phrase in a SVO structure cannot be complex. An elegant assumption might be that this final head is in fact V° and that V must raise for a certain purpose.

The question is now whether the possibility of complements to the left really follows from a syntactic parameter of directionality of licensing. Our answer is that this is not necessarily so. The notion of directionality is not a primitive in our framework, and thus not parameterisable. It follows from the modular organisation of C_{HL} in the lexicon and syntax. Three place functions are created by unifying two two-place functions on the lexical level before saturation. This means then that again syntactic variation is grounded on parametric *scattering* and *syncretism*, in the case of the lexical semantics of GET and the causative predicate CAUSE.

(188) GIVE: $f(x, y, z)) = [\![\text{cause} (x, (\text{get} (y,z)))]\!]$

If the grammar of a language like Gm. allows the projection of complex predicates, those Vs create structure by iterating the projection through saturation of one function by only three λ-conversions. The essential difference in the lexical entry is the existential binding of the implicit predicate variable on the lexical level, such that the lexical entry of GIVE looks like:

(189) $\lambda z\lambda y\lambda x\lambda e_i\exists e_k$ [CAUSE(e_i,x,e_k)&AGENT(e_i,x)&GET(e_k,y,z)&RECIPIENT(e,y)
&THEME(e_k,z)] (book, Mary, Peter)

The VP projected by this verb looks as follows:

(190) . . . dass Peter Maria das Buch gab
       that – Peter – Mary – the – book – gave

(191)
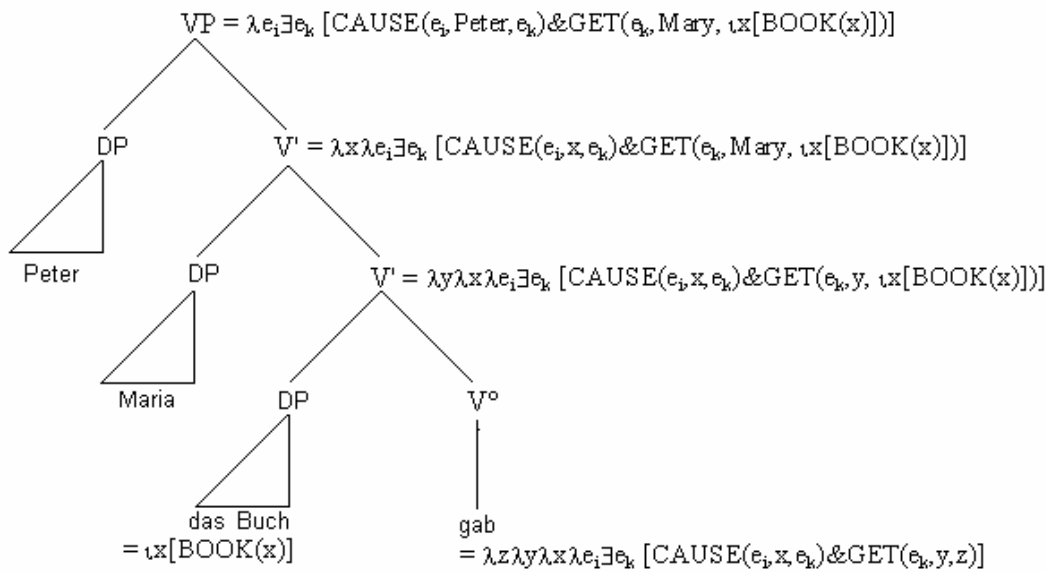
To put it differently, a system with three place functions on lexical level *must* allow more than one bar-level in syntax. A language that forms complex predicates on the lexical level must be able to project multiple layered phrases for their saturation. Given that the right branching of basic projections seems to be a syntactic universal (cf. HAIDER 1992, 1994, 2000c; KAYNE 1994), it is not implausible that the basic projection of V is head final – branching with every operational step the function requires.

According to this account, both left-headedness and 'raising' of lexical V° to a higher functional head v° may simply be forced by the circumstance that a language cannot form complex functions on the lexical level. If *F-scattering* is a lexical parameter, then we have a plausible explanation for the existence of LARSONian (1988) shells in SVO languages. Scattering languages must project functional heads (like the causative light verb) representing functions that select the saturated two place predicates contained in a more complex concept. The heads in such generated shell structures form a *syntactic dependency* that is PF interpreted by the highest VP head – thus the VP is SVO.

The apparent VO order in single object constructions like

(192) a) John likes Mary.

b) John is doing his homework.

is illusory anyway, since even the simplest predicate represented by V is already composed of primitive IFs. So is 'like'. It is an experiencer relation between two arguments through a state characterised by affection.

(193) LIKE: λyλPλxλt*[EXP(t*,x,P)&AFFECTION(P)&STIMULUS(t*,P,y)]

'Do' is a verb changing the state of the object and thus implies a resultative predicate.

(194) DO: λyλxλeλt*∃P^{RES}[AGENT(t*,e,x)&do'(t*,e,x,y)&THEME((t*,e,y)&P^{RES}(y)]

If it is not possible for a language to project the Θ-grid of a complex predicate, it will always have to project the implied predicate first and functional verbal heads (v°) afterwards. If the chain [v°-…] is spelt out in v°, the language will be SVO.

SOV languages are *syncretising* languages, which can, by iterating VP, simply project a complex function that is restricted only by the LCS. Indeed, we can dispense with the directionality parameter in our framework, but on different grounds than those suggested by the LCA. A language that cannot project several predicative functions within one head cannot represent a predicate containing an object within the projection of a single head V. Higher functions must be projected, which form a chain interpreting the predicate as a dependency.

For an account for lexical derivation of complex predicates in the SOV language Japanese, see KITAGAWA (1994, 22ff.). Of course, a set of two languages where this seems possible does not yet allow for a generalisation over the identity of unified predicates and clause final V°. Real justification needs a much broader typological account. Nevertheless this could be an alternative model and confirms our view that rejecting OV base structure is neither conceptually nor technically necessary. We therefore keep to the traditional distinction between SVO and SOV languages through the relative head position <u>without</u> deriving the latter from the first by moving the arguments.

1.3.2.   Syntactic Domains

An assumption which we adopt from GB theory and which also has been extensively referred to by MP research, is the representation of certain Fs as heads projecting phrases that potentially constitute three basic syntactic domains: The C-domain (henceforth CDom), the I-domain (henceforth IDom) and the V-domain (henceforth VDom).

This quite common assumption is based on CHOMSKY's (1986b) X'-theoretic generalisations over functional projections. RIZZI (1997, 281), in his introduction, calls them "three kinds of structural layers, each layer an instantiation of the X-bar schema." As RIZZI (1997) also states, this model is (must be) an oversimplification of the actual state of affairs. Nevertheless, it is a suitable starting point for all considerations about clause types and complex sentences.

Empirical facts about word order in many languages suggest the division of sentence structure into three distinct partitions. In English, there are e.g. the three potential positions for AUX, depending on the clause type and whether V is inflected or not.

(195) a) **Has** he read Rizzi?

  b) I *think* *that* he **has** read Rizzi.

  c) He must **have** read Rizzi.

Finite AUX may precede or follow the subject; non-finite AUX must follow the finite one.

In generative grammar, this is accounted for through a topological typology on the basis of endocentric recursive projection. It is assumed that the AUX in the sentences above represent three different head positions. The AUX in pre-subject-position (cf. a) is in complementary distribution with a CMP like *that* (cf. b) and represents C°; finite and infinite AUX are also in complementary distribution, hence representing either I° or V°.

Thus, since the work of CHOMSKY (1986b) there is a X'- theoretic model where these positions belong to domains that correspond to syntactic projections of specific heads, i.e. C°, I° and V°. In English, the head position of the domain of C° can be either occupied by a CMP (the category lending its initial as the domains label), or it can be occupied by AUX, if the illocutionary type is

specified as an interrogative (discussed in detail in Ch. 3). Finite AUX, if not in C, is always in I. Non-finite verbal categories are always in V.

(196) a) [CP **Has** [IP he [VP read Rizzi]···]

    b) I think [CP *that* [IP he **has** [VP read Rizzi]···]

    c) [IP He must [VP **have** read Rizzi]···]

Of course, this is only a simplified generalisation of Eng. clause topology. It nevertheless allows a first hypothetical conclusion about the functional specification of these domains. Eng.-like languages obviously show the potential to represent three functional levels structurally in syntax, which RIZZI (1997, 281) phrases as follows:

1. The lexical layer, headed by the verb, the structural layer in which theta assignment takes place.

2. The inflectional layer, headed by the functional head corresponding to concrete or abstract morphological specifications on the verb, and responsible for the licensing of argumental features such as case and agreement.

3. The complementiser layer, typically headed by a free functional morpheme, and hosting topics and various operator-like elements such as interrogative and relative pronouns, focalised elements, etc. .

We think that these 'structural instantiations' can be related to three specific kinds of logical reference: the logic of predication, the logic of proposition and the logic of illocution. Therefore, we suggest drawing a parallel between these domains and functions in speech.

    Θ-marking (or whatever derivational process suggested to replace it by MP literature) is an operation that saturates a function represented by V within VP, yielding the complete logical representation of predication. Therefore, we want to call the V-domain *predicate related*. Since a proposition can be completed by reference to time and structural linking of the predicate to a subject or another suitable element (cf. our discussions above, pp. 85f, and below, ch. 1.3.5), we suggest that the I-domain is *proposition-related*. Finally, since C, as the highest domain of our model, is not only used for subordination of a proposition to a higher predicate as a part of speech, but also plays a central role in marking the illocutionary function in speech through the dislocation of V° or *Wh*-elements, we want to call the C-domain *speech-related*.

That this must be more than a trivial generalisation over the few properties of clauses that can be observed in Eng., will be argued for in detail in the next chapters. The interaction of the domains also reflects the interaction of the modules semantics and pragmatics, which is mediated by syntax. E.g. it has been shown (e.g. by REHBOCK 1992a) that an illocutionary type can be analysed as a function of clause mood and speech reference – more exactly the *rhetic act* (cf. AUSTIN 1962) referring to the world through the proposition – which in our model is represented by the proposition-related IDom. Further processes that can be related to the speech function represented by the projections in the CDom are topicalisation and focus fronting.

It is only natural in a purely formal model based on syntactic autonomy to assume a structural representation of a third functional level. If so, a recursive model of extended projection allows for formal representation of three different kinds of logical relations: *predication*, *proposition* and … an instance open for pragmatic manipulation, like specification of the illocutionary type or information structuring.

All this will be discussed in the next chapters. Before we proceed, however, we have to look more closely into the structural characteristics of the syntactic domains introduced above, and their universals and parameters.

1.3.3.   The IP and its Comparative Syntax in English, Romance and German

English seems to reflect the three domains according to X-bar theory exactly. In the examples above, the heads are represented by complementisers (CMPs) like *that* (C°), auxiliaries (AUXs) like *would* (I°) and verbs (Vs) like *study*. In the absence of an AUX, it is assumed, on the grounds of distributional facts, that a phonologically empty ($\emptyset$) inflectional category, and not V_{FIN}, heads IP. The assumption that full V° stay *in situ* in Eng. is supported by distributional properties of V and VP external adverbs (ADVs) like *always* or *gladly* which always precede full V but follow the inflected AUX. The same distributional properties also tell us that the subject (SBJ) is in the specifier (SPEC) position of I°, the category that agrees with it in person and number.

Whereas the idea of concrete combination of the lexical head V° and its functional extension I° as an affix lead to wild assumptions like *affix hopping* in the earlier days of GB Theory (cf. LASNIK 1981, also the '*stray affix filter*'), the concept of feature checking and covert movement of the MP allows both the inflectional features in I° and the fully inflected V to stay in their base position before *spellout*. In a representational model like ours this can be expressed in terms of a head chain.

(197) a) I knew [$_{CP}$ that [$_{IP}$ the boy [$_{I'}$ would$_i$ [gladly [$_{VP}$ study$_i$ linguistics]]···]

   b) I saw [$_{CP}$ that [$_{IP}$ the boy [$_{I'}$ I°$_i$ [gladly [$_{VP}$ studied$_i$ Linguistics]]···]

If we assume that the domain of I° in English is the actual domain of representation of a functional category [I], I° must be, in a way, linked to finite V° showing the inflection morphologically, i.e. in the form of a head chain (symbolised by co-indexation). Then interpretation can apply to the whole chain. [41] We could assume something like the following: V° co-indexed with I° = *would* (expressing I = *future irrealis*, or in traditional terms, *conditional*) will have infinitival (INF) inflection, V° co-indexed with I° = ∅ representing past tense (*PST*) will have *PST* inflection. [42]

In Romance languages like Fr. and It., the correspondence between CMP, INFL and V and the domains of C°, I° and V° seems the same. However, finite V inflected for tense (T) and AGR are, in fact, always in the IDom, and even infinitives can appear there. As mentioned above, this was one reason for POLLOCK (1989) to propose that the IP in French is split into AGRP and TP.

(198) a) Je sais [$_{CP}$ qu' [$_{AGRP}$ il [$_{AGR'}$ va [$_{TP}$ étudier [enthusiastement [$_{VP}$ la linguistique]···]
       I – know – CMP – he – goes − study − enthusiastically − the − linguistic

   b) Je sais [$_{CP}$ qu' [$_{AGRP}$ il [$_{AGR'}$ a [$_{TP}$ [enthusiastement [$_{VP}$ étudié la linguistique]···]
       I – know – CMP – he – has − enthusiastically − studied − the − linguistic

---

[41] If I° is phonologically empty (∅), agreement (AGR) with the subject can only be morphologically realised by V° which is the foot of the chain. This also makes it probable that interpretation applies to the whole chain.

[42] We might replace the concept of head chains by that of selection (cf. above, p.68f). A ∅-head with the tense feature [past] and the φ-features 3rdsg would then select a VP projected by a corresponding V°. This would be a gain with respect to economy, but we have not looked into all the consequences of such a proposal.

As also mentioned above, according to RIZZI (1997) it has been widely accepted that the CDom also has several layers, such that every domain can be assigned a finer structure without leaving the concept of a tri-partitioned clause structure.

Looking at head final languages like Gm., however, one finds that this partition of the clause into three domains is not as evident. Several syntacticians have argued for the **absence of IPs** in Dutch and Gm. (cf. also KIPARSKY 1997). Positive evidence can be found for neither an initial[43] nor a final head I°. First, we discuss the assumption of head final IPs (as made by e.g. GREWENDORF 1988, HAEGEMAN 1991).

Note that there is never intervening material such as relative clauses or adverbials that could point to a head final IP where V_{FIN} would move. (HAIDER 1993, VAN GELDEREN 1996; see also ZWART 1993).

(199) a) *dass er dir nicht eine Frage stellen e [die du nicht beantworten kannst] wird

       *CMP – he – you*DAT *– not – one – question – put – which – you – not – answer-to – can – will*

   b) *dass er nur dem etwas e [der sich ausweisen konnte] [gezeigt hat]

       CMP – he – only – DEM-DAT *– something – who – himself – identify – could – shown – has*   (cf. HAIDER 1993)

Unless we want to claim that, *if* they moved, relatives etc. in Gm. would obligatorily move outside IP, their exclusive occurrence either within the phrase of their nominal head or after V_{FIN} are strong evidence against a head-final IP. Both Gm. and Eng. data rather suggest that relatives belong to the VDom. Firstly, in both languages, relative clauses precede object clauses (cf. also HAIDER 1997b, 134).

(200) a) He promised to a woman$_i$ yesterday who he really loved that he would marry her$_i$.

   b) Er hat einer Frau$_i$ versprochen, die er liebt, dass er sie$_i$ heiraten wird.
      he – has – a – wom. – promised – who – he – loves – that – he – her – m. – will

---

[43] People argued (cf. ZWART 1993) that Gm.weak pronouns in the 'Wackernagel-position' intervening between the subject and the lower structure are positive evidence for I°.

   (i)   Gestern hat Peter **es ihm** auf den Schreibtisch gelegt.
         yesterday – has – P. – it – him – on – the – desk – laid

  Here, those pronouns are analysed as clitics adjoined to I°. Although this might be a possibility, it does not at all exclude the classical explanation based on information structure: Weak pronouns are always old information and therefore precede the focus of S. They do not at all force the assumption of a head I°.

Secondly, the co-indexed pronoun in the object clause shows that it cannot be adjoined higher than its antecedent in the VP, thus it must even be inside VP, as must the relative. Thus, if inflected V went to head final I°, relative clauses and extraposed object clauses would intervene between uninflected V° and AUX, which they do not.

Another argument against movement of V to head final I° is that there are VP internal expressions which must c-command V°, such that V° cannot be fronted to C° to form a V2 sentence (cf. HAIDER 1997a).

(201) a) Dies hat [$_{VP}$ den Wert [mehr als bloß [verdreifacht]···]
this – has – the – value – more – than – only – tripled

'this far more than tripled the value.'

b) *Dies verdreifachte$_i$ [$_{VP}$ den Wert [mehr als bloß [**e**$_i$]···]
this – tripled – the – value – more – than – only

If V-movement out of the scope of its modifier causes ungrammaticality, this should also be the case if V° moves to a head final I°, which it is not.

(202) . . . weil dies den Wert mehr als bloß verdreifachte.
because – this – the – value – more – than – only – tripled

More obscure negative evidence against *head final* FPs between C and V in Gm. has been presented by REULAND & KOSMEIJER (1993): Movement of V to head final I would predict ambiguous readings of clauses modified by V oriented adverbials:

(203) dass   sie   ihn   regelmäßig für eine Weile behinderte
CMP – she – him – regularly – for – a – while – hindered

There is no reading where the second adverbial has scope over the first one, which would be unexpected if there was an adjunction site between V° and I°.

(204)
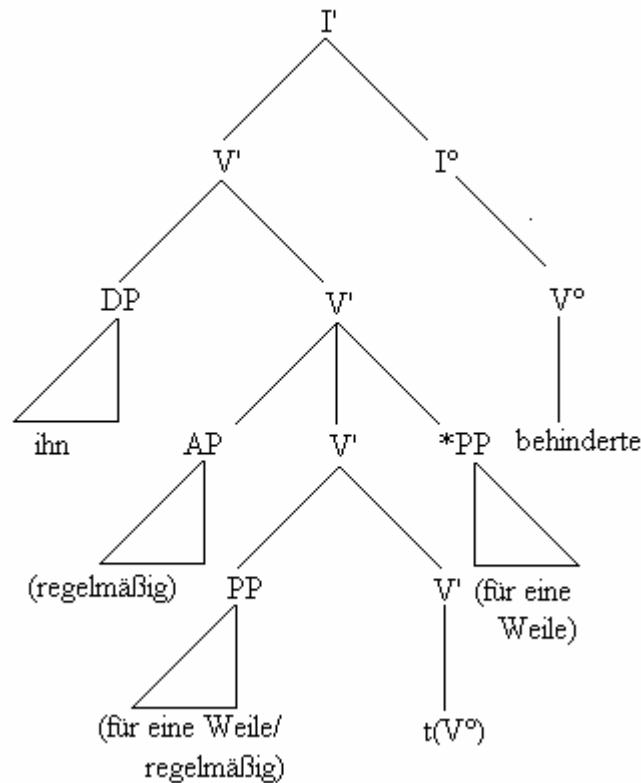
If right adjunction is not generally excluded (which is supported by the ambiguity of the following structure), one must assume that V is in its base position.

(205) ✓ dass sie ihn (*e*ᵢ) regelmäßig (*e*ᵢ) behinderte, [für eine Weile]ᵢ
     CMP – *she – him – regularily – hindered – for – a – while*

In this case, where obviously the PP adverbial has been right adjoined, the second reading predicted by the assumption of V-movement to I° in a structure where the PP precedes it immediately *is* available. This means, right adjunction to VP should be possible, but V° does not move to I°.

     If V° does not move to I°, it should not be able to move to C° in main clauses, since it is not attracted by I° and attraction always targets the closest c-commanded functional or lexical head (cyclicity; cf. our discussion of the LCA above*, p.108, and the *head-movement-constraint*). This argument holds also as evidence against head initial FPs hosting INFL features (cf. HAIDER 1997): V moves to C in interrogatives and V2 main clauses, but not to I in subordinate clauses. In English, movement to C is possible only for Vs that move to I independently, these are AUX and modals.

Absence of V movement in English can be explained in the MP through weak INFL Fs that are not able to pied-pipe V. ROBERTS (1998) assumes that AUX only move since they lack the features correlated to Θ-assignment, and thus are 'light' enough to be pied piped. In Gm. there is no evidence for movement of verbal categories to I°, neither lexically contentful ones nor AUXs. Both, however, move to C°. Again, if there is an I° attracting anything, one should expect the position of AUX to be in a higher functional head like I° in embedded clauses − should it exist.

As shown by HAIDER (1993, 1997), there is no canonical subject position identifiable in Gm. that could point to SPEC-head agreement in the IP. Since Gm. has no positional licensing of subjects (i.e. external arguments, extΘs, bearing NOM) (cf. KIPARSKY 1997), topicalised VPs can contain the subject, i.e. DP(NOM). This is evident with *unaccusatives* and under passivisation:

(206) a) [$_{VP}$ ein Zug (NOM) angekommen] ist hier nach Mitternacht noch nie.
a – train – arrived – is – here – after – midnight – still – never

   b) [$_{VP}$ Syntaktikern Fehler (NOM) unterlaufen] $_i$ [44] sind$_j$ nicht nur früher e_i e_j
syntacticians(DAT) – *mistakes*(NOM) – *slipped-in – are – not – only – earlier*

   c) [$_{VP}$ Studenten (NOM) ausgebildet] werden hier viele.
students – trained – become – here – many

The structure under CP seems to reflect Θ-structure (ΘS) directly; the arguments (Θs) are licensed by case morphologically.

(207) dass nicht nur früher Syntaktikern (RECIPIENT) Fehler (THEME) unterlaufen sind

The highest Θ in the hierarchy not marked for inherent case gets NOM (cf. HAIDER 1993, ch. 5.3). Thus, if the subject is defined as the Θ bearing NOM, the extΘ[45] is not necessarily identical with it.[46] The unmarked order[47] of the main clause would be:

---

[44] Cf. ex. (26), p.39 , and fn. 7.

[45] The term extΘ here must obtain a more general definition: It is not necessarily the Θ that is outside VP, but is simply the topmost Θ in the grid.

[46] This yields a straightforward explanation for the loss of "dative subjects" in English addressed e.g. in LIGHTFOOT (1979). Since the input did not provide non-NOM extΘs anymore, the learners changed the ΘS of V like 'lician'.

   (i)   þæm cuninge licaþ peran (V agrees with intΘ)
   (ii)   the king likes pears (V agrees with extΘ)

(208) Syntaktikern(DAT) sind nicht nur früher Fehler(NOM) unterlaufen.

Another argument for the fact that there is no specific subject position in Gm. is that, unlike in Eng. or Dt. [48], there are no expletives following C°.

(209) a) He said that there was not anybody there.

     b) Er sagte, dass (*es) niemand da war.
        he – said – CMP – it[49] – nobody – there – was

Therefore, unlike in Dutch (cf. fn. 48), nominal subjects may also follow the pronominal clitics in the *Wackernagel Position* – depending on how the speaker decides to structure information.

(210) a) Toen vond (***het**) mijn broer **het** opeens tussen oude kranten.
        then – found – my – brother – it – suddenly – between – old – newspapers

     b) Damals fand (mein Bruder) **es** (mein Bruder) plötzlich zwischen alten Zeitungen.

Lastly, unlike Eng. where there is a constraint against extraction out of subject clauses due to movement to SPEC/I, extraction from the subject in Gm. is free.

(211) a) *$What_i$ would [to discuss e_i with him] be worthwhile?

     b) Was_i würde sich [mit ihm e_i zu besprechen] denn lohnen?
        what – would – itself – with – him – to – discuss – yet – pay

However, explaining the absence of movement in embedded clauses by stipulating the absence of IP in SubCs would be an undesirable *ad hoc* solution, similar to making a claim such as *"Unlike in English, the functional level of the German proposition has no structural representation"*. Instead, we suggest that the representations of two of the three functional levels are not distinguished by maximal projections.

---

[47] There are several tests for this referred to in HAIDER (1993), which we do not want to illustrate here. We refer to those developed by HÖHLE (1982) which we present in Ch. 2.2.3.

[48] HAIDER (1997) argues that, whereas German does not have a subject position at all, the Dutch subject position is SPEC/VP.

[49] The regular Gm. expletive is *es*, like in

    (i)   *Es* war niemand da.
    (ii) There was nobody there.

1.3.4. Syncretic Domains

One possibility would be that V2 is the reflex of the functional levels *speech* and *proposition* being simultaneously formally represented by CP (as proposed by BRANDNER 1994). It had been suggested earlier that the CP in V2 languages was a hybrid category having features of both I and C (C/IP, CONFL, cf. DEN BESTEN 1983, PLATZACK 1986 etc).

To account structurally for such a syncretism, HAIDER (1989) developed the concept of *matching projections*, which is also referred to by RIZZI (1990b), who assumed that C° in V2 languages is of the category [+C, +I], in contrast to e.g. Eng. [+C, -I] . HAIDER (1989, 1993) proposes that every language has at least one functional projection extending VP, and that Gm. has a C/IP parametrically. Such processes have been much discussed in the literature; we refer the reader to our discussion in ch. 1.2.2.7.

However, is it necessarily a match of two *functional* projections, which is the reason for the reduction of the structural layers? One could also argue that the lexical features of V and the inflectional IFs share one domain (cf. REULAND & KOSMEJER 1993), especially if one correlates them to the referential levels of *predicate* and *proposition.* Firstly, as shown above, Gm. NOM case marking seems to take place in base position, and if we want to correlate this to agreement, which like tensing, takes place in the VP without evidence for an additional chain link (cf. above, pp. 67f), it is not unnatural to assume that the VP represents the domain which is represented by a specific functional projection IP in other languages.

Secondly, verbal forms in Dt. and Gm. form a complex predicate in the case of apparently embedded predicates (V$_{SUB}$). This clause final V-cluster has been derivationally explained as a *clause union phenomenon* (cf. HAEGEMAN & RIEMSDIJK 1986; STECHOW & STERNEFELD 1988, 108, 411ff). However, there is clear evidence that coherent infinitives in Gm. are base generated complex predicates (cf. HAIDER 1994, 83ff).[50] We therefore label them as V°.

---

[50] On morphological generation of complex predicates cf. BIERWISCH (1990); on representational unification cf. ACKERMAN & WEBELHUTH (2000).

(212) a) dass sie versuchten, [s PRO **den** Wagen zu reparieren]
          CMP – *they* – *tried* – PRO – DET-ACC – *car* – *to* – *repair*

          'that they tried to repair the car'

      b) dass versucht wurde, [s PRO **den** Wagen zu reparieren]
          CMP – *tried* – *was* – PRO – DET-ACC – *car* – *to* – *repair*

          impersonal pass., non-existent in Eng.; ≈ 'that there was a try to repair the car'

      c) dass sie **den** Wagen [v° zu reparieren versuchten]
          CMP – *they* – DET-ACC – *car* – *to* – *repair* – *tried*

          'that they tried to repair the car'

      d) dass **der** Wagen [v° zu reparieren versucht wurde]
          CMP – DET-NOM – *car* – *to* – *repair* – *tried* – *was*

          ≈ 'that there was a try to repair the car'

(212a) is an incoherent construction with an infinite object clause. It is possible to passivise the MC V, which yields an impersonal passive where the SubC is the subject. Of course, the object ('car') of the embedded clause remains unaffected by case alternation.

On the other hand, if the same relation is expressed by a coherent infinitive (212c), passivisation of the main V yields an impersonal passive where the object of the subordinate V ('car') is the subject. Both Vs form a complex predicate with a common object. If we tried to explain this as a derivational process of clause union, we would have to account for the loss of the subject (PRO) of V$_{SUB}$ ('repair'), which contradicts the projection principle[51].

(213) ***The Projection Principle***   (cf. CHOMSKY 1981, 36, 38)

      Given *[G ...A...B...]*, then

      a) if *B* is an immediate constituent of *G* at *L$_i$*, and *G = A'*, then *A* Θ-marks *B* in *G*.

      b) if *A* selects *B* in *G* as a lexikal property, then *A* selects *B* in *G* at *L$_i$*.

      c) if *A* selects *B* in *G* at *L$_i$*, then *A* selects *B* in *G* at *L$_j$*.

Given that clause final inflected Vs are not moved to a head final IP (cf. above) and that the verbal cluster can always be dislocated in SPEC/C (the inflected part which is in C°, cf. 214), it is not unreasonable to assume that the whole verbal part of the predicate is actually generated as a cluster.

---

[51] We concede that this principle is not assumed in the MP. Although it was not replaced by a minimalist equivalent, to our knowledge, erasing arguments has not yet been allowed by NOAM CHOMSKY, such that something similar should still hold.

(214) a) [zu reparieren versucht haben] soll Fritz das Auto
to – repair – tried – shall – Fritz – DET-ACC *– car*

"Fritz is said to have tried to repair the car".

b) [zu reparieren versucht werden] soll das Auto morgen.
to – repair – tried – be – shall – DET-NOM *– car – tomorrow*

"The car is said to be tried to be repaired tomorrow".

Since subjects do not move outside VP to get case, a VP defining a predicate can be fronted quite freely, even if it contains the subject. This works undoubtedly with subjects of unaccusatives.

(215) [$_{VP}$ ein Zug angekommen] ist heute noch nicht
*a – train*NOM *– arrived – is – today – still – not*

There is no reason why formal syntax should treat these subjects differently in Gm., if it does not in languages like Eng.. On the other hand, there are also restrictions on VP topicalisation if VP contains the subject of a *transitive* or *unergative* V.

(216) a) *[$_{VP}$ Studenten Bücher lesen] sollten möglichst oft.
*students – books – read – should – possible*SPL *– often*

"Students should as often as possible read books ".

b) [$_{VP}$ Bücher lesen] sollten Studenten möglichst oft.

c) [$_{VP}$ lesen] sollten Studenten möglichst oft Bücher.

(217) a) * [Leute getanzt] haben hier die ganze Nacht.
people – danced – have – here – the – whole – night

b) [getanzt] haben Leute hier die ganze Nacht.

Since this is, despite the fact that the subject in Gm. is not necessarily external (cf. ex. (26)), we have to account for the restriction on VP internal subjects in SPEC/C. When does a subject have to be outside the fronted VP? Note that VP topicalisation is marginally possible even with indefinite subjects of transitive V, if the predicate is not linked to them and if the predication is over an event or situation.

(218) ? [$_{VP}$ Linguisten Langusten gespeist] haben **da** wohl **noch nie**. (HAIDER 1993, 153)
*linguists*NOM *– lobster*ACC *– eaten – have – there – well – still – never*

Therefore, we assume that the answer has to be sought in the nature of the verbal domain. Even if the part of the structure below CP were VP, one would not claim that it is not a proposition. We propose that even though a single head V projects

it, it is syntactically partitioned. There is a functional level of *proposition* containing the functional level of *predication*. A subject that is predicated over will be represented as SPEC of the partition of *proposition*, even if that level does not belong to a phrase projected by a separate head. We assume that the VP in Gm. is a layered domain (how many layers there are may also depend on the valence of the predicate) with multiple specifiers.[52] Whereas the so called *VP internal subject* in its base position is still in the domain of the predicate and therefore can be fronted together with it, it must be stranded if it is in a higher SPEC – which can in principle also apply to VP internal constituents other than the subject. Therefore, FREY (2000) suggested a "topic position" within the Gm. *Mittelfeld*.

(219) a) [VP kleine Kinder erschreckt] hat *solch ein böser Traum* schon oft.
           *little – children*ACC *– frightened – has – such – a – bad – dream*NOM *– already
           – often*

       b) [VP ein böser Traum erschreckt] hat kleine Kinder schon oft.
           *a – bad – dream*NOM *– frightened – has – little – children*ACC *– already – often*

In the following paragraph we want to suggest that this position is, in fact, a higher VP-partition for topic-like elements (i.e. what is commented on by the remaining proposition) and that this partition fulfils what, in the beginning of research on the extended projection, has been reasoned as a condition for obligatory subjects (at least in the so called 'subject-oriented' languages): *predicate linking*.[53]

1.3.5.   *Scrambling: Evidence for Interfacial Predicate Linking*

CHOMSKY (1986b) first proposed that there was a functional projection IP with an obligatory specifier hosting the subject of a sentence. It was assumed that there is a universal principle forcing the projection of a subject position: the EPP.

---

[52]   Thanks to PETER SELLS for the suggestion that the subject might be in a SPEC position that
        does not belong to the projection of a head.

[53]   This notion of 'Linking' used in early GB theory (cf. ROTHSTEIN 1985) must not be mixed up
        with the more common use of this term, roughly corresponding to saturation of the Θ-grid in
        word formation (cf. LIEBER 1983).

> In general, specifiers are optional but the choice of complements is determined by the Projection Principle. Assume here that the specifier of IP (...) is required by the Extended Projection Principle. (CHOMSKY 1986b, 4)

(220) I" = [NP [$_{I'}$ [$_{VP}$ V ...]]] (ibd., 3)

> Perhaps derived from the theory of predication in the sense of Williams 1980, along lines suggested in Rothstein 1983. (ibd., fn. 5)

ROTHSTEIN (1983, published 1985) argued that this was on the grounds of obligatory predicate linking.

(221) ***Extended Projection Principle*** (ROTHSTEIN 1985, 69)

> For a sentence of L to be well-formed, both syntactic and lexical functions must be appropriately saturated: i.e., the Projection Principle and the Predicate-linking rule must be satisfied.

(222) ***Predicate Linking Rule*** (adapted) (cf. ROTHSTEIN 1985, 11, 25)

> Every non-Θ-marked XP must be linked at S-structure to an argument c-commanding it. X is subject of Y if and only if Y is linked to X. Predicate-linkings which are not to be interpreted as semantic representations must be 'broken' by mapping to LF.

In this view, subjects serve as the syntactic saturation of a constituent that the predicate is related to – i.e., the subject of predication. Later on, this was combined with the well known generalisations about nominative case assigned to its SPEC by I°, and SPEC-head agreement leading to the verb agreeing with its subject.

It should not been forgotten that the assumption of a correlation DP(NOM), φFs(i.e. person and number agreement) and specification of I° is not even forced by languages like Eng. – since there are expletive constructions.

(223) There are three men in the kitchen.

The finite V agrees with SPEC/VP which also bears NOM, whereas I° is specified by the expletive. We analyse this construction as predication over an event or a situation, or better, over the index of event time and the world of our model $i = \langle w,t \rangle$*. In this case we think the predicate is not overtly linked to a DP, but covertly to the index, which is indirectly represented by the presence of 'there' in SPEC/IP. This is the crucial difference of interpretation between the expletive construction and a sentence like

(224) Three men are in the kitchen.

, where the DP(NOM) is predicated over. We think that the range of options of predicate linking is much wider in the languages that have traditionally been called *topic-oriented*. And we consider Gm. a mixed type of *topic-* and *subject* orientation. This is on the grounds of the following assumptions:

There are more reasons to reject the generalisations over case and agreement for the number of languages where nominative subjects are not obligatory – amongst them German. In German, there are predicates that do not call for a subject and predicates that seem to have a dative subject as well as another argument that is assigned nominative.

(225) a) Mir graut vor aller Theorie.
          me(DAT) – *frightens – before – all – theory*

       'I am frightened of all theory.'

      b) Mich dürstet nach Wissen.
          me(DAT) – *have-thirst – after – knowledge*

       'I am thirsty for knowledge.'

(226) a) Hier ist noch nie einem Außenseiter ein Zufallstreffer geglückt.
          here – is – yet – never – an – outsider(DAT) – *a – chance-goal*(NOM) –
          succeeded

       'An outsider never succeeded in scoring a chance goal, here.'

      b) Immer wieder unterlaufen Syntaktikern Fehler.
          always – again – slip-in – syntacticians(DAT) – *mistakes*(NOM)

       'Again and again syntacticians happen to make mistakes.'

Note that the proper Eng. translations always turn the dative in the Gm. sentences to NOM. We assume that, in German, nominative case assignment is not related to a structural position, and that predicate linking applies to constituents that are generated in the higher VP partition. Therefore, if the subject has not been used to saturate the upper partition for predicate linking, fronted VPs can contain it.

(227) a) [ein Zug angekommen] ist hier noch nie
          a – train – arrived – is – here – yet – never

      b) [einem Außenseiter ein Zufallstreffer geglückt] ist hier noch nie
          a – outsider – a – chance-goal – succeeded– is – here – yet – never

The predicate can be linked to more than one constituent. In the two sentences above, which are predications over time and place, the predicate is linked to the two adverbials. What is not in the fronted VP isn't in a "base VP" in the *Mittelfeld*, either. It is always the whole lower VP partition that is fronted to SPEC/CP.

(228) a) [$_{VP}$ gerne Kindern Märchen erzählt] haben Großeltern schon immer [[$_{VP}$ *e*]]

　　　gladly – children(DAT) *– fairy-tales*(ACC) *– told – have – grandparents –*
　　　already – always

　　　'Grandparents always liked telling fairy tales to children.'

　　b) [$_{VP}$ Märchen erzählt] haben Großeltern Kindern schon immer gerne [$_{VP}$ *e*]

　　c) *[$_{VP}$ Märchen erzählt] haben Großeltern schon immer [$_{VP}$ gerne Kindern [$_{V'}$ *e*]]

(229) [$_{VP}$ unnötig Fehler unterlaufen] sind [Syntaktikern [immer wieder [$_{VP}$]$_k$ ⋯]

How do constituents get outside of VP, and where are they then? We assume that an unmarked VP represents maximal focus. The whole VP may be *focussed* (i.e. maximal focus projection, cf. HÖHLE 1982).

(230) a) Welche Prophezeiung wird gemacht?
　　　which – prophecy – is – made

　　b) … dass [$_{(IP?)}$ [$_{VP}$ noch in hundert Jahren [$_{VP}$ Züge in Köln ankommen] werden
　　　that – still – in – hundred – years – trains – in – cologne – arrive – will

　　c) [$_{VP}$ noch in hundert Jahren Züge in Köln ankommen] werden gemäß dieser
　　　Prophezeiung.

Focus projection is sensitive to definiteness:

(231) a) ?[$_{VP}$ Züge in Köln ankommen] werden noch in hundert Jahren [$_{VP}$ *e*]⋯]

　　b) *[$_{VP}$ die Züge in Köln ankommen] werden noch in hundert Jahren [$_{VP}$ *e*]⋯]

　　c) die Züge werden noch in hundert Jahren in Köln ankommen

Changing the *focus* uses syntactic and prosodic markedness. *Background information* is unstressed and preferably scrambled over the focussed constituents. In this case, the predicate is linked to the background, otherwise it is linked to the focus.

(232) a) ?Vorhin hat [$_{VP}$ ein Jüngling seiner Mútter [$_{VP}$ dieses Mädchen vorgestellt]]
　　　a-while-ago – has – a – youngster – his – mother) *– this – girl – introduced*

　　　'A while ago, a youngster introduced this girl to his mother.'

　　b) Vorhin hat dieses Mädchen$_i$ [$_{VP}$ ein Jüngling seiner Mútter *e*$_i$ vorgestellt]

Definiteness triggers interpretation of the subject as *background* information.

(233) a) … dass [$_{(IP?)}$ der Zug$_i$ [$_{VP}$ heute bereits [$_{VP}$ *e*$_i$ in Köln angekommen] ist

　　b) [in Köln angekommen] ist der Zug heute bereits

The *Mittelfeld* can be split into two partitions interfacing with pragmatics: one containing *focussed* constituents and one containing what belongs to the

background. Adverbial adjuncts at the border between the partitions are ambiguous.

(234) a) [In Köln] werden die Züge noch in hundert Jahren ankommen.

　　　b) [In Köln ankommen] werden die Züge noch in hundert Jahren.

　　　c) [$_{VP}$ noch in hundert Jahren [$_{VP}$ in Köln ankommen]] werden die Züge

(235) a) Vorhin hat$_i$ [$_{VP}$ ein Vater seinen Kindern dieses Búch vorgelesen]
　　　　a-while-ago – has – a – father – his – kids – this – book – read-to

　　　b) Vorhin hat dieses Búch$_i$ [$_{VP}$ ein Vater seinen Kindern **e**$_i$ vorgelesen]

　　　c) Vorhin hat ein Vater dieses Búch$_i$ [$_{VP}$ seinen Kindern **e**$_i$ vorgelesen]

　　　d) Dieses Búch$_i$ hat vorhin [$_{VP}$ ein Vater seinen Kindern **e**$_i$ vorgelesen]

A predicate can be linked to several constituents, either *focussed* or *backgrounded*. This means that more than one constituent from either group can be topic (cf. above, 1.1.4). Bare projection of a head's LCS is predication either over $\langle w,t \rangle^*$ or over the event; the bipartition, however, allows relating the proposition to constituents within the *Mittelfeld*.

The upper partition of the *Mittelfeld* satisfies the *predicate-linking-rule* overtly through representation of *topics*. This applies to *subjects* and other constituents in the same way. Case, agreement or 'structural subjecthood' are not criterial for placement:

(236) a) dass das Buch (ACC) schon oft [$_{VP}$ Großeltern ihren Enkelkindern vorgelesen haben]

　　　b) [$_{VP}$ freitags vor Prüfungen gegraut] hat den Menschen (DAT) schon immer

Pragmatics interacts with syntax by interpreting a predicate- and a proposition-related partition of VP. Complete saturation of the argument grid within one partition yields focus on the whole proposition. What can be topicalised in SPEC/C is thus the predicate related remnant part of the VP. The VP is partitioned into a predicate-related and a proposition-related layer through a process of segmentation yielding multiple specification – there is no reason to assume a functional head like I°, except theory internal assumptions about linguistic uniformity. Whereas it is unproblematic to topicalise the whole predicate related part of the projection, the *proposition* itself can never be fronted. VPs containing the subject can always be topicalised if they are predications over the event, but

never if they are propositions containing a subject that is predicated over. This applies even to subjects of unaccusatives.

(237) [VP ein Zug hergefahren] ist heute, (??ohne dass er bremste)
       *a – train*NOM *– driven-here – is – today – without –* CMP *– he – stopped*

In the example above, the subject of the unaccusative V *herfahren* can be contained in the VP. The common structural account for this is that it is the underlying object that is in its base position (cf. HAIDER & RINDLER-SCHJERVE 1986, BURZIO 1986). If V is modified by a modal adverbial containing a pronoun referring to the subject, this implies that the subject is predicated over, VP topicalisation containing the subject becomes much worse.

A second glance at the example (219) from above:

(238) a) [VP kleine Kinder ein böser Traum erschreckt] hat schon oft.
           *little – children*ACC *– a – bad – dream*NOM *– frightened – has – already – often*

       b) *[VP der böse Junge kleine Kinder erschreckt] hat schon oft.
           *the – bad – boy*NOM *– little – children*ACC *– frightened – has – already – often*

Definiteness of the subject of *erschrecken* ('frighten') not only indicates that it is the topic, it also forces its interpretation as an AGENT. Therefore, it is generated above the THEME/PATIENT. This indicates that in (b) above there is no scrambled VP (which would explain the ungrammaticality). The definiteness effect[54] shown above is the same as the one observed in expletive constructions in English. If a sentence like

(239) There are three men in the kitchen.

is a predication over a situation, an expletive can be in subject position. As soon as a subject is definite, it is predicated over, it cannot belong to the predicate anymore.[55] Thus the expletive is ungrammatical and the subject must be in the domain of the proposition, SPEC/I. Therefore, proper names which are always definite can never co-occur with an expletive.

---

[54] cf. KRATZER 1984, in HAIDER 1993, 220;

[55] An exception to this are terms denoting singulary entities, e.g.:

(i) [Der Winter eingebrochen] ist hoffentlich noch nicht.
     the – Winter – fallen-in – is – hopefully – yet – not

(ii) [Der Papst geredet] hat hier noch nie.
      the – pope – spoken – has – here – yet – never

(240) a) Peter is in the kitchen.

   b) *There is Peter in the kitchen.

German also has this phenomenon, except that it does not concern the subject position but the position SPEC/C. There is no expletive position below SPEC/C.

(241) a) [CP Es [C' sind [VP heute [VP drei Männer [V' in der Küche]···]
         there – are – today – three – men – in – the – kitchen

   b) [CP Drei Männer [C' sind [VP heute [V' in der Küche]···]
         three – men – are – today – in – the – kitchen

   c) [CP Heute [C' sind (*[IP es)[56] [VP drei Männer [V' in der Küche]···]
         today – are – there – three – men – in – the – kitchen

   d) *[CP Es [C' ist [VP Peter[57] in der Küche]···]
         there – is – Peter – in – the – kitchen

Note that Gm. in this respect differs very much from Dt., which has a *Mittelfeld* position that is obligatorily filled by a constituent that the predicate is linked to (cf. 1.3.5) − either (which is the default case) the subject or, in the case of predications over the event, an expletive. Therefore, it has *Mittelfeld expletives* and cannot front VPs containing a thematic subject.

(242) a) dat er iemand gekomen was   (cf. VIKNER 1995, 217)
         that – there – someone – come – was

   b) dat er iemand gedanst had
         that – there – someone – danced – has

(243) *[VP Kinderen gespeeld] hebben hier nog nooit.
         children – played – have – here – still – not

Compare Gm.:

(244) a) dass (*es) jemand gekommen war

   b) dass (*es) jemand getanzt hat

   This shows that definiteness cannot be identified with BGR information.

[56]   As an expletive; there is another reading of this, with *es* as a formal subject; then the sentence means something like 'today we find three men in the kitchen (yesterday, there were only two)'. In this case, *three men* must be thematic (i.e., old information) and gets accusative case.

[57]   There is a neat side effect of the interpretation of the name *Peterle* (Peterkin) in my Gm. variety (Middle Alemannic, spoken north of Lake Constance), which is also the word for *parsley*.

   (i)   . . . . daß Peterle immer in der Küche sein sollte
         CMP – *Peterkin/ parsley – always – in – the – kitchen – be – should*
   (ii)   . . . .daß immer Peterle in der Küche sein sollte
         CMP – *always – parsley – in – the – kitchen – be – should*

   If the name is in subject position (which is also indicated by the time adverbial following it), it is ambiguous. If it is in base position, it can have only the interpretation as *parsley*.

c) [$_{VP}$ Kinder gespielt] haben hier noch nie

Contrary to the standard assumption, we find that the data is not at all forcing us to assume that the expletive in Dt. fills an obligatory *subject* position. First of all, it is possible to link the predicate to a local adverb.

(245) a) dat **hier** iemand gedanst had
        that – here – someone – danced – has
     b) dat hier drie kinderen drie appels gestolen hebben
        that – here – three – children – three – appels – stolen – have

Secondly, if there is a thematic element which is not the subject, it is also possible to link the predicate to it. In this case, the expletive is even ungrammatical.

(246) drie kinderen hebben (*er) deze appels gestolen
      three – children – have – EXP *– these – appels – stolen*

Since with respect to head movement to C but not to an intermediate head Dt. behaves exactly like Gm., we suggest that it also has syncretic V/IP, however, the structural position for predicate linking (i.e. the upper partition of VP) can be filled by an expletive – which is obviously not the case in Gm..

For these reasons, we think that the three functional levels of speech are also formally represented in the Gm. sentence, though not by domains made up by three formally distinct kinds of phrases. Instead, we assume that all Fs of I and V are syncretised in one (complex) head V in Gm.-like languages, and thus all the functions contained in this head can be applied within one right-headed projection. This split into two domains is purely on information structural grounds, not based upon functional Fs that must be carried by a specific head.

Of course, this assumption complicates the accounts of cross linguistic variation. But does this justify postulating IP for Gm., despite the lack of evidence and the obvious non-parallelism between Gm. and the typical IP-VP languages like Eng. and Fr.? We claim that linguistic variation is much more than varying the occupation of positions in a universal tree, but that trees differ on the grounds of the parameterisation of the lexicon. In order to justify this assumption, we now continue the presentation of our account of formal features and their representation in syntax, which we commenced in Ch. 1.2.2. by analysing the syntax and semantics of the CDom.

2. Complementisers and the Interpretation of C

2.1. IFs with some Interface Interpretation

As explained above, we basically follow ROBERTS & ROUSSOU (1999, 2002) in the formal aspects of their framework, though adapted to a more obviously representational[58] system with F syncretism. We regard sentence structure as a structural description purely reflecting the LF/PF interface. The SD is interpreted by the cognitive system, mapping it to a universal logical form that corresponds to the representation of interpretable functional Fs (IFs), and by the articulatory-perceptual system yielding PF by assigning sounds to the corresponding (complexes of) phonetic features associated with the (complexes of) IFs.

(1) *LF interpretation* (cf. ROBERTS & ROUSSOU 2002, 132)

The inventory of IFs in the Lexicon is universal. They are mapped to universal semantic representations on LF.

(2) *PF interpretation*

Structural descriptions of relations between features in a syntactic unit are idiosyncratically realised on PF.

We think that parametric differences can be reduced to the morphological/ phonological realisation (PF) of Fs in a minimally projected tree, the idiosyncratic structural description of a virtual hierarchical representation (LF) of universal semantic features in the cognitive system.

We do not think that logical interpretation is represented as a two-dimensional syntactic structure resulting from projection and covert derivation of SD. Rather, it is a universal virtual structure of common cognitive concepts that can idiosyncratically be expressed by lexical items. Syntax makes use of semantic concepts and universal structure building operations to form a structural description of this virtual structure.

Thus, LF must be the SD 'S' corresponding to this logical structure, which we refer to as *transparent LF*. This structural description is assigned a PF according to the morpho-phonological properties of the lexical entries of the

semantic concepts contained in a sentence. LF realisation of IFs means identification of FFs related by an SD.

(3)   ***LF – Realisation of FFs***

        An SD contains SFs bundled in heads and chains between correlated heads.

For the sake of convenience, we repeat our assumptions about PF-realisation from Ch. 1.1.2.:

(4)   ***PF – Realisation of FFs*** **(F*)**

        a) SPELL α: Lexicalisation through an item expressing α, which is inserted as a head F°. In this case F* takes place as a word.

        b) SPELL (α+x): α is part of a bundle of Fs parametrically specified to have PF interpretation as one term. F* takes place as a component of the compositional semantics of an entity represented as a word.

        c) SPELL ch(α,x): F°, the extension of X°, heads the chain α – X°. The whole chain is spelt out in a position parametrically specified for PF realisation. In this case F* takes place as an affix of X° or a YP represented in the scope of F.

Like ROBERTS & ROUSSOU (1999, 2002), we want to replace the minimalist concept of purely formal, LF-uninterpretable Fs, whose deletion by the checking operations yields the structural description of LF, by a model where there are only positive values of interpretable Fs. In our framework, an SD results from combining and projecting functional features that must converge on an interpretable semantic representation (=LF). We reject all accounts where formal Fs like C are present in all projected structures as mere *categorial* Fs, and are only deleted through checking by either positive or negative values.

    Syntax production does not take place as the generation of structure predetermined by a hierarchy of categorial Fs, independently from the lexical content of the sentence. It is the calculation of structure with a number of nodes limited by the content of relevant IFs encoding some information. Since selection is constrained by Fs that define the set of licensed individuals, based on the semantic properties of predicates and functional Fs, dominance relations in SD are predetermined and must not be defined by categorial phrase labels. Phrase structure is primarily "bare". Thus, phrases not headed by a contentful F° are not

---

[58] We are trying to avoid all associations with a derivational model. Although their model is meant to be representational, they use the term *move α* to account for configurational variation.

licensed in SD, which means that the generated structure corresponds to the minimal structure converging to the spelt out representation.

In our view the structure of the projection line is not predetermined by the universally given cascade of functional categories. In contrast, it is minimally composed of IFs projected from the lexicon as needed for representing information. Like in the MP, Fs constitute the atomic nuclei of the syntax–semantics interface, but here they are understood to be descriptions of markedness interpreting some information.

The only purely formal features are those relating the elements of SD. This relation is best compared to the structural identification of their representation. All other Fs are IFs that are interpreted by LF. In the following sections, we will discuss the IFs represented in the CDom. First, we want to look into the Fs that are there in what is traditionally regarded as the least marked clause mood, i.e. in *declaratives*.

We will show that C° serves for both interpreting tense and for structuring the information. Although information structuring is mostly pragmatic, there are basic structural relations that organise the information of the utterance as a syntactic property. We think that the syntax of theme-rheme structuring is grounded on the representation of an IF in C interfacing with pragmatics. And C° can be lexicalised by nominal categories selecting clauses, which makes them able to be arguments of specific predicates. These nominal categories are called *complementisers* (CMPs).

2.1.1. *What Fs are there in C?*

There have been several proposals made recently (e.g. PLATZACK 2000a+b, ROBERTS & ROUSSOU 2002) that C contains a superordinate tense F, representing *t°* and correlating *t* (represented by T) and *t** (represented by V) to speech. The structural description of this relation can be expressed in terms of a formal *dependency* as described above in Ch. 1.2.2.3 (cf. ROBERTS & ROUSSOU 2002, 129).

(5)   T must be co-member of a chain/ dependency (≈ bound)

Like in logic, tense cannot have absolute interpretation in syntax, either, but must have relative interpretation. Our framework consequently assumes that this has a structural representation in terms of *tense binding*. Temporal Fs in a higher domain have scope over the lower ones, thereby licensing their relative interpretation. Again, we will build on the proposal by (ROBERTS & ROUSSOU 2002) which we slightly modify according to our assumptions about temporal semantics developed in 1.2.2.1 and 1.2.2.9.

(6)   ***Semantic vs. syntactic tense binding***   (ad. fr. ROBERTS & ROUSSOU 2002, 129)
    a) John was sleeping.

    b) $\exists t \exists t^* \exists e[\ t < t° \ \& \ t \subseteq t^* \ \& \ \text{sleep'}(t^*, e, j))$

    c) 'there is a (reference-) time t that precedes t° and is a true subset of an (event-) time t*, and an event e and a predicate SLEEP that relates t*, e and John.

    d) [C [T [V]···]

    e) ST – RT – ET   (speech time, reference time, event time)

Note again that the distinction between *t* and *t** is merely a matter of notation; a logical relation between two (sets of) times as above will yield an interpretation of *reference time* related to *event time* (or the time of a situation), since *t** is an implicit argument of V.

    The case above represents a *progressive* preterite event. Note that this can easily be changed to a perfective event by modifying either the relation (*t,t°*) or (*t,t**) (cf. CANN 1993, 253ff).

(7)   a) John has slept: $\exists t^* \exists e[\ t^* \leq t° \ \& \ \text{sleep'}(t^*, e, j))$ (present perfect)
    b) John had slept: $\exists t \exists t^* \exists e[\ t < t° \ \& \ t^* \leq t° \ \& \ \text{sleep'}(t^*, e, j)]$ (past perfect)

This means, aspectual variation can in fact also be encoded by the relation of time variables of a function represented by I°. Of course, a lot of things can be said about restrictions on temporal inflection of different verb classes. E.g., punctual verbs cannot be complements of progressive tense, which is defined by intervals.

(8)   a) *The bomb was exploding between six and seven.
    b) * $\exists t \exists t^* \exists e[\ t < t° \ \& \ t \subseteq t^* \ \& \ \text{explode'}(t^*, e, \text{the-bomb}) \ \& \ t^{6h} \leq t \leq t^{7h}]$

The distinction of points from sets of times $\{t \geq 1t\}$ we indicate with numerals.

(9)   a) ✓ The bomb exploded between six and seven.
    b) ✓ $\exists 1t^* \exists e[\ t^* < t° \ \& \ \text{explode'}(t^*, e, \text{the-bomb}) \ \& \ t^{6h} \leq t^* \leq t^{7h}]$

The reason for this is of course the selectional restriction by the lexical entry of *explode*, which according to our assumptions can be formalised in a simplified way as follows:

(10) $\lambda x \lambda e \lambda 1 t^*[\text{explode}'(t^*,e,x)]$

This differs in a crucial way from the compositional semantics of a verb like *sleep*, that provides the implicit arguments for selection of progressive aspect. There must be an open interval that can be referred to by V (which will be the *reference time*), such that there must be another interval including it (which will be the *event time*): ($t \subseteq t^*$).

(11) $\lambda x \lambda e \lambda t^* \lambda t[t \subseteq t^* \& \text{sleep}'(t^*,e,x)]$

In order to form a well formed dependency, I° and V° must share features that are compatible – as we postulated for all WFDs above. Only then, the dependency C – I – V can be a well formed one.

In order to be well formed with respect to the encoding of time, a clause must also be interpreted relative to speech time, which is done by the chain C° − I°. In finite clauses, C − T − V form a chain: the *tense dependency*. ROBERTS & ROUSSOU (2002) propose that the semantic relation '*tense*' is interpretable, if it is represented by a well-formed structural dependency, which is something we assume for all conclusive interpretations of Fs in complex expressions. We repeat their definition (which slightly differs from ours in 1.2.2.3) .

(12) a) (α, β) is a well formed dependency iff:

    i. α asymmetrically c-commands β;

    ii. there is some feature F such that α and β share F;

    iii. there is no γ such that γ asymmetrically c-commands α but not β.

  b) If $(\alpha_l ... \alpha_n)$ is a well formed dependency and $(\beta_m ... \beta_k)$ is a well formed dependency and (α_n, β_m) satisfies (12a), then $(\alpha_n ... \beta_m)$ is a dependency.

Our system of transparent LF enables us to connect the logical and the syntactic account of sentences like (6a) above. In order to parallel the semantic representation in (6b) above to the syntactic one in (6c), one can make use of the REICHENBACHian system as follows: The function represented by I° in MCs should be able to relate reference time, event time and speech time:

(13)   λφλt*λt[t*,t,t°&φ(t*)]

One has to allow for the option of including an event variable if necessary. *Simple present*, which in our view is the least marked case, would have a logical representation like:

(14)   I° = λφλt*[φ(t*)]

That there is only one time variable means that all points of time relevant relevant for interpretation are identical – which is indeed characteristic for simple present. E.g.:

(15)   a) Peter kisses Mary.
       b) ∃t*∃e[kiss'(t*,e,p,m)]

implies that at the time of the utterance, the speaker refers to a point in time, and simultaneously an event of Peter kissing Mary takes place. Mostly, temporal relations are aspectually marked, however. The following utterance, for example, is about the truth of a property of *Robert* at a time not necessarily limited by utterance time, but containing it, i.e. *reference time*. Since the possibility that the truth exceeds the reference time is also not excluded, we are conceptually forced to assume all three instances of the temporal logic advocated here.

(16)   a) Robert knows Latin.
       b) ∃t∃t*[t°⊆t⊆t* & know'(t*,r,l)]

We assume that through the dependency, unmarked C° in MCs has the potential of binding all remaining[59] open variables existentially.

(17)   unmarked C° = λφ∃t∃t*[t*,t,t°&φ(t*)]

In terms of temporal logic this means that the evaluation of the truth of propositions related to times takes place from the point of view of speech time. According to our considerations above about head chains (pp. 68ff), this can be expressed in terms of selection. One could phrase it like e.g.:

---

[59] One has to make the additional assumption that, if time variables are already quantified through adverbials, as in

(i)   ∀t*∃e[t*⊆t → sleep(t*,John)]
      'John always sleeps.'

, this can override the existential binding through C°.

(18) a) **If** C° selects I° = $\lambda t^*\lambda t[t<t°\&t\subseteq t^*\&\varphi(t^*)]$

  b) 'the class of (reference-) times t before t° that are a true subset of the class of (event-) times t* . . . ',

  c) this yields the LF: $\lambda\varphi\exists t\exists t^*[t<t°\&t\subseteq t^*\&\varphi(t^*)]$

  d) 'there is a (reference-) time t before t° that is a true subset of (event-) time t* . . . ',

Much more could be said about the interaction between aspect and verb classes, which we will do elsewhere (but not within this dissertation); what is relevant at this point is that there is a dependency established between T and V (since t^* is an implicit argument of V) and C and T (since C binds the variables t and t^* existentially and thus defines them in relation to speech time).

A dependency relevant for LF interpretation must be recoverable by the conceptual-intentional system.[60]

(19) ***Recoverability of Dependencies***   (cf. ROBERTS & ROUSSOU, 2002, 132)

  In a dependency Dep = (α_l ... α_n), where [$_{\alpha i}$ F*] asymmetrically c-commands all [$_{\alpha j>i}$ G*], Dep must be interpreted as an F-dependency.

The direct way of recovering the dependency would be C* (= PF-interpretation of C). This could take place in form of a PTC or as a CMP. If C is not PF interpreted, an IF higher than T must have PF interpretation in order to prevent misinterpretation of the dependency. If T is the highest F* (= IF which is PF interpreted) in the dependency, it will be interpreted as a T dependency, i.e. relative to reference time.

(20) In the dependency (α_l ... α_n ... T), α_i ($\neq$ T) must be F*.

(21) F* means full feature specification through phonological representation by either

  a) a head
  b) SPEC
  c) or both.   (abstracted from ROBERTS & ROUSSOU 2002, 133ff)

α_i can be AGRS, *Wh*, some semantic (modal) F interpreting clause mood, or any other IF represented in the CDom.

(22) a) John left.   (C – [AGRS]* – T* . . .)

  b) Who left?   ([Wh]* – C – . . . – T* . . .)

  c) Did he leave?   ([Q*] – C – . . . – T* . . .)

---

[60] Thus, recoverability of LF by PF in these terms may amend the condition of LF/ PF convergence.

In the two marked cases of clause mood above, one can assume that the tense dependency is further extended to a *modal dependency* changing clause mood. More on this will be discussed in the next chapter. It is natural to assume that IFs heading such dependencies are motivated by illocutionary force and that an SD is well formed as long as its idiosyncratic LF/PF interpretation can converge. Note, however, that this implies that the tense chain can be headed by C = [t, $t°$] only in MCs, not in SubCs, that are c-commanded by the complete tense chain of the MC.

This is fully compatible with the assumption about the temporal semantics of SubCs, that they do not have independent time reference[61] ("speech time"). Their tense Fs are interpreted relatively to the MC predicate (V_{MC}). Therefore, we assume that they must also be formally licensed within the dependency by binding.

(23) ***Semantic features of clauses can be licensed by***
   a) illocutionary force ($\leftrightarrow$ independent reference given via C = speech time)
   b) co-membership in a well formed dependency.

This means that either C interfaces with the predicate selecting it, or with discourse. Embedded T is integrated into the superordinate tense dependency. We propose that this is structurally represented through "anaphoric" C (henceforth 'C_{SUB}') bound by V_{MC}, thereby integrated in the MC dependency. C_{SUB} is PF-interpreted (=lexicalised) through CMP. The tense dependency of SubCs is thus formally represented by a chain whose foot is V_{SUB} and whose head is C_{MC} (cf. also GUÉRON & HOEKSTRA 1988). C_{SUB}* (PF-interpreted by a CMP) thus represents the embedding into a superordinate tense dependency. We will show below that it has to be F* in all contexts of syntactic selection.

(24)   Ich habe$_i$ gehofft$_i$, dass$_i$ er kommen$_i$ wird$_i$.
       I – have – hoped – CMP – *he – come – will*

Note that contexts of complement clauses are always intensional. Therefore, THOMASON (1976) had already analysed the semantics of the CMP *that* as that of

---

[61] This account has to be relativised, however. There are SubCs with independent time reference, e.g. *embedded root clauses*, *attributive clauses* and certain *adverbial clauses*. What can be held without restriction is that the time reference of Θ-clauses depends on the MC dependency.

an intensionaliser in the sense of MONTAGUE (1973).[62] A CMP must be an abstractor over the world variable w (STECHOW 1997, 264). Thus, C_{SUB} does <u>not</u> bind time arguments existentially; instead, it mediates the intensional class reading and the predicate specified for selecting *intensions* of propositions. The semantic/logical function of CMP as C_{SUB} could be something like:

(25) $\lambda\varphi\lambda t^*\lambda i\lambda t[t,i,t^* \ \& \ \varphi(t^*)]$

where the index $i = \langle w,t\rangle$ represents the world and the reference time of the SubC and t^* its event time as related to V_{MC} that will select it. C_{SUB} relates the proposition to the event time t of MC and can receive the values $(t{\le}t^*)$, $(t{\ge}t^*)$, $(t{\subseteq}t^*)$, $(t{\supseteq}t^*)$ etc. through tense binding of λt. One might want to object that embedded reference time is not necessarily related to the event time of the embedding predicate. E.g. the sentence

(26)   I saw that you will win.

, uttered by a fortune-teller, seems to relate the time of *win* to *speech time*, not to the *event time* of MC. The posteriority of the winning event is in this case defined by the time of the utterance. But this is exactly what the system predicts. The whole predicate (including SubC) is member of the superordinate tense dependency and has to be interpreted in relation to $t°$. Not only the local relation $[t < t^*]$ is structurally interpreted on LF, but its logical relation to $t°$ by means of C binding T. The dependency tells us that the *winning event* not only takes place after the event of *seeing* but also after refers to it propositionally, in contrast to

(27)   I saw that you would win.

, where the local relation between t and t^* is the same, but interpreted differently in relation to $t°$.

---

[62]   In fact MONTAGUE's (1959) account of 'that' is quite complex, however, since he assumes different lexical entries for uses of *that* in different contexts. If we restrict the analysis of that to its use in complement clauses, the account holds however (cf. also the discussion in STECHOW 1997, 278ff).

An MC with an independent time reference to $t°$ cannot be a complement of V. This means that the set of potential complements licensed by $V°$ is constrained by the presence of C_{SUB} in SubCs[63].

(28) $V°: f(e, x)= [\![\varphi(e, x)]\!]$

where the subcategorisation could be formally specified in the lexicon like

(29) $x \in \{ DP, PP, C_{SUB}P \}$[64]

This restriction prevents the selection of any CP that can be s-selected but has an independent time reference, like

(30)   *I wonder did he read wild.

Instead of

(31)   I wonder if he read wild.

We assume that the agreement of CMPs with V_{FIN} in WGmc. varieties, e.g. West Flemish or Bavarian, and tensed CMPs in Irish are a direct reflex of their co-membership in the tense dependency.[65]

(32)   a)   ...[_CP d**an** (dat + n) [_VP Jan en Pol noa Gent goan] (WF, cf. HAEGEMAN 1991, 529)
             ... CMP+INFL – John – and – Paul – to – Gent – go

        b)   Du duast grad aso [_CP als [_C' wie**st** [_VP du da King war**st**].
             you – behave – right – so – as - CMP+INFL – you – the – king – was
                                                                (Bav., cf. BRANDNER 1994, 156)

(33)	**Non-past**	**Past**	(Ir.; cf. COTTELL 1995)
	go	gur	*(declarative)*
	a	ar	*(indirect relative clause)*
	an	ar	*(interrogative)*
	cá	cár	*(interrogative of place)*
	sula	sular	*(subordinator of time or purpose)*
	nach	nár	*(negative C)*
	mura	murar	*(conditional negative C)*

---

[63]   We also think that infinitives express C_{SUB} – but they do it lexically through inherently dependent time references.

[64]   This is only preliminary. Although we think that CMPs serve to express C_{SUB}, we do not assume that C is their categorial F. Further below, we will specify c-selection on the basis of the categorial F [N] of CMPs.

[65]   In earlier generative research this was taken as evidence for the assumption that C in these languages was a hybrid category having functions of both I and CMP (CONFL, C/IP: DEN BESTEN 1983, PLATZACK 1986, HAIDER 1993; AGR in C: SHLONSKY 1994). HOLMBERG & PLATZACK (1995) and RIZZI (1997) proposed instead that finiteness was a feature of the C-domain.

Besides the rich evidence for modal IFs represented by C° in Irish, this shows a clear paradigmisation according to tensing – in this case SubC [*past*] bound by MC T. Tense of the SubC can not only be verbally marked, but is morphologically marked at the CMP in SubCs. If we assume that V_{MC} is bound by T_{MC} and C_{MC} binds C_{SUB} that again binds T_{SUB}, this reflects the co-membership of the SubC dependency in the whole tense dependency of S structurally.

Further evidence for temporal sensitivity of CMPs comes from Eng.. Since there is a specific CMP *for*[66] in infinitive subordinate clauses with overt subjects[67] that cannot be replaced by *that*, one can also assume that anaphoric C_{SUB} of finite clauses has several specific representations.

(34) a) [CP That [IP Clinton has become President]] is nice.

b) [CP For [IP Clinton to have become President]] is nice.

(cf. ROBERTS & ROUSSOU, 2002)

Asymmetries between MCs and SubCs should thus be derivable from the different licensing conditions of C. HAIDER (1997, 88ff), which states that obligatory V movement in *Wh*-MCs vs. obligatory empty C° in *Wh*-SubCs is counterevidence to a direct relation of attraction between C° and features of V.

(35) a) Was (*hat) er   behauptet *(hat), ist nicht unumstritten.   (HAIDER 1997, 88)
      what - has - he - claimed - has - is - not - uncontroversial

b) eine Behauptung, die   (*ist) nicht ohne   Kontroversen *(ist)
      a - claim   -   which - is - not - without - controverses - is

(36) a) What (*has) he *(has) claimed is not uncontroversial.

b) A claim which *(has) Peter (*has) made for a long time.

If we assumed a hybrid C° hosting inflectional Fs * or an autonomous head Fin°, we should wonder why V_{FIN} does not move to C in these sentences. The fact that focussed elements (*Wh*, REL) in SPEC/C prevent V-movement in our view suggests that C_{MC} and C_{SUB} are in fact different categories.

---

[66] Diachronically they have been grammaticalised from the homonymous preposition *for*, which has been described by JARAD (1997).

[67] Infinitive clauses without subjects are in our view directly embeddable, since they lack independent time reference by origin. Thus, V cannot be interpreted other than as a co-member of the MC tense dependency.

Note that the fact that RelCs and embedded *Wh*-Qs have an empty C° is not due to a universal property. Doubly filled CMP constructions were the rule in ME and still are in several Gm. varieties, e.g. Swabian.

(37)   men shal wel knowe **who that** I am.   (Caxton, AD 1485, cf. HAEGEMAN 1991, 349)

(38)   D'   Leit   werre   wol wisse   **wer dass**   I be   (Swb.)
       DET – *people* – AUX – *well* – *know* – *who* – CMP – *I* – *am*

       "People will well know who I am". (literally: "who that")

The classical GB explanation is that there is a parametric PF filter for doubly filled CP, such that there must be ∅-CMPs possible in C° of varieties with that filter. But if there is a ∅-CMP option, why does it apply only together with a *Wh*-element? Why are there no OV SubCs with ∅-CMPs in Gm.?

(39)   Es ist klar (*dass) 'dass' nicht fehlen darf.
       it - is - clear - CMP - CMP - *not - miss - may*

       "It is clear that 'that' must not be missing".

We think [C] must be always represented, though lexicalised according to parametric specification in the lexicon. Languages with doubly filled CPs have [*Wh*]* and [C]*, languages without have [*Wh* – C]*. The F represented by C gets its PF interpretation from the *Wh* element. Since topics do not represent a *Wh*-F projected to C but are fronted for pragmatic information structuring, a PF interpretation like (b) below cannot take place.

(40)   a) [CP Was$_i$ [C' **C*** [VP er behauptet *e*$_i$ hat], ist nicht unumstritten.
           what   -   he - claimed - has - is - not - uncontroversial

       b) *Er hat behauptet [CP nur W-Elemente$_i$ [C' **C*** [VP e$_i$ 'C' interpretieren können]
           he − has − claimed − only − Wh-*elements − 'C' − interpret − can*

Topic fronting in Gm. is possible only together with V fronting, which yields the well-known V2 effect. V2 is there also in all *Wh* MCs but never in *Wh* SubCs. This can also be explained through the essential difference between C$_{MC}$ and C$_{SUB.}$

2.1.2.   *Information Structure . . .*

It has been widely accepted in GG that *topicalisation* is not adjunction to IP but the specification of CP (cf. MÜLLER & STERNEFELD 1993, VIKNER 1995), thereby changing information structure. If this was feature driven, we had to assume that the C-domain in this case contained a head carrying a TOP F, which we then

would call TOP°. The difference between Eng. and a V2 language like Gm. would be movement of V_{FIN} to TOP° in the latter.

(41) a) [$_{TopP}$ [$_{DP}$ **Linguistics**]$_n$ [$_{Top'}$ **e** [$_{IP}$ the boy **will** study t_n one day]

   b) [$_{Top}$ [$_{DP}$ **Linguistik**]$_n$ [$_{Top}$ **wird**$_v$ [$_{VP}$ der Junge einmal t_n studieren t_v]

MÜLLER & STERNEFELD (1993), ZWART (1997) and RIZZI (1997) all suggested a *topic feature* in a specific head of a split CP in order to explain the V2 phenomenon, BRANDNER (1994) and ROBERTS & ROUSSOU (2002) assume that filled SPEC/CP is needed if heads of a category other than C occupy C°: V is in C° for independent reasons like those discussed above, the feature in C° has to be identified by a lexicalised SPEC. This can be considered to be a generalised EPP constraint.

What both accounts have in common, is that they directly correlate the filled SPEC to V movement to C. However, V movement to C° in declaratives does not necessarily involve topicalisation. In Gm., there is still the archaic so called *rhematic construction*, i.e. declarative V1 clauses, which are mainly used in *narrative style* (cf. ÖNNERFORS 1997).

(42)   [[wollten [ihn da die gelehrten Herren . . . in's Karzer stecken]
       wanted – him – then – the – learned – men – in-the – detention-room – lock
                                                              (*Schiller*, in ÖNNERFORS 1997, 298)

(43)   [zogen [einst fünf wilde Schwäne]   (start of a song)
       migrated - once - five - wild - Swans

(44)   Fragt ein Bub seinen Vater: . . .   (start of a joke)
       asks – a – boy – his – father ...

The preverbal position may be PF - filled by an expletive. In this case we speak of *transitive* and *intransitive expletive constructions*, TECs and IECs. Since the expletive does not have a syntactic function except to fill SPEC/C, it can be dropped in informal or stylistically marked contexts.

(45)   [**(es)** [hat [ein Kind einen Apfel gegessen]
       there - has - a - child - an - apple - eaten

It is true that modern standard Gm. speakers tend to analyse sentences like (45) above as structures with a dropped expletive. Only in usual V1 declaratives, as common in narrative contexts like *jokes* or *songs*, V1 structures are tentatively

interpreted as complete.[68] Unless additional information structural means such as scrambling or intonation are used, the focus of V1 clauses is maximal, it contains all constituents and there is no topic that the proposition is linked to. This makes it a predication over the situation or the event.[69]

(46)   A: What happened yesterday?

       B: %(Es) sind zwei Männer gekommen und haben den Fernseher mitgenommen.
          EXPL – *are – two – men – come – and – have – the – TV-set – with-taken*

          'two men came and took the TV set away."

We want to propose an account for V to C on the basis of a syntax-pragmatics interface model. Descriptively, V in C lexicalises a head syntactically, determining the options of *theme/rheme* structuring by framing the potential maximal sentence focus together with the base position of V. We suggest that the position of V_{FIN} represents an interface F FOC, a lexically parameterised IF of the syntax-pragmatics interface triggering the functional extension of V. Since in the unmarked case (i.e. not in scrambled structures, which we regard as secondary information structuring), everything c-commanded by this head may be in the focus of the clause, V_{FIN} fronting in V2 languages can serve the purpose of dividing the FOC from the BGR, or of defining a frame for *sentence focus*. This we regard as the basic representation defining LF structure, which is finally the input to pragmatic interpretation.

It is crucial to see that focus projection in syntax takes place irrespective of the activity of the pragmatics interface. FOC is in our system a much less powerful IF than in RIZZI's. It simply marks the potential of maximal sentence focus, and pragmatics have several means to reorder this through scrambling or topicalisation. Of course there are means to add markedness to V1 sentences in order to manipulate the focus, simply since the projection 'FOCP' interacts with pragmatics. This can be e.g. *prosody* in V1 interrogatives:

---

[68]   It should be noted that in modern songbooks, V1 song lines are often replaced by expletive-initial ones, like

      (i) Es zogen einst fünf wilde Schwäne. . . .

      This was reported to me by ELLEN BRANDNER.

[69]   Cf. our discussion in 1.3.5. .

(47) Haben die MÜLLers ein Fest ausgerichtet?
*have – the – Millers*FOC *– a – party – organised*

With stress on the upper constituent, the focus is restricted to it. V and its direct sister count as BGR. With neutral stress, i.e. on the sister of V° (cf. above, p.44), this sentence <u>has</u> maximal focus, however.

Another test to identify BGR information is *ask-and-answer*, which may indicate that a V1 structure does not have maximal focus. Of course a sentence like

(48) Sie haben **gestern** eine Grillparty **gemacht**.
they – have – yesterday – a – barbeque – made

is a possible answer to

(49) Was haben sie **gestern gemacht** ?
what – have – they – yesterday – made

and then contains old information, which contradicts the assumption that V_{FIN} c-commands the focus. However, it is also a possible answer to

(50) Was weißt du über sie?
what – know – you – about – them

, and then it <u>has</u> maximal focus. All information structuring after focus projection is subject to interface interaction with pragmatics however. And, as we saw above (pp. 126 ff), the focus potential of syntax can even be overridden by generating a VP partition secondarily structuring information within the structure c-commanded by FOC°.

Apart from BGR and FOC elements, frame adverbials can also appear in SPEC/FOC. They can yield the same effect as an expletive, i.e. interpretation as maximal focus and predication over the situation – with the only difference that the situation is adverbially described.

(51) a) In der Silvesternacht arbeitet kein normaler Mensch.
  on – new-years-eve – works – no – average – man

   b) In der Regel sind da alle besoffen.
  as – a – rule – are – then – all – drunk

On the other hand, these sentences can also be interpreted as utterances about the specific properties of situations represented by the adverbials. Then they do not have maximal focus. Interestingly this applies to fronting of all constituents that

are uppermost in the logical structure, such that even subject initial clauses can be ambiguous between maximal focus and predications over the subject. Therefore the sentence

(52)   Columbus discovered America.

can be the answer to two different questions, one restricting focus and one not.

(53)   a) What happened?
       b) What did Columbus achieve?

Constituents designated for prominence through information structure can be located in a structurally prominent position in front of Foc° by interface interaction with pragmatics. In Gm. it is possible to position *either* a Foc *or* a Bgr element to the left of V. The first case is *focus*-fronting, the second is Bgr-fronting.[70]

(54)   a) [ein Bub] (Bgr) fragt [seinen Vater] [nach SchokoLADE] (Foc)
          a – boy – asks – his – father – for – chocolate

       b) [nach SchokoLADE]ⱼ (Foc) fragt [ein Bub] [seinen Vater] e_j

       c) [seinen VATER]ᵢ (Foc) fragt [ein Bub] e_i [nach Schokolade]

       d) [seinen Vater]ᵢ (Bgr) fragt [ein Bub] e_i [nach SchokoLADE] (Foc)

       e) [nach Schokolade]ᵢ (Bgr) fragt [ein Bub] [seinen VATER] (Foc) e_i

Note that in specific contrastive contexts it is possible even in Gm. to front two focussed elements.

(55)   [Seinen Vater] [nach Schok.] [_Foc' **hat** er gefragt, nicht nach Butter die Mutter]···]
       his – father – for – chocolate – has – he – asked – not – for – butter – the – mother

The same can apply to elements from the background:

(56)   [Gestern] [unter dem Weihnachtsbaum] [_Foc' **hat** Fritz sein GLÜCK (Foc)
       gefunden]···]

       yesterday – under – the – Xmas-tree – has – F. – his – luck – found

This shows that the amount of structure in CDom is very likely to be subject to manipulation by pragmatics. Since in our framework we do not have to assume a

---

[70] Note that the restructuring of the <u>thematic</u> part through scrambling is always possible, therefore there is scrambling in the *Mittelfeld* even if *topic* or *focus* are fronted.

      (i)   Nach SchokoLADEⱼ fragt [seinen Vater]ᵢ ein Bub e_i e_j

      (ii)   [Nach Schokolade]ⱼ fragt [seinen Vater]ᵢ [ein Bub]ₖ e_i IMMER e_k e_i e_j

number of syntactically parameterised functional phrases to host those elements, we can simply assume that the head Foc° representing the interface IF determining basic sentence focus can be multiply specified if this is required by pragmatics. Although the markedness grows with the number of fronted constituents, we would claim that there is no syntactic restriction. Sentences like the following ones are stylistically highly marked, but not ungrammatical.

(57) a) ?[DP Seinem Vater] [DP das Auto] [PP in die Werkstatt] [Foc' **hat** er gebracht, nicht der Mutter die Butter auf den Kutter]···]

his – father – the – car – in – the – garage – has – he – brought – not – the – mother – the – butter – on – the – cutter

b) ?[AP Morgen] [PP im Park] [PP bei Dämmerung] [Foc' **werden** wir uns wiedersehen]···]

tomorrow – in-the – park – at – dawn – will – we – us – see-again

As shown by Rizzi (1997, 295), Bgr topics in Italian can be multiply fronted, even if preceded or followed by a fronted focussed element.

(58) a) A Gianni, domani, QUESTO (Foc) gli dovreste dire.
to – John – tomorow – this – him – we-should – tell

b) QUESTO (Foc) a Gianni, domani, gli dovreste dire.
this – to – John – tomorow – him – we-should – tell

c) A Gianni, QUESTO (Foc) domani, gli dovreste dire.
to – John – this – tomorow – him – we-should – tell

d) Domani, a Gianni, QUESTO (Foc) gli dovreste dire.
tomorow – to – John – this – him – we-should – tell

e) etc. . .

He correlates the Bgr topics to specific functional heads above and below Foc° which can be iterated (cf. p. 117f). We do not want to go into the discussion about their nature (cf. Rizzi 1997, 296ff). If we adopted his explanation for the Italian data, this would mean that the characteristic difference between Italian and the other languages is the number of SPECs available for constituent fronting according to the lexical parameterisation of functional heads.

However, we suspect that there is more to this than two topic heads which can in contrast to Foc° be iterated. Note that only arguments topicalised from the Bgr but not focussed ones have to be resumed by a clitic pronoun in IP (see above, *gli* 'him'). The same phenomenon exists in Greek for example.

(59)   ti glossologia o Petros **tin** agapai.
       the − linguistics − the − Peter − IT – loves

       ~ ' linguistics . . . Peter loves it.'

The only plausible explanation for this asymmetry is that the chain between such a topicalised element and its base position differs from the focus chain. Obviously there is a need to identify the Θ-role locally. This can be compared to left dislocated topics in Gm.. Note that they can occur also in front of a focussed element, such that the resumptive is in the *Mittelfeld*.

(60)   a)   Die Brigitte$_i$, **die**$_i$ mag ich wirklich gerne.
            DET – *B. –* DEM *– like – I – really – gladly*

            'Brigit, I really like much.'

       b)   Den Franz$_i$, MANCHMAL (FOC) würd ich **den**$_i$ am liebsten an die Wand klatschen.

            DET – *F.*-ACC *– sometimes – would – I – him – at – most–gladly – on – the – wall – slap*

            'Sometimes I would like to throw Franz against the wall.' (very mean Gm. idiom)

We assume that SPEC/FOC° is in fact a potential Θ-position allowing procrastinated saturation of the predicate (cf. above, pp. 85 ff.). This is also plausible for some independent reasons which strongly suggest that the elements in SPEC/C are base generated (cf. HAIDER 1990). E.g., topicalised 'remnant' VPs' containing a quantifier and stranding the subject do not trigger ambiguous scope like the VPs containing both (HAIDER 1990, 99).

(61)   a)   dass ein Schüler jedem Lehrer gefallen möchte.   ($\exists > \forall \lor \forall > \exists$)
            that – every – teacher – a – student – please – likes

            'One student wants to please every teacher'.

       b)   Jedem Lehrer gefallen möchte ein Schüler.   ($\forall > \exists$)

This would be unexpected if the VP was reconstructed to a base position. Note also that topicalised Θs do not trigger a reconstruction effect of the violation of the binding principle C even if their 'trace' is c-commanded by an anaphor. This would also be unexpected if the Θ-position was reconstructed in VP.

(62)   a)   Über Paul$_i$ selbst kann ihm$_i$ keiner etwas *t*$_i$ erzählen.
            about - Paul – himself – can – him – noone – something – tell

       b)   *Es kann ihm$_i$ keiner etwas über Paul$_i$ selbst erzählen.

The same observation has been made by FUKUI (1995, 36), who also finds that fronted constituents in English can be in Θ-position. Therefore there is no reconstruction effect yielding a principle C violation, unlike in Wh-sentences:

(63) a) JOHN$_i$, his$_i$ mother loves (*t$_i$).

  b) *Who$_i$ does his$_i$ mother love e$_i$?

Thus elements can be generated in SPEC/FOC saturating the Θ-grid of V by procrastination. Therefore they do not have a correlative or resumptive pronoun in IP/VP. If a pronominal is merged to saturate the function represented by V, a co-referential expression can only be adjoined to FOCP, which is obvious in the Gm. left dislocation contexts. This, however, indicates that topics can in principle be adjoined to FOCP, whereas a focalised element is always merged in SPEC/FOC.[71]

Since BGR topics in Italian and Greek are in contrast to the focussed arguments not in Θ-position, we suggest that they are adjoined to either FOCP or to a lower phrase. This not only explains why 'topicalised' arguments have a resumptive pronoun in IP (which actually serves to saturate the Θ-grid), but also why topicalisation can be iterated. In languages like Gm., however, a clause can be divided into "topic and comment" by the functional head we called FOC° which may be occupied by V°. It can be specified by either a BGR constituent or by a focussed element, which then defines the SPEC as the focus of S.

The CDom in *DCL* V1 and V2 clauses is thus headed by FOC°. If the SPEC is empty or contains an expletive, the focus contains the whole proposition and the clause functions as a predication over the event or the situation. In languages allowing scrambling, this is a secondary means of structuring information always applied to the basic information structure defined by FOC°. Since an unmarked[72] (*DCL*) V1 clause is the pure expression of *maximal focus*, *scrambling* changing the focus within a V1 clause is much more restricted than in V2 clauses.

---

[71] Note that even in focus left dislocation it is actually the pronoun in SPEC/FOC which is focussed, not the left dislocated co-referential element.

  (i) Die Brigitte, DIE (FOC) mag ich, nicht den Franz.

[72] Note that this is different in V1 interrogative, which we regard as marked V1 clauses (see ch. 3). We assume that the operator of interrogatives principally imports additional focus potential for information structure.

(64)   a) Fragt [ein Bub] [seinen Vater] [nach SchokoLADE]
          asks – a – boy – his – father – for – chocolate

       b) ?Fragt [seinen Vater]$_i$ [ein Bub] **e**$_i$ [nach SchokoLADE]

       c) ?Fragt [nach Schokolade]$_i$ [ein Bub] [seinen VATER] **e**$_i$

       d) ?Fragt [seinen Vater]$_i$ [nach Schokolade]$_j$ [ein BUB] **e**$_i$ **e**$_j$

Projection of a Foc F in Gm. thus creates a potential position for *topicalisation*, which includes *focus fronting* as a special case (cf. above, 1.1.4). If the focus is extended without topicalisation, as a rule an expletive is inserted – but, as shown above, not in all cases.

This filling of SPEC/FOC is essentially different to the syntactically motivated subject expletive insertion in Eng.. The occurrence of expletive *es* in (45) is, in our view, simply due to a pragmatic rule, generalising V2 over sentences where there is nothing in SPEC/C to be interpreted. Since expletives are never LF interpretable, a role exceeding their relevance for interpretation should not be sought for them in the derivation, if there is no empirical necessity. In both OHG and OE, expletives were dropped much more easily, which has been referred to as "*semi pro drop*" (cf. ABRAHAM 1993).

(65)   uuarun tho   hirta   in thero lantskeffi uuahante   (Tat. 6.1)
          were – then – herdsmen – in – the – landscape - watching   (cf. ABRAHAM 1993,)

From a diachronic point of view, it is not the absence but the presence of expletives, which needs an explanation. The rise of the positional licensing (cf. KIPARSKY 1997) of Eng. subjects (i.e. SPEC/IP) and generalised V2 (i.e. filled SPEC/) in Gm. justifies the importance of expletives in clause structure. Eng. SPEC/IP is filled obligatorily, irrespective of whatever IFs the merged elements may realise. In Gm., the only expletive with a placeholder function is that in SPEC/FOC.

It is likely that this is the reason why *transitive expletive constructions* (TECs) are only possible in languages like Gm.. Since the expletive is not generated as a subject in SPEC/V but in SPEC/C in order to fill this position phonologically, even a transitive V can have it. In PDE, the F in I° attracting a subject can only be optionally realised in clauses without thematic subjects by either a dummy (i.e. '*there'*) or by raising the next deeper argument from inside VP.

(66) a) Es haben [$_{VP}$ hier die ganze Nacht Leute getanzt].
EXP – *have – here – the – whole – night – people – danced*

b) *There have [$_{VP}$ people [$_{V'}$ danced]] here the whole night through.

c) There$_i$ were$_k$ [$_{VP}$ x$_i$ [$_{V'}$ y$_k$ people] dancing here the whole night through.

Since filled SPEC/I represents an IF (i.e. AGR which we assume to be PF interpreted by the chain relation between the expletive and the thematic subject in the VP), it is a much stronger requirement than expletive insertion in NHG rhematic clauses. The conditions might indeed differ by constraints on either the SD or PF. SPEC/FOC may be empty, if there is nothing to be represented at LF.

(67) a) [$_{IP}$ *(there) [$_{I'}$ are [just three men in the room]

b) [(es) [$_{FOC'}$ sind [nur drei Männer im Raum]

Whereas subjects represent the IF specifying the proposition (i.e. AGR), topics are fronted to structure information. A subject that is predicated over is a default topic because of the prominent role it has when representing the SPEC of the predication (VP). This prominence can be overridden if there is something externally designated as a *topic*, using SPEC/FOC as the most prominent structural position. Since Eng. lost ***ch***[FOC+ . . . +V]* in diachrony, there are no "rhematic sentences". Hence, the focus is extended over the subject only if SPEC/ is contentful, that is, if it contains either a topic or something comparable, such as frame adverbials.

(68) a) [[Bowler hats]$_i$ [$_{FOC'}$, [$_{IP}$ people wear *e*$_i$ not only in London].

b) [[In London] [$_{FOC'}$ [$_{IP}$ people wear bowler hats].

This could be notated e.g. as ***ch***[[XP$_{Top}$+FOC]* – [V]*]. On the other hand, Eng. can topicalise in the presence of an expletive. This is an option not given in Gm., since there, the position for topicalisation and the expletive are identical and expletives are used only if SPEC/FOC is not occupied.

(69) a) In this room, **there** are three men.
b) *In diesem Raum **es** waren drei Männer.

We think that the uppermost SPEC is universally a target for a constituent designated for raising above other constituents. Since there is interaction of syntax not only with the semantic, but also with the pragmatic interface, pragmatics can trigger procrastination of merger, as long as it respects the restrictions given by

the semantic and the syntactic modules. This corresponds to universal tendencies of information structure, maybe even pragmatic universals. If there is no item designated for information structural prominence in Gm., merger takes place in the order of the argument grid. In absence of a suitable frame adverbial, SPEC/C stays empty or an expletive is inserted. The result will be a rhematic sentence.[73]

Now we want to return briefly to the superiority asymmetry in Eng. and Gm. (cf. p. 40ff, 70ff). If we assume that what holds for contrastively focused elements can parametrically also apply to fronting of *Wh*-items, we would have an explanation for why *Wh*-items do not obey relativised minimality as in a language like Eng. .

(70) a) **Ihm** hat **wer was**   nicht glauben wollen?
         him - has - who – what - not - believe - want

         'WHO didn't want to believe him WHAT?'

      b) **Was**   hat **wer** ihm   nicht glauben wollen?
         what - has - who – him - not - believe – want

         'Who didn't want to believe him WHAT?'

Wh-in-situ in Echo-Qs shows that, even in Eng., an operator is not necessarily fronted. This means that there is not necessarily a *Wh*-F in the C position of *Wh* clauses, attracting the (relatively) closest 'checker'. If one conceded that *Wh*-Fs represented in the CDom by an *attracting head* are a matter of lexical parameterisation, apparent superiority violations might simply be cases of *Wh*-fronting which is not driven by attraction, but by information structuring – i.e. *focus fronting*. The absence of these superiority effects in Gm. could follow from the fact that Gm. *Wh*-operators are, like topics, fronted due to information structural properties which are not subject to CHOMSKY'S (1995b) MLC.

HAIDER (2000a) shows that precedence rules in Gm. follow from a condition on the interpretability of the chain that multiple *Wh*-elements form, not on their distance to the position where they are fronted to. For example, links of a *Wh*-chain of arguments in the *Mittelfeld* can be switched through scrambling, whereas certain *Wh*-adverbials cannot be switched with a *Wh*-subject.

---

[73] Of course, "rhematic sentences" are not the only V1 MCs in German. In Y/N-Qs and Optatives, we assume that modal Fs work beside FOC, yielding an interpretation different from V1 MCDs.

(71)   a) *Wann* hat *wer was* gesagt?
          when – has – who – what – said

          'When did who say what?'

       b) *Wann* hat *was wer* gesagt?
          when – has – what – who – said

(72)   a) *Wie* wird *wer warum* gefeiert?
          how – is – who – why – celebrated

          'How do they celebrate whom why?'

       b) **Wie* wird *warum wer* gefeiert?
          how – is – why – who – celebrated

In Eng., where *Wh* elements are fronted due to attraction by a specific F, the MLC holds. Of course it also depends on the nature of the position occupied by the lower *Wh* element.

Elements which are fronted to SPEC/FOC due to attraction are subject to different conditions than those of topics designated by illocutionary force. The first group represents a semantic IF projected as lexical information. The second one interprets the IF of the syntax-pragmatics interface. Since there is no such element in rhematic clauses, Gm. inserts an expletive in this case.

(73)   Es   hat **wer** ihm **was**   nicht glauben wollen?
       EXP *- has - who – him - what - not - believe - want*

2.1.3.   . . . *and Embedding*

There is a semantic class of V licensing V2 in Gm. SubCs. The same V also licenses topicalisation in embedded clauses of Eng. and other languages (cf. VIKNER 1995, 65ff). In the following examples, this class is represented by the V '*claim*' (Gm. *behaupten*), contrasted to '*keep secret*' (Gm. *geheimhalten*) which does not license topicalisation in SubCs. Note that embedded V2 clauses in Gm. occur only without a CMP.

(74)   a) Peter claimed that [very much money]$_i$ Paul did not offer him **t**$_i$.

       b) *Peter kept secret that [very much money]$_i$ Paul did not offer him **t**$_i$.

(75)   a) Peter behauptete, [sehr viel Geld]$_i$ habe ihm Paul dafür nicht **t**$_i$ geboten.
          *P. - claimed - very - much - money - have*SJT *- him - P. - for-that - not - offer*ed

---

This is discussed in detail in Ch3.

b) *Peter hielt geheim, [sehr viel Geld]$_i$ habe ihm Paul dafür nicht **t$_i$** geboten.
  *P. - kept - secret - v. - m. - money - have*SJT *- him - P. - for-that - not - offered*

In V2 languages, V$_{FIN}$ always leaves IP/VP in such sentences (cf. SCHWARTZ & VIKNER 1996). In the Scandinavian languages and Yiddish, however, they are nevertheless embedded under a CMP; so are residual V2 complement clauses in Eng. (cf. VIKNER 1995, 84ff).

(76)   a)   Hun siger **at** tomater **spiser** Johan ofte. (Da.)
           she – says – that – tomatoes – eats – John – often

        b)   Hon sigur **at** tomatir **etur** Jón ofta. (Fa.)

        c)   Hún segir **að** tómata **borði** Jón oft. (Ic.)

        d)   Zi zogt **az** pomidorn **est** Jonas oft. (Yi.)

            'She says that it is tomatoes that John often eats.'

        e)   She says **that** never **would** Peter eat tomatoes. (Eng.)

Without discussing the classifying semantics of these Vs here[74], we suggest that they are embedding assertions since they are able to form a well-formed dependency with a FOC F in the SubC. Therefore, they lexically license a FOCP complement with independent time reference and autonomous information structure. For the sentences in (76), we suggest the following structure:

(77)   Hun siger [$_{CP}$ **at** [tomater [$_{FOC'}$ **spiser** [$_{IP}$ Johan ofte.]]]]
       he – says – CMP *– tomatoes – eats – John – often*

Thus, embedded V2 clauses have a structure like MCs, however, the structure is further extended by a phrase projected by CMP, which can select either FOCP (if this is licensed by V$_{MC}$ through a WFD) or IP/VP. The same can be assumed for Eng., except that, like in MCs, V is not fronted in order to interpret FOC.

(78)   Peter claimed [$_{CP}$ that [[very much money]$_i$ [$_{IP}$ Paul did not offer him **t$_i$**]⋯]

This is of course very strong evidence that CMPs do not necessarily represent what we defined as C$_{SUB}$ above, i.e. dependent time reference. Further below we will argue that they represent mainly a categorial F [N] making their selection

---

[74]   Cf. VIKNER (1995, 70 + fn 7): "These verbs are, somewhat confusingly, often referred to as "bridge verbs" in the literature. (. . .) It should be noted that there are many bridge verbs in this sense (the traditional one, V allowing for extraction from their complement; P.Ö.) that do not allow sentential complements with V2, so that the two sets do not coincide."

possible, and that the function of dependent time reference can be carried by a specific nominal head (i.e. also a CMP) selecting a clause.

Note that in Latvian, topicalisation in embedded clauses is ungrammatical. Since in this language the CMP can never be dropped unless the SubC is introduced by a *Wh*-item, and since there is no scrambling, embedded topicalisation does in fact not exist.

(79)   a)   Es domāju, [CP ka (*[lingvistiku) [IP zēns [VP mācīsies *(lingvistiku) kādu dienu]···]

I - think - THAT - linguistics - boy - will study - one - day

b)   Viņš apgalvoja ka (*lingvistiku) zēns mācās *(lingvistiku) pat brīvdienās.
He – claims – THAT – linguistics – the boy – studies – even on holidays

c)   Es zināju par to, ka (*lingvistiku) zēns mācījās *(lingvistiku) pat brīvdienās.

I – knew – about – this – THAT – linguistics – the boy – studied – even – on holidays

d)   Viņi teic, ka (*lingvistiku) zēns mācās *(lingvistiku) pat brīvdienās
they – say – THAT – linguistics – boy – studies – even – on – holidays

e)   Es ticu tam, ka (*lingvistiku) zēns mācās *(lingvistiku) pat brīvdienās.
I – believe – it-DAT – THAT – linguistics – boy – studies – even – on – holidays

f)   Es domāju par to [CP kāpēc (*[lingvistiku) [IP nevienam [VP negribas mācīties *(lingvistiku)] Valentīna dienā···]

I − think −about – this – why − linguistics − noone − NEG-want − study − Valentine's − day-LOC

'I wonder why noone wants to study linguistics on a Valentine's day.'

A similar diagnosis can be made for French, where there is no CMP drop and no embedded topicalisation either. In fact, Fr. hardly ever allows topicalisation. Therefore, Fr. has developed a suppletive construction.

(80)   a)   Je crois *(que) Jean aime la linguistique.
I – think – that – J. – loves – the – linguistics

b)   *Je crois que la linguistique, Jean aime.

c)   Je crois que c'est la linguistique que Jean aime.
I – think – that – it – is – the – linguistics – J. – loves

For some reason, the IF Foc cannot be projected in SubCs in those languages. This has the effect of strict asymmetry between SubCs and clauses with topicalisation. This can even result in the absence of (structural) topics in embedded clauses.

2.1.4. *Evidence from Extraction in Gm. and Eng.*

V allowing for embedded topicalisation and V allowing for long distance movement of *Wh* and topics (extraction from the complement) have been referred to as 'bridge V' in the literature (cf. MÜLLER & STERNEFELD 1990 and the revised version 1993; VIKNER 1995, 70; however cf. fn. 74).

(81)   a)   Was$_i$ behauptete Peter, t$_i$ habe   ihm Paul dafür   nicht **t$_i$** geboten.
             what- claimed - P. - haveSJT - him - P. - for-that - not - offered

      b)   *Was hielt Peter geheim, t$_i$ habe   ihm Paul dafür nicht **t$_i$** geboten.
             what - kept - P. - secret - haveSJT - him - P. - for-that - not - offered

(82)   a)   What$_i$ did Peter claim that t$_i$ Paul did not offer him **t$_i$**.

      b)   *What$_i$ did Peter keep secret that **t$_i$** Paul did not offer him **t$_i$**.

(83)   a)   [Sehr viel Geld]$_i$ **,** behauptete Peter, t$_i$ habe ihm Paul dafür nicht **t$_i$** geboten.
             very - much - money - claimed - P. - haveSJT - him - P. - for-that - not - offered

      b)   [Very much money]$_i$, Peter claimed that **t$_i$** Paul did not offer him **t$_i$**.

Already MÜLLER & STERNEFELD (1990, 37ff) anticipated the 'split CP hypothesis' explicated by RIZZI (1997). They proposed that in sentences like these there were two "matching" projections[75], the 'nominal' CP and the 'verbal' TopP. The term "matching" for them means that there are two segments of one projection, each with separate heads, of which only one can be activated. The head designated as being the activated one can specifically license its specifier.

(84)   ***Licensing Condition on Specifiers*** (cf. MÜLLER & STERNEFELD 1990, 45)

      A [±Wh]-phrase in SpecX must agree with an appropriate designated head X, where C is appropriate for [+Wh]-phrases (called "wh-operators) and TOP is appropriate for [-Wh]-phrases (called "topics").

With their account they capture several phenomena concerning the distribution of *Wh* and topics in Gm. and Eng. .

(85)   a)   Ich weiß nicht [$_{CP}$ wen$_i$ (%dass) [$_{TopP}$ [du t$_i$ gesehen hast]
            I - know - not - whom - CMP - you - seen - have

      b)   *Ich glaube [$_{CP}$ [$_{TopP}$ den Fritz dass   [sie t$_i$ gesehen hat]
            I - believe - DET - F. - CMP - she - seen – has

      c)   Ich glaube [$_{CP}$ [$_{TopP}$ den Fritz$_i$ hat$_k$ [sie t$_i$ gesehen t$_k$]
            I - believe - DET - F. - has - she - seen

      d)   *Ich weiß nicht [$_{CP}$ [$_{TopP}$ wen$_i$ hast$_k$ [du t$_i$ gesehen t$_t$]
            I - know - not - whom - have - you - seen

---

[75] The term *matching projection* originally goes back to HAIDER (1988).

e) Radios$_i$ weiß ich nicht [$_{CP}$ wann (%dass) [$_{TopP}$ t$_i$ [Ede t$_i$ repariert hat]
   radios - know - I - not - when - CMP - E. - repaired – has

f) *Was$_i$ weißt du nicht [$_{CP}$ wann (%dass) [$_{TopP}$ t$_i$ [Ede t$_i$ repariert hat]
   what - know - you - not - when - CMP - E. - repaired – has

g) *Den Hans$_i$ sagte sie [$_{CP}$ [$_{TopP}$ Ede$_j$ habe$_k$ [t$_j$ t$_i$ getroffen t$_k$]
   *DET - H. - said - she   -   E. - have*SJT *- met*

The option of a doubly filled CP in certain Gm. varieties indicates the position of *Wh* in SPEC/C. This option is not given for topics (85a+b) which must therefore be positioned in a lower phrase. Embedded V2 is possible only for topics, not for *Wh* (85c+d). This also follows directly if one assumes that *Wh*-items have to be in SPEC/C, whereas topics have to be in SPEC/TOP. The assumption also explains why topics but not *Wh* can (at least marginally) be extracted over *Wh* and why topics cannot be extracted over topics (85e-g): Only in (85e) there is a suitable intermediate landing site. The corresponding Eng. examples would be:

(86) a) I wonder [$_{CP}$ who$_i$ [$_{TopP}$ [you have seen t$_i$]

b) *I believe [$_{CP}$ [$_{TopP}$ Bill that [she has seen t$_i$]

c) I believe [$_{CP}$ that [$_{TopP}$ Bill [she has seen t$_i$]

d) *I wonder [$_{CP}$ who$_i$ [$_{TopP}$ have$_k$ [you t$_k$ seen t$_i$]

e) ??Radios I wonder [$_{CP}$ when [$_{TopP}$ t$_i$ [Ed repaired t$_i$] [76]

f) *What$_i$ do you wonder [$_{CP}$ when [$_{TopP}$ t$_i$ [Ed repaired t$_i$]

g) *To Jack$_i$ she said [$_{CP}$ that [$_{TopP}$ a book$_j$ [Ed gave t$_i$ t$_j$]

This shows that the same analysis can be used for Eng. embedded topicalisation as for embedded *Wh*. The answer MÜLLER & STERNEFELD (1990) give to the question of how *bridge V* differ from other V taking SubC complements is: They are V that can govern TOP° across C°, thereby activating this "verbal" head, if C° and TOP° match. They can activate TOP° only if C° is not designated, therefore topicalisation (i.e. V2 in Gm.) and *Wh* never co-occur. 'Normal' V embedding clauses demand a *nominal* clause headed by C. SubC complements of bridge V can be verbal since they can govern across C. Thus they allow for topicalisation exactly as MCs do, if TOP° is the designated head. If V can only govern C°, the

---

[76] Even though this sentence is only very marginally accepted by Eng. speakers, it "seems to be universally true that topic islands are stricter than wh-islands." (MÜLLER & STERNEFELD 1990, 42)

SubC will be *nominal*[77], because TOP°, even if designated, could not be governed and hence could not be activated. Therefore, *Wh* is the only possible kind of movement.

MÜLLER & STERNEFELD (1990) assume that the absence of *Wh*-extraction out of embedded V2 clauses despite the two SPEC positions can be explained by the lack of government. TOP° has to be properly governed in order to be activated, which is possible only if the projections match. Sentences like the following are ungrammatical since the topics in the SubCs are not licensed by an activated head.

(87)   a) *Ich weiß wen$_i$ du sagtest [$_{CP}$ t$_i$ [$_{TOPP}$ Ede$_j$ [$_{TOP'}$ habe$_k$ [t$_j$ t$_i$ getroffen t$_k$]
          *I - know - who - you - said   -   E. - have*SJT *- met*

       b) *What$_i$ does John think [$_{CP}$ t$_i$ [$_{C'}$ that [$_{TOPP}$ Tom$_j$ [$_{TOP'}$ [Mary gave t$_j$ to t$_i$]

As (85e+86e) show, topic extraction out of *Wh*-clauses is not that bad. MÜLLER & STERNEFELD (1990) suggest that the marginality is due to a weak subjacency violation. How is the topic trace in SPEC/TOP licensed, though? TOP° should not be activated, if V governs C – which must, according to their account, be the case if *Wh* moves. Another puzzle: Whereas in Gm. topics cannot use SPEC/C as an escape hatch, *Wh* can obviously use SPEC/TOP – if TOP° is the landing site for V2-movement.

(88)   a) *Ede$_i$ hat er gesagt, [$_{CP}$ t$_i$ dass [$_{TOPP}$ [$_{TOP'}$ [t$_i$ das Radio repariert hat]]]]
          E. - has - he - said   -   CMP   -   the - radio - repaired - has

       b) Wer$_i$ hat er gesagt [$_{CP}$ t$_i$ dass [$_{TOPP}$ [$_{TOP'}$ [t$_i$ das Radio repariert hat]]]] ?
          who - has - he - said   -   CMP   -   the - radio - repaired - has

(89)   a) Ede$_i$ hat er gesagt, [$_{CP}$ [$_{TOPP}$ t$_i$ [$_{TOP'}$ habe$_j$ [t$_i$ das Radio repariert t$_j$]]]]
          *E. - has - he - said   -   has*SJT *- the - radio - repaired*

       b) Wer$_i$ hat er gesagt [$_{CP}$ [$_{TOPP}$ t$_i$ [$_{TOP'}$ habe$_j$ [t$_i$ das Radio repariert t$_j$]]]] ?
          *who - has - he - said   -   has*SJT *- the - radio - repaired*

If, as MÜLLER & STERNEFELD (1990, 47) state explicitly, a head is activated only if visible, and V is the lexicalisation of the activated verbal TOP° which must be properly governed under matching, there is no other site for the WH-trace. This is unexpected with respect to the nominal character of *Wh*.

---

[77]   MÜLLER & STERNEFELD (1990) follow an assumption by KAYNE (1984) that C° is a *potentially nominal* head.

A third puzzle: Extraction of subjects out of SubCs independent of their being *Wh* or topics is possible in Eng. only under absence of CMP. Objects can be extracted freely.

(90) a) Who$_i$ did he say [$_{CP}$ t$_i$ *(that) [repaired the radio]] ?

b) What$_i$ did he say [$_{CP}$ t$_i$ (that) [he repaired t$_i$]] ?

c) ?Ed$_i$ he said [$_{CP}$ *(that) [$_{TOPP}$ t$_i$ [repaired the radio]] .

d) The radio$_i$ he said [$_{CP}$ (that) [$_{TOPP}$ t$_i$ [Ed repaired t$_i$]] .

This asymmetry has been referred to as the 'that-trace-effect". In Gm. there is no such asymmetry. Topic extraction is possible only out of V2 clauses, *Wh* extraction is possible out of V2 or V-final clauses with CMP.

(91) a) Ede$_i$ hat er gesagt, [$_{CP}$ [$_{TOPP}$ t$_i$ [$_{TOP'}$ habe$_j$ [t$_i$ das Radio repariert t$_j$]]]]
       E. - has - he - said   - hasSJT - the - radio - repaired

b) Das Radio$_i$ hat er gesagt, [$_{CP}$ [$_{TOPP}$ t$_i$ [$_{TOP'}$ habe$_j$ [Ede repariert t$_i$ t$_j$]]]]
       the - radio - has - he - said   - hasSJT - E. - repaired

c) Wer$_i$ hat er gesagt [$_{CP}$ [$_{TOPP}$ t$_i$ [$_{TOP'}$ habe$_j$ [t$_i$ das Radio repariert t$_j$]]]] ?
       who - has - he - said   - hasSJT - the - radio - repaired

d) Was$_i$ hat er gesagt [$_{CP}$ [$_{TOPP}$ t$_i$ [$_{TOP'}$ habe$_j$ [Ede t$_i$ repariert t$_j$]]]] ?
       who - has - he - said   - hasSJT - E. - repaired

e) Wer$_i$ hat er gesagt [$_{CP}$ dass   [$_{C'}$ t$_i$ [$_{TOPP}$ [t$_i$ das Radio repariert hat]]]] ?
       who - has - he - said - CMP   -   the - radio - repaired has

f) Was$_i$ hat er gesagt [$_{CP}$ dass   [$_{C'}$ t$_i$ [$_{TOPP}$ [Ede t$_i$ repariert hat]]]] ?
       who - has - he - said - CMP   -   E. - repaired has

Our account can provide solutions for all three puzzles. In Eng. (and in the V2 languages other than Gm. and Dt.) [C] and [FOC] are *scattered*. Since C$_{SUB}$ must be lexicalised, embedded topicalisation is possible only under a CMP. In Gm. C and FOC cannot be scattered, therefore V2 is only possible if C$_{SUB}$ is not lexicalised by CMP. As shown above, bridge V in Gm. select *either* clausal complements (CPs) *or* FocP complements.

(92) a) He sais [$_{FOCP}$ the boy will study linguistics].

b) He sais [$_{CP}$ [$_{C'}$ that [$_{FOCP}$ [$_{DP}$ **Linguistics**]$_n$ [$_{Foc'}$ e [$_{IP}$ the boy will study **t**$_n$ one day].

(93) a) Er sagt [$_{CP}$ dass der Junge einmal Linguistik studieren wird].

b) Er sagt [$_{FOCP}$ [$_{DP}$ **Linguistik**]$_n$ [$_{Foc'}$ **wird**$_v$ [$_{VP}$ der Junge einmal **t**$_n$ studieren **t**$_v$] .

All the properties attributed to them follow from that.

 Firstly, "that-deletion" and subordinate V2 follow naturally, if there is no CP but a bare FOCP. Secondly, if a CP is selected, *Wh*-elements can move to

SPEC/C and (parametrically) lexicalise C. This is not possible for topics, since they are in SPEC/Foc. Doubly filled CMP can also only occur with *Wh*, since topics are in SPEC/Foc. On the other hand, CMP precedes embedded topics if Foc is selected by C, which seems to be stylistically preferred if SPEC/Foc is occupied.

(94)   He sais ?([CP [C' that) [FocP [DP **Linguistics**]n [Foc' **e** [IP the boy will study **t**n one day]

Topics can marginally be extracted from a *Wh* clause, since they have an intermediate landing site SPEC/Foc in Eng. and thus cross only one bounding node. In Gm. there is only one bounding node CP. The slight marginality presumably arises from stylistic factors.

(95)   a) ??Radios I wonder [CP when [t_i [Ed repaired t_i]

       b) ? Radios$_i$ weiß ich nicht [CP wann (dass) [Ede t_i repariert hat]
           radios - know - I - not - when - CMP - E. - repaired - has

Extractability of exactly one constituent follows secondarily. In Eng. you cannot extract *Wh* over topic, since projection of Foc° creates an additional node to cross. In Gm. you cannot anyway, since there is only one intermediate "landing site", i.e. the position co-indexed with the extracted topic.

Lastly, our theory provides an explanation as to why the long distance movement of *Wh* makes CMPs obligatory. If *Wh* moves to the higher clause, using SPEC/C only as a landing site, it cannot serve [*Wh*+C]* anymore. PF interpretation by CMP is obligatory to make C_{SUB} visible in selected clauses. Thus, the doubly filled CP-filter is in fact an economy condition that holds if substantial presence of one item in CP suffices. If this (*Wh*-)item is removed, the remaining IF C_{SUB} must be lexicalised by the default expression, which is a CMP.

2.2.   Dropping the Complementiser

As shown above, in Gm. V2 is only possible in clauses where there is no CMP.

(96)   a) Er sagt, (***dass***) [Tomaten **esse** Johann oft].   (Gm.)

       b) Er sagt, [CP **dass** [VP Tomaten (***esse***) Johann oft **esse**].

In our account, the reason for this is that Gm. differs from the other V2 languages by projecting only the head containing the IF Foc. [78] What makes the embedding of a clause without CMP possible, however? And why is this restricted to certain V? In the following paragraphs we look closer into the conditions of CMP drop and the licensing of topics in embedded clauses. Our cross linguistic discussion will show that embedded topicalisation and CMP-drop are indeed related phenomena.

2.2.1. *Indirect Speech*

There is a list of V allowing embedded V2 in Gm. and Dan. in VIKNER (1995, 71f). He notes that their classification is problematic, especially since V licensing embedded topics are not the same in all languages. We think that their inherent semantic properties, which should have common conditions for the same concepts universally, cannot be the factor allowing or disallowing topicalisation.

In Gm. there is a clear tendency for V expressing acts of speech or thought to embed V2 clauses (and thus drop the CMP). Those V are traditionally called 'V of *saying* and *thinking*'.

(97) a) ich behaupte, Linguistik studiert der Junge
I - claim – linguistics – studies – DET *– boy*

 b) ich weiß, Linguistik studiert der Junge
*I - know – linguistics – studies – boy*DET

 c) ich glaube, Linguistik studiert der Junge
I - believe – linguistics – studies – DET *– boy*

 d) sie sagen, Linguistik studiert der Junge
they – say – linguistics – studies – DET *– boy*

---

[78] Dutch behaves essentially like German, except that embedded topicalisation is highly marked. With the so called *bridge verbs*, there is a general preference for further extraction to the top of the MC. This option exists also in Gm..

(i)   a)   Ik zei [CP dat [VP de jongen taalkunde studeert]⋯]
I − said − CMP − the − boy − linguistics − studies

 b)   ??Ik wist [de jongen [Foc' studeert [taalkunde V°]⋯]
I − knew − the − boy − linguistics − studies

(ii) a)   ??Ik denk, taalkunde, zal de jongen op een dag studeren.
I − think − linguistics − shall − the − boy − on − a − day − study

 b)   Taalkunde, denk ik, zal de jongen op een dag studeren.
Linguistics − think − I − shall − the − boy − on − a − day − study

(iii) Linguistik, glaube ich, wird der Junge mal studieren.
Linguistics − think − I − shall − the − boy − once − study

It should be noted that embedding of V2 clauses like above always involves a short prosodic break after the MC. This does not change the fact that other V embedding clauses do not license topicalisation, and thus neither V2 nor CMP drop however.

(98)   a) *ich erwarte, Linguistik studiert der Junge
            I - expect – linguistics– studies – DET – boy

       b) *ich bin überrascht, Linguistik studiert der Junge
            I - am – amazed – linguistics– studies – DET – boy

       c) *ich will, Linguistik studiert der Junge
            I - want – linguistics – studies – DET – boy

       d) *sie leugnen, Linguistik studiert der Junge
            they - deny – linguistics – studies – DET – boy

       e) *ich bezweifle, Linguistik studiert der Junge
            I – doubt-on – linguistics – studies – DET – boy

Although this seems a rough descriptive generalisation, we suggest that it can be reduced to the classification according to a secondary semantic property of V expressing *acts of speech and thought*. Indeed data from several languages suggests that idiosyncratic constraints on embedding *speech* may be the reason for restrictions. In colloquial Norwegian, there is a stylistically marked option to drop the CMP in SubCs embedded by exactly the V allowing embedded V2 in Gm. Those V also license embedded topics.

(99)   a) jeg hevder (at) gutten studerer lingvistikk
            I - claim -1stsg – CMP – boyDET – studies – linguistics

       b) jeg vet (at) gutten studerer lingvistikk
            I - know -1stsg – CMP – boyDET – studies – linguistics

       c) jeg tror (at) gutten studerer lingvistikk
            I - believe -1stsg – CMP – boyDET – studies – linguistics

       d) de sier (at) gutten studerer lingvistikk
            they – say – CMP – boyDET – studies – linguistics

(100) a) jeg hevder (at) lingvistikk studerer gutten
            I - claim -1stsg – CMP – linguistics – studies – boyDET

       b) jeg vet (at) lingvistikk studerer gutten
            I - know -1stsg – CMP – linguistics – studies – boyDET

       c) jeg tror (at) lingvistikk studerer gutten
            I - believe -1stsg – CMP – linguistics – studies – boyDET

       d) de sier (at) lingvistikk studerer gutten
            they – say – CMP – linguistics – studies – boyDET

Nw. V not licensing CMP drop colloquially never license embedded V2 either.

(101) a) jeg forventer at gutten studerer lingvistikk
       I - expect -1stsg – CMP – *boy*DET – *studies – linguistics*

   b) jeg er overrasket over at gutten studerer lingvistikk
       I - am-1stsg – *amazed – about* – CMP – *boy*DET – *studies – linguistics*

   c) jeg vil at gutten studerer lingvistikk
       I - want -1stsg – CMP – *boy*DET – *studies – linguistics*

   d) de benekter at gutten studerer lingvistikk
       they - deny – CMP – *boy*DET – *studies – linguistics*

   e) jeg tviler på at gutten studerer lingvistikk
       I - doubt -1stsg – *on* – CMP – *boy*DET – *studies – linguistics*

As noted above, the contextual restriction of CMP drop to certain V_{MC} suggests that it is rather a matter of the SD than of phonological reduction, and it is striking that it is the same V_{MC} which license V2 SubCs in Gm.. Of course this suggests that the phenomena are in a way related.

This assumption is supported by evidence from Rus.. Rus. seems to have two layers in the CDom, the lower one hosting a topic, the higher one a CMP. However, the CMP can sometimes be dropped.

(102) a) Ja dumaju, [$_{CP}$ (čto) [$_{FocP}$ lingvistiku [$_{IP}$ mal'čik [$_{I'}$ budet [$_{VP}$ izučat']···]
       *I – think – CMP – linguistics – boy – will – study*INF

   b) Ja dumaju, [$_{CP}$ (čto) [$_{FocP}$ lingvistiku [$_{IP}$ v Valentinov den' nikto
       [$_{VP}$ s'udovol'stviem učiť ne zaxočet]···]

       *I – think – CMP – linguistics – on – Valentine's – day – nobody – gladly − learn
       – NEG − want*(FUT)-(PRF)

According to our informants, this is also always possible with *V of saying and thinking*. Note that like in Gm. (s.a.), this is always related to a short prosodic break after the MC.

(103) a) Ja skazala, (čto)   mal'čik izučajet lingvistiku.
       I – said   –   that – boy – studies – linguistics

   b) Ja znala,   (čto) mal'čik izučajet lingvistiku.
       I – knew   –   that – boy – studies – linguistics

   c) Ja videla, (čto)   on   izučal   lingvistiku.
       I – saw   –   that – he – studied – linguistics

On the other hand, V like the following never allow CMP drop:

(104) I deny/ expect/ am surprised/ regret[79]/ doubt/ want, that the boy studies linguistics.

---

[79] With 'understand' (*ponimat'*), 'claim' (*utverždat'*) and 'be amazed' (*udivljat' sja*) there is a marginal option to drop the CMP. However, this triggers paratactical reading, whereas hypotactical reading is ungrammatical.

(105) a) Ja otricaju, *(čto) mal'čik izučajet lingvistiku.
          I – deny –   that – boy – studies – linguistics

b) Ja ožidaju, *(čto) mal'čik budet izučať lingvistiku.
          I – expect – that – boy – will – study – linguistics

c) Ja byl udivljon, *(čto) mal'čik izučajet lingvistiku.
          I – was – surprised –   that – boy – studies – linguistics

d) Ja sožaleju, *(čto) mal'cik izučajet lingvistiku.
          I – regret –   that – boy – studies – linguistics

e) Ja somnevajus', *(čto) mal'čik izučajet lingvistiku.
          I – doubt – that – boy – studies – linguistics

f) Ja xoču, *(čto-)by mal'čik izučal lingvistiku.
          I – want – that – PTC[80] *– boy – studied – linguistics*

Moreover, with both of these Vs, embedded topicalisation was never accepted by our informants.

Like V2 in MlSc., Dt. and Gm., the dropping of CMP and embedded topicalisation in Russian depend on licensing by verbal semantics. The question of why V of *saying and thinking* can predominantly license an embedded topic might have a simple answer. For some reason, they seem to be able to import IFs of information structure (FOC), which are usually administrated by illocutionary force, to the predicate they are selecting. Since they license embedded assertions, the SubC has autonomous organisation of information that can be structured by the same Fs as in MCs.

(i) a) Ja ponimaju, */(?) (čto) mal'cik izučajet lingvistiku.

b) Ja udivljajus */?(čto) mal'čik izučajet lingvistiku!

c) Ja utverždaju, */?(čto) mal'čik izučajet lingvistiku.

The same can be said for similar paratactical configurations in Nw. and Gm. .

(ii)a) jeg forstår (?at) gutten studerer lingvistikk
          I - understand-1[st]sg – CMP – *boy*DET – *studies – linguistics*

b) jeg beklager (?at) gutten studerer lingvistikk
          I - regret -1[st]sg – CMP – *boy*DET – *studies – linguistics*

(iii) Ich bedaure. Der Junge studiert Linguistik.
      I - regret - DET – *boy – studies – linguistics*

Compare the equivalent Eng. constructions: With those V in suitable contexts, V2 and topicalisation is possible in parataxis, however, with a very different interpretation. The second clause is in any case a MC.

(iv)Mother: I want the boy to study economy.

Father: I am sorry. Linguistics, the boy will study, and nothing else.

(v) Father: My son studies the theory of syntax.

Neighbour: I understand!/ am amazed! Linguistics, he studies.

[80] This is a marker of modality attached to CMP, which is discussed in Ch. 3.5.3.

There is some difference with respect to CMP-drop even between two languages as closely related as Fr. and It.. Whereas in Fr. the CMP is always obligatory (see above, 80), in It. the CMP can be dropped context dependently, which is constrained by a number of factors. The most basic restriction mentioned by It. linguists is that of verbal semantics. The clause must be complement of a so called *bridge V* (cf. COCCHI & POLETTO 2001), i.e. the kind of V according to VIKNER (1995) allowing for embedded topics, and CMP drop in Gm., Dt. and Nw..[81]

(106) a) credo (che) il ragazzo studi linguistica
        believe -1stsg – CMP – DET – *boy – studies*SJT – *linguistics*

     b) loro dicono (che) il ragazzo studi linguistica
        they – say – CMP – DET – *boy – studies*SJT – *linguistics*

(107) a) pretendo *(che) il ragazzo studi linguistica
        expect -1stsg – CMP – DET – *boy – studies – linguistics*

     b) sono sorpreso *(che) il ragazzo studia linguistica
        am-1stsg – *amazed* – CMP – DET – *boy – studies – linguistics*

     c) voglio *(che) il ragazzo studia linguistica
        want -1stsg – CMP – DET – *boy – studies – linguistics*

     d) nego *(che) il ragazzo studia linguistica
        deny -1stsg – CMP – DET – *boy – studies – linguistics*

     e) Capisco *(che) il ragazzo studia linguistica
        understand-1stsg – CMP – DET – *boy – studies – linguistics*

     f) sono deluso (dal fatto) *(che) il ragazzo studia linguistica
        regret -1stsg – CMP – DET – *boy – studies – linguistics*

A second restriction is that the complement must not be *factive* (cf. GIORGI & PIANESI 2001), which excludes a number of V allowing for CMP drop in the other languages.

(108) so *(che) il ragazzo studia linguistica
        know -1stsg – CMP – DET – *boy – studies – linguistics*

What is different (cf. GIORGI & PIANESI 2001) is the restriction of *topic*- and *focus* movement in CMP-drop SubCs.

(109) a) Gianni crede *(che) LA MELA tu abbia mangiato, non la pera.
        *G. - believes - that - the - apple - you - have*SJT *- eaten - not - the - pear*

     b) Gianni crede *(che) la mela tu l'abbia[82] mangiata.

---

[81]   But cf. fn 74.

[82]   Topicalisation of arguments involves clitic doubling in Italian, cf. above, p. 151f.

There are a number of other restrictions on CMP-drop in It. which do not affect our assumptions. What should be noted, however, is that V_{SubC} must not be in the indicative mood.

(110) a) Mario crede (che) sia partito.   (GIORGI & PIANESI 1999)
            M. – believes – that – is3rdsg-SJT – left

     b) Mario ha detto *(che) è partito.
            M. – has – said – that – is3rdsg-IND – left

This is not an isolated Italian phenomenon however. In Gm., at least if V_{MC} is in 3rdp, *SJT* in the V2 SubC is not only possible, but even more appropriate than *IND*.

(111) a) er behauptet, Linguistik studier**e** der Junge
            *he – claims – linguistics – studies*SJT – DET – *boy*

     b) er glaubt, Linguistik studier**e** der Junge
            *he – believes – linguistics – studies*SJT – DET – *boy*

     c) sie sagen, Linguistik studier**e** der Junge
            *they – say – linguistics – studies*SJT – DET – *boy*

SJT, however, is an indicator of *indirect speech* in many languages. We take this as strong evidence for our assumption that the generalisation about V embedding CMP-less clauses should build on options of embedding speech, i.e. the classification according to a semantic F of V expressing *acts of speech or thought*. They are always verbs expressing propositional attitudes.

Both factuality and the property of expressing propositional attitudes through speech or thought are semantic and universal. Factuality is a semantic primitive that essentially constitutes the semantic concept of a predicate. That a predicate expressing an attitude can do this by introducing an autonomous locution is much more probable to be subject to variation however. The entity that is parameterised can be a semantic F relating a predicate to an act of speech or thought – which would end up being a slightly different conceptualisation.

Interestingly, *doubt* allows CMP-drop in Italian and *claim* does not, which is exactly the other way round in the other languages.

(112) dichiaro *(che) il ragazzo studia linguistica
          claim-1stsg – CMP – DET – *boy* – *study*SBJ – *linguistics*

If this difference can be reduced to lexical parameterisation of, say, the *conceptual identity* of doubting and a *speech act* expressing doubt, or the non-identity of

'claiming' and a *locution* [83], our generalisation that CMP drop parallels the embedding of indirect speech holds. We suggest verifying this by modification through characteristic adverbials. In fact, it is possible in It. to modify both 'say' and 'think' by an adverbial meaning 'loudly'. Even though this is not possible with 'doubt', the fact that it is modifiable by 'with conviction' or 'frankly' implies that it is an act of thinking that can also be uttered.

(113) a) loro dicono il ragazzo studia linguistica a voce alta
          *they – say – DET – boy – studies*SJT *– linguistics – at – voice – loud*(i.e. loudly)

   b) stavo pensando il ragazzo studia linguistica a voce alta
       have-1stsg – thought *– DET – boy – studies*SJT *– linguistics – at – voice – loud*

   c) Dubito il ragazzo studia linguistica con convinzione
       doubt-1stsg *–CMP – DET – boy – studies*SJT *– linguistics – with – conviction*

       'I am convinced that the boy does not study linguistics.'

   d) francamente dubito il ragazzo studia linguistica
       openly – doubt-1stsg *–CMP – DET – boy – studies*SJT *– linguistics*

   e) dubito il ragazzo studia linguistica francamente
       doubt-1stsg *–CMP – DET – boy – studies*SJT *– linguistics – openly*

       'I frankly doubt if the boy studies linguistics.'

The same is not possible with 'claim', which should nonetheless be a V where it should be possible to utter its complement as a statement. However, this does not mean that the V 'claim' in every language must have the denotation of an utterance or thought. It may simply denote the fidelity to one's ideas.

(114) a) francamente dichiaro *(che) il ragazzo studia linguistica
          *frankly − claim -1stsg – CMP – DET – boy – studies*SJT *– linguistics*

   b) Dichiaro *(che) il ragazzo studia linguistica con convinzione
       *claim -1stsg – CMP – DET – boy – studies*SJT *– linguistics – with – conviction*

Indeed, the same sentences in Gm. show the opposite behaviour: 'claim' licenses this kind of adverbial modification, but 'doubt' does not.

(115) a) ich behaupte (offen), Linguistik studiert der Junge
          I - claim – openly – linguistics – studies – DET – boy

   b) ich bezweifle (*offen), *Linguistik studiert der Junge/ dass. . .
       I – doubt-on – openly – linguistics – studies – DET – boy

---

[83] This appears of course counterintuitive for a speaker of Eng. or Gm.; note, however, that claiming expresses in the first place an epistemical attitude of keeping up a conviction, which may not necessarily be correlated to a speech act in Italian.

The presence of a CMP makes the difference between an epistemic V and an act of thought or to factuality obvious. This can be seen by the V *see* which embeds either an MC or a SubC with CMP.

(116) a) I saw Paul studied linguistics.

    b) I saw that Paul studied linguistics.

Whereas (a) means nothing but the cognitive act of noticing the event of a situation, (b) denotes a punctual transition between two different cognitive states. Therefore, it does not describe a thought, but its result.

Thus, it seems that in fact the embedding of a clause that has (at least overtly) MC structure is correlated with an act of saying or thinking. Whereas *claim* can embed indirect speech in the Gmc. languages and *doubt* cannot, it is just the other way in Italian. The most natural assumption in our view is that the difference is the result of the idiosyncratic choice of embedding indirect speech. Certain V seem to have a slightly different conceptualisation with respect to embedding *utterable* propositions, i.e. indirect speech or formulated thoughts.

2.2.2.   *Subject Clauses*

Whereas there is no such interference in Gm., Nw. and Rus., there is a clear deviance of CMP drop with embedded topics in Eng.. Note also that e.g. Dn. never allows CMP drop with V licensing embedded V2.

(117) a) (I think), * ([$_{CP}$ that) [linguistics [Foc° [$_{IP}$ the boy will study one day]···]

    b) Hun siger *(**at**) tomater **spiser** Johan ofte.

Obviously both phenomena are licensed by similar groups of V, but do not necessarily co-occur. If a CMP does not have be realised in order to interpret C$_{SUB}$, this very strongly indicates at least one other function of CMPs. Evidence for this also comes from Gm. and Dt., where V2 clauses can never be subjects.

(118) a) (*Daß) er tanzte, hat uns amüsiert.
        CMP – *he – danced – amused – us*

    b) (*Dat) hij danste, amuseerde ons.
        CMP − *he − danced − amused − us*

The only way to have a V2 clause in a subject-like function is in left dislocated position, i.e. preceding a V2 clause with a resumptive pronoun in subject position.

This construction is clearly paratactic however. In contrast to "real" CP subjects, FOCPs can be linked to the clause by a coordinating conjunction, like every independent clause.

(119) a) Er tanzte (und) [das [$_{Foc'}$ hat [uns amüsiert]···]
           he – danced − and − this – amused – us

   b) Daß er tanzte (*und) das hat uns amüsiert.
       CMP – he – danced – and – this − amused – us

In all the languages considered so far which can drop the CMP in certain object clauses, the CMP is always obligatory in a subject clause.

(120) a) *(čto) on   tanceval, nas razvleklo.   (Rus.)
           CMP – he – danced – us – amused

   b) *(che) lui danzasse ci ha divertiti   (It.)
        CMP – he – danced SJT *– us – has – amused*

   c) *(That) he danced, amused us.

Both the Eng. and Gm. data show that this condition holds for subject clauses and topicalised object clauses alike.

(121) a) *(that) he was tired, Peter could not hide.

   b) *(that) he was tired did not prevent him from working.

(122) a) *Er ist ins Kino gegangen, stimmt.
           he – is – into-DET *– cinema – gone – is-true*

   b) *Er ist ins Kino gegangen, bin ich mir sicher.
       he – is – into-DET *– cinema – gone – I – am – myself*DAT *– sure*

   c) Dass er ins Kino gegangen ist, bin ich mir sicher.

   d) Dass er ins Kino gegangen ist, stimmt.

   e) Ich bin mir sicher, er ist ins Kino gegangen.
       *I – am – myself*DAT *– sure – he – is – into*-DET *– cinema – gone*

According to a proposal by STOWELL (1981), CMP drop is related to the condition of proper government of empty positions. CMPs that are phonologically ∅ must be in a governed position. This is based on observations from Eng. and few other languages, which indeed allow CMP-drop rather freely, if C is governed by V – apparently with little restriction on the selecting V.

(123) a) John admits Chomsky is right.

   b) Herman denies John is right. [84]

---

[84] Both V are not licensers of embedded V2 among the V listed in VIKNER (1995, 64). Note, however, that not all speakers of Gm. reject V2 embedding with *zugeben* ('admit').

However, even in Eng. not all V governing CPs license $\varnothing$-CMPs. There must be a semantic restriction.

(124) John regrets/ expects/ understands *(that) Mary studies linguistics.

This also suggests that there is much more to CMP drop than PF reduction. Why should exactly these V not be able to license $\varnothing$-CMPs if they govern C? In the following paragraphs we will argue that this cannot be the universal condition constraining CMP drop, and that OV languages give evidence that CMP drop is possible there only if argument clauses are *not* in a Θ-position. Therefore, neither subject nor object clauses must ever lack the CMP. We claim that $\varnothing$-CMP clauses are not selected by V but generated outside the MC as explicators of implicit arguments. In addition, this account will provide further evidence that OV languages license their complements to the left.

2.2.3. *Extraposition*

Gm. complement clauses can lack a CMP (i.e. be V2) only if they are extraposed. If they precede V, CMP is obligatory.

(125) a) Ich habe niemals behauptet, [es stimmt].   (Gm.)
          I – have – never – claimed – it – is-true

      b) *Ich habe [es stimmt] niemals behauptet.
          I – have – it – is-true – never – claimed

      c) Ich habe [CP dass das stimmt] niemals behauptet.
          I – have – that – this – is-true – never – claimed

Already REIS (1997) proposed that Gm. SubCs without CMPs are not selected by V, but adjoined or coordinated to projections of V licensing V2 complements. We think that a generalisation can be built on this assumption. However, we do not assume that it is adjunction to VP but base generation in a specific position to the right of V which licenses embedded V2.

(i)   Er gibt zu, Chomsky könnte recht haben.
       he – gives – to – Chomsky – could – right – have
       'He admits Chomsky could be right.'

This is again evidence that the basic semantics of verbs is not decisive for this license, but something else – which could be the conceptualisation as either a speech act or the punctual transition to a different view of the state of affairs.

Firstly, since it is possible to extract from embedded V2 clauses (cf. 2.1.4), they cannot be adjuncts. They must be generated in the VP. Secondly, building on principle C binding facts HAIDER (1997a) found that OV languages must have a sentential licensing domain for extraposed constituents which is a right sister of V°. In the sentence

(126) *Maria hat [$_{VP}$ nicht[85] [$_{VP}$ IHM$_i$(DAT) gesagt [dass sie Max$_i$ nett findet]···]
      Mary – has – not – him – told – that – she – Max – dear – finds

    ' *Mary did not tell HIM$_i$ that she likes Max$_i$.'

Max$_i$ is c-commanded by the co-referential pronoun 'ihm$_i$', which is not in the Wackernagel position if stressed. Therefore the sentence is ungrammatical due to a direct violation of the binding principle C. If ungrammaticality was the result of reconstruction, topicalisation should also lead to ungrammaticality, which it does not.

(127) ✓[$_{CP}$ dass sie Max$_i$ nett findet]$_h$ hat [$_{VP}$ Maria [$_{VP}$ nicht [$_{VP}$ IHM$_i$(DAT) e$_h$ gesagt]···]

---

[85] Negation, especially apparent 'constituent negation' focussing single phrases, is a complicated matter in Gm . In this case, we rather assume that we have negation of the focussed lower partition of the VP. This is so since there can be more than one constituent focussed by NEG:

(i) Entgegen unserer Vorhersage hat Peter damals nicht die Diss in den Papierkorb geworfen.
    in-contrast-to – our – prediction – has – P. – then – not – the – dissertation – in – the – dustbin – thrown

Those who might now hastily analyse this as IP above NegP above VP must be disappointed, since instead of the subject, the object can precede NEG without effect on the grammaticality of this sentence – it is simply information structure which is changed.

(ii) Entgegen unserer Annahme hat die Diss damals nicht PETER in den Papierkorb geworfen.
    in-contrast-to – our – prediction – has – the – dissertation – then – not – P. – in – the – dustbin – thrown

We think the most reasonble analysis is therefore merger of a negation adverb above the structure that it c-commands – which is the lower partition of VP.

(128)

```
                        CP
                      /    \
                  SPEC      C'
                   |       /  \
                (✓CP)ₕ   C°    VP
                 /\           /  \
                /  \        DP    VP
      daß sie Maxᵢ nett findet |  /  \
                           Maria AP   VP
                              /\     /  \
                             /  \   DP   VP
                          nicht   |     /  \
                                ihmᵢ  CP    V'
                                      |    /  \
                                     eₕ  V°    (*CP)ₕ
                                          |     /\
                                       gesagt  /  \
                                         daß sie Maxᵢ nett findet
```
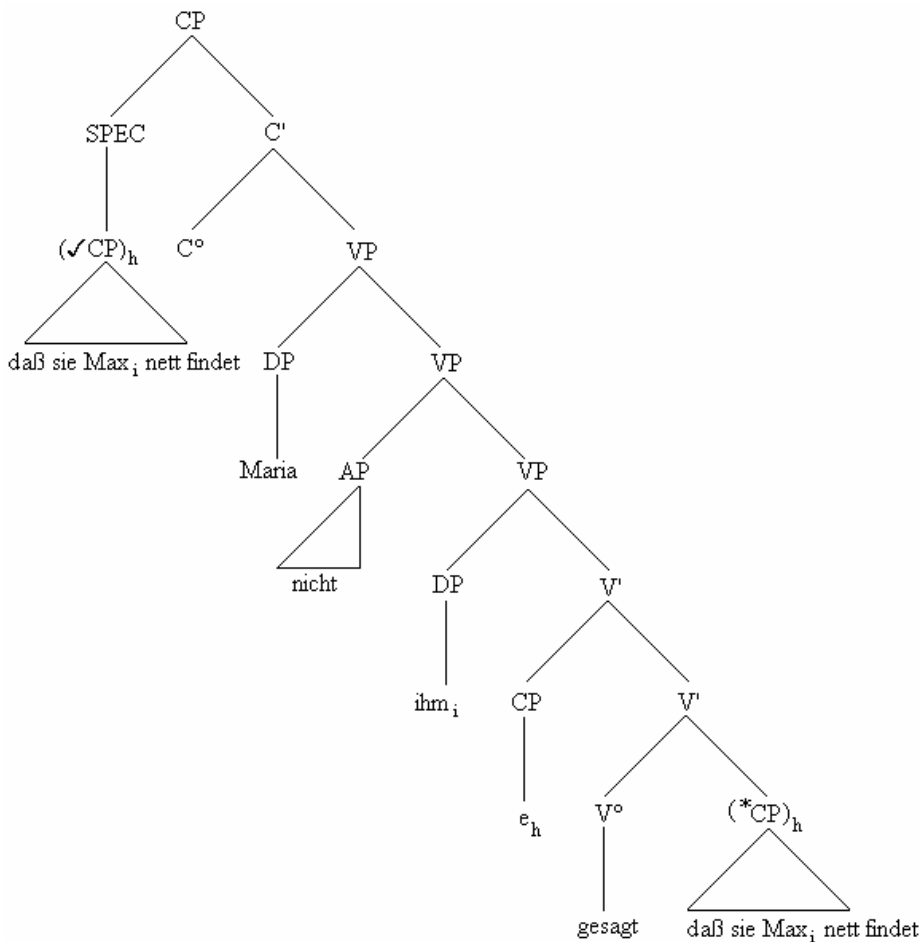
The extraposed CP must be c-commanded by the DP$_{DAT}$. This would not be the case if it were adjoined to VP. It is generated in a position licensed to the right of V. This licensing domain is not a Θ-position however. We assume that there is a cataphoric variable in the Θ-position of object and subject clauses, which is co-indexed with, and thus PF-interpreted by, an extraposed CP. It can be *optionally* realised as a correlative pronoun. The existence of the preverbal correlative also shows that the CP is not simply in a Θ-position to the right of V.

(129)   Maria hat (**es**)ₕ(ACC) Maxᵢ(DAT) gesagt, [dass sie ihnᵢ gern hat]ₕ
          Mary – has – it – him – told – that – she – Max – dear – has

We have shown that there is a non-Θ position where complement clauses are licensed. Let us now return to the discussion of extraposed V2 clauses. A V2 clause never has a correlative in Θ-position.

(130)   Sie hat (*es) nicht gesagt, sie hat ihn gern.
          she – has – it – not – said – she – has – him – dear

Nevertheless, it is generated in the VP internal licensing domain for extraposed constituents, which is shown by the binding data.

(131) a) *Sie hat nicht über ihn$_i$ gesagt, sie hat Kurt$_i$ gern.
　　　　she – has – not – about – K. – said – she – has – him – dear

　　　b) Sie hat nicht über Kurt$_i$ gesagt, sie hat ihn$_i$ gern.

Since V2 clauses can neither be generated in a Θ-position nor have a correlative there, it should be questioned whether or not such a position exists at all. We assume that V2 clauses, or more generally, SubCs lacking a CMP, are not Θ-clauses in a strict sense. The direct object of V expressing *an act of speech or thought* can, due to lexical parameterisation, be projected as an *implicit argument* rather than a case position in the Θ-grid. A V2 clause explicating it may be co-indexed with the implicit argument of V of saying and thinking which are there on a lexical level, but do not project to syntax, like the implicit argument of V in clauses such as

(132) Peter lied only three times in his life.

, where *lying* implies at least a patient which is not structurally described but can be explicated by circumstantials like *to us, at people, before God, in court.*[86] In fact, several V allowing V2 complements do not need an explication of the implicit argument in order to project grammatical SDs.

(133) a) Hans erzählt gerade, (er hat seinen Esel geschlagen).
　　　　John – tells – right-now – he – has – his – donkey – beaten

　　　b) Fritz hofft nicht nur, er ist sich sicher, (er wird es wieder finden).
　　　　F – hopes – not – only – he – is – himself – sure – he – will – it – again – find

　　　c) A: How can you survive?
　　　　B: Ich glaube und hoffe (, alles wird gut).
　　　　　　I – believe – and – hope – everything – becomes – good

Besides, there are also other kinds of predicates with implicit arguments that *must* be explicated, e.g.:

(134) James lives (in the sense of dwells) *(*comfortably/ in London/ with friends/ alone*).

None of the circumstantials can be the structural argument of V – the group is formally too heterogeneous. It is just that the implicit argument (i.e. the place) has

to be explicated. Therefore, we think that the obligatoriness or optionality of the V2 explication in pairs like the following has nothing to say about their argument status, however, since the explication invariably prohibits a correlative pronoun – which complement clauses never do (cf. also REIS 1997).

(135) a) Er hat es gesagt *(er hat Goethe gelesen).
           he – has – it – said – he – has – G. – read

       b) Er ist sich (*dessen) sicher, sie hat ihn betrogen.
           he – is – himself – of-it – sure – she – has – him – betrayed

2.2.4.   Interveners between V_{MC} and Clauses without CMP

Although we think that STOWELL's (1981) analysis is not right that CMP drop is actually a Θ-CMP that is possible only in governed positions, we have to concede that in VO languages like It. and Eng. there is clearly a restriction of CMP drop if anything intervenes between V_{MC} and the SubC.

(136) a) loro dicono a voce alta *(che) il ragazzo studia linguistica
           they – say – at – voice – loud – CMP – DET – *boy – studies*SJT – *linguistics*

       b) Stavo pensando a voce alta *(che) tutti amano la linguistica.
           AUX – *thinking – at – voice – loud – that – all – love – the – linguistics*

       c) dubito francamente *(che) il ragazzo studia linguistica
           doubt-1stsg – *openly* – CMP – DET – *boy – studies – linguistics*

(137) a) Paul said loudly *(that) Mary had not done her homework.

       b) I have been thinking for years *(that) everybody should love linguistics.

       c) He claimed openly *(that) Stowell's generalisation was not right.

Note, however, that the same restriction also holds for Gm., which is not a VO language.

(138) a) Hans hat gesagt, (*gestern) er habe Fisch gegessen.
           *John – has – said – yesterday – he – has*SJT – *fish – eaten*

       b) Hans hat gedacht, (*manchmal) er habe keine Lust mehr.
           *John – has – thought – sometimes – he – has*SJT – *no – mind – more*

           'Sometimes John thought he would not like anymore.'

However, although in principle these adverbials can be extraposed, they are not allowed to, even following the SubC, unless they are interpreted as modifying it.

---

[86] Since the prepositions of the PPs are exchangeable, those explications cannot be PP-objects but are semantically related adverbials.

(139) a) Hans hat das wirklich gesagt, gestern.
John – has – this – really – said – yesterday

b) Hans hat das gedacht, manchmal.
John – has – this – thought – sometimes

(140) a) Hans hat [$_{VP}$ gesagt, [$_S$ er habe Fish gegessen] (*gestern)]
*John – has – said – he – has*SJT *– fish – eaten – yesterday*

b) Hans hat [$_{VP}$ gedacht, [er habe keine Lust mehr] (*manchmal)]
*John – has – thought– he – has*SJT *– no – mind – more – sometimes*

The same holds for Eng.:

(141) a) Paul said Mary had not done her homework *(loudly)[87]

b) I have been thinking everybody should love linguistics *(for years)

c) He claimed Stowell's generalisation was not right *(openly)

There could be a quite simple solution to this problem. Since both post verbal adverbials and CMP-drop-clauses must be licensed in one non-Θ position, they are in complementary distribution. Therefore, all the sentences above are ungrammatical. If it was a restriction on the intervention of non-Θ-marked elements (which then also would block case government), the structures with the adverbials following the IPs or V2 clauses should be grammatical.

The only adverbials that are allowed are the subject and clause oriented ones – presumably because they are right adjoined to a higher projection.

(142) a) John thought he was a genius, because he was told so.

b) John claimed he was right with real conviction.

(143) a) Hans dachte, ich wäre verrückt, als er das las.
*John – thougt – I – was*SJT *– crazy – when – he – read – this*

b) Ich nahm an ich hätte recht, ohne zu zweifeln.
I – assumed – I – was – right – without – to – doubt

That this implies that the availability of at most one post verbal non-Θ position seems to contradict some evidence like the following. However, in the case of multiple post verbal modification we have to assume that either the adverbials can license each other through lexical scope properties which could be expressed in

---

[87] This does not apply to cases of heavy constituents that are in our view rather postposed than extraposed. Compare:

(i) Paul said Mary had not done her homework so loudly that noone could help hearing him.

(ii)   I have been thinking everybody should love linguistics for so many years now.

terms of a dependency, or that they are actually one constituent merged by adjunction. Both assumptions are plausible since in post verbal position the order of adverbials is very restricted (cf. PITTNER 1999), whereas preverbally there is some variation possible.

(144) a) Peter cut fish with this knife in the kitchen sometimes.

      b) *Peter cut fish sometimes in the kitchen with this knife.

      c) With this knife Peter sometimes cut fish in the kitchen.

This is even more obvious in Gm.:

(145) a) Peter hat Fisch geschnitten, mit diesem Messer in der Küche manchmal.
         Peter – has – Fish – cut – with – this – knife – in – the – kitchen – sometimes

      b) *Peter hat Fisch geschnitten, manchmal in der Küche mit diesem Messer.

      c) Peter hat in der Küche manchmal Fisch mit diesem Messer geschnitten.

The question of why neither *that*-clauses nor Θs that do not need structural case are subject to the adjacency condition (which in GB terms and especially STOWELLs 1981 proposal has been ascribed to head government) does not have anything to do with licensing of empty positions or case assignment under sisterhood. V allow adjuncts to intervene between them and their arguments only if they are generated in a lower phrase (cf. JOHNSON 1990) – possibly in a small clause.

(146) a) John$_i$ [$_{VP}$ t_i [$_{V'}$ applied [$_{PP}$ seriously [$_{PP}$ t_i [$_{P'}$ for presidentship]···]

      b) John$_i$ [$_{VP}$ t_i [$_{V'}$ went [$_{PP}$ quickly [$_{PP}$ t_i [$_{P'}$ to the cinema]···]

      c) John$_i$ [$_{VP}$ t_i [$_{V'}$ threw [$_{PP}$ quickly [$_{PP}$a penny [$_{P'}$ into the music box]···]

      d) John$_i$ [$_{VP}$ t_i [$_{V'}$ gave$_i$ [$_{VP}$ gladly [$_{VP}$ his mother [$_{V'}$ t_i a dollar]···]

Interveners between V and their adjacent complements are not possible simply because there is no adjunction site. This applies equally to complements bearing structural case and to PP complements.

(147) a) John$_i$ [$_{VP}$ t_i [$_{V'}$ ate (*quickly) a banana]···]

      b) John$_i$ t_i [$_{V'}$ suffered (*heavily) of a heartache]···]

  (iii)   He claimed Stowell's generalisation was not right so openly that it was embarassing.

That-clauses are in contrast to bare FOCPs extraposed and are in a chain relation with their Θ-position. They can therefore, in contrast to FOCP complements, have a correlative.

(148) a) He believes (it) deeply that she is a genius.

b) He believes *(it) she is a genius.

This, is the reason why they occur non-adjacent to V° at all. Thus, it seems that neither the 'final' head in Gm. nor the deepest head in the Eng. VP shell licensing non-Θs to the right necessarily assign case to this position. As it stands, however, this is the position where CMP-less SubCs are generated.

2.3.   The Categorial F of C: A Case for Cased CMPs

In the following, we want to argue that all SubCs lacking a CMP cannot be Θ-clauses for a specific reason. They lack a CMP and therefore cannot be selected and assigned case by V. A CMP represents a nominal F giving a clause the ability to be assigned case.

2.3.1.   *C° as a Nominal Functional Extension of S*

Persian is a strict OV language. The only exception are object clauses. Declarative object clauses in Prs. are introduced by the general CMP *ke*. The CMP *ke* is optional if the clause follows V like *think*.

(149) a) (Man) fekr ne-mikardam **(ke)**   pesar zabanshenasi bekhanad.
         I - thought - didn't   - CMP - *boy - linguistics - studies*SJT

"I did not think that the boy would study linguistics."

b) (Man) midanestam **(ke)** pesar zabanshenasi khahad khand.
         I - knew   -   CMP - boy - linguistics - FUT - studied

"I knew that the boy would study linguistics."

c) (Man) didam **(ke)**   (u) zabanshenasi mikhanad/mikhand.
         I − saw − CMP − he − linguistics − studies/studied

(150) a) N. Ch. migooyad **(ke)**   ghoveye zaban ensani fetri ast.
         N.C. −says − CMP − human − lang. − innate − is

"Noam Chomsky says (that) the human language faculty is innate."

b) Skinner motaghed bood   **(ke)**   faragiri-ye   zaban sharti shidan-e ashkar bood.

Skinner − believe − was − CMP - acquisition-of − language − conditioning − clear – was

"Skinner was convinced language acquisition was mere conditioning."

As soon as a CP is in Θ-position (i.e. the subject or a preverbal object), however, the CMP is obligatory. Since subjects are never extraposed, they never drop CMP. In addition to the CMP, the DET *in* must precede the clause. Besides, the object clause has a postponed marker of ACC case.[88]

(151) a)   Man midanam ([CP ke) [VP gorbe-ha shir doost darand]].   (SV - object-CP)
            I – know – CMP – cats – milk – like – have

            'I know that cats like milk.'

      b)   [DP **In** [CP ke [VP gorbeha shir doost darand]]] tabi'i ast.   (SV)
            this – that – cats – milk – like – have – natural – is

            'that cats like milk is natural.'

      c)   Man [DP **in** [CP ke [VP gorbeha shir doost darand]] **ra**]] midanam.   (SOV)
            I – this – CMP – cats – milk – like – have – ACC – know

            'I know that cats like milk'

Like in Gm., clauses generated in Θ-position must have a CMP. The Persian data not only indicate that clauses in Θ-position must have an overt CMP, but also that it must be a determined and overtly case marked category. Thus it is a category [+N]. This means as soon as an argument clause is not extraposed, it behaves like a DP rather than a sentence.

  Since we assume that SPEC/Foc is a Θ-position (cf. above, pp. 152ff), it is predictable that the same condition holds for fronted CP objects.

(152) [DP **In** [CP ke [VP gorbeha shir doost darand]] **ra**]] man midanam.   (OSV)
        this – CMP – cats – milk – like – have – ACC – I – know

---

[88]   *ra* is an overt marker of ACC case and definiteness (cf LOTFI 1997a). It occurs after definite direct objects. Compare:

(i) a)   Ma pedar **ra** didim.
          we − father − ACC/DEF − saw
          'We saw the father.'

    b)   Man sag didam
          I − dog − saw
          'I saw a dog.'

    c)   Man ghaza **ra** khordam
          I − food − ACC/DEF − ate
          'I have eaten the food.'

    d)   Man ghazaii khordam
          *I − food*GEN − ate
          'I ate some food.'

That the CMP is obligatory, we correlate to the case assignment to all arguments in Θ-position, including clauses. According to our assumptions about structural identification above (pp. 68f), *abstract case* expresses a specific relation between X° and an argument. This can interact with conceptual IFs (i.e. *lexical case* realising a semantic role, cf. CULICOVER 1997, 44) or be purely syntactic (identifying a logical relation, cf. the NOM [89] – ACC alternation under passivisation). Since arguments are thought to be assigned abstract case by V or AGR (cf. ROBERTS 1997, 55f), the need for case has been phrased as a syntactic principle.

(153) **Case Principle**   (cf. CHOMSKY & LASNIK 1995, 561)

Every realised DP/ NP must be assigned abstract case. A chain is visible for Θ-marking if it contains a case-position.

From the second statement above it also follows that Θ-marking of CPs should be made visible by case. If we assume that case is assigned to XPs by V or AGR, the straightforward question arises as to what happens if there is no DP/NP that can receive it, i.e., if the argument is a clause. Since which case is assigned to an object, depends on the verbal lexical entry, it should be a natural assumption that it does not depend on the category of the object, whether it receives case, but only on how it can represent it. The conditions for this representation should be both systematically and parametrically determined. The same should hold for nominative assignment to clausal subjects correlated to AGR.

Since it is implausible that only CP-arguments should be exempt from this principle, we adopt the case principle in a slightly modified version and propose that the exact role of CMPs is to make propositional arguments able to receive case.

---

[89] We are not neglecting the configurational relatedness of NOM to SPEC/I in many languages. We also think that in those languages NOM in the first place identifies the relation of Θ and predicate, and also its relation to the proposition, which may parametrically be expressed in a specific position.

(154) ***Case Principle* (amended)**

       In order to be licensed in SD, every saturated Θ-position must be able to receive abstract case.[90]

Case assignment is a constraint on *formal identification* in syntax. It can apply only to nominals, thus the constraint on the categorial F [N] is grounded on the ability to bear case. Predicates assigning Θ-roles can select only nominals[91] since the formal representation of their arguments must be identified by case. This we also take to be true for the selection of subject and complement clauses. Our account of the category CMP builds on the assumption that it is of the category [N].

       It was suggested already by KAYNE (1984) that C was a *potentially nominal category* (cf. MÜLLER & STERNEFELD 1990, 37ff)[92]. CMPs are heads carrying a categorial F to derive a nominal category from a verbal one on the level of syntax. We assume that a CMP must be present since it represents a nominal F assigned to the clause in order to make it visible for case marking.[93] Dropped CMPs are not only PF-∅, but lack the F [+N] that is needed to be licensed in a case governed position. We think that representation of the categorial F [N] is in fact the primary purpose of CMPs and that this is what makes clauses selectable by V. CMPs can express the function of dependent time reference (C_{SUB}) (or can even be

---

[90]   Note that this excludes A-movement for passivisation etc., which would be problematic for a derivational account. It is not for a model like ours, however, allowing procrastinated saturation.

[91]   Prepositions as markers of arguments we regard as specific analytical realisations of either lexical or structural case, depending on whether they identify a semantic role or not. That they assign specific case to the nominal follows from syntactic selection, which formally identifies the *syntactic* relation (P, NP). The logical relation (V, N) is not identified through the case born by N, but by abstract case realised by grammaticalised P. Therefore, again, the categorial F [N] is relevant for the syntactic licensing of Θ. The categorial F of P° lexically specified for the assignment of Θ-roles can only be relevant for syntactic licensing in adverbial function, since they are not licensed in selected positions which are assigned the Θ-role by V.

[92]   According to them, this is the reason why *Wh*-Fs are generated in SPEC/C, whereas Topics are in the SPEC of the verbal extension that we call FOCP, cf above, Ch. 1.2.5.

[93]   Following CHOMSKY (1995) in assuming that only exceptions from primitive properties are listed in the lexicon, it seems that *c-selection* can thus be removed from the lexical entry if we generalise the category of structural arguments as [N] based on case assignment (cf. also PESETSKY 1982). Note that ECM verbs like *hear* are exceptions to this generalisation. This exception would have to be listed in the lexicon. But also note that they nevertheless have to assign case, which is then born by the SPEC of the complement.

    (i) I heard [VP Caesar(ACC) [V' report [DP the [NP Roman [N' conquest [PP of Gaul]···]

intensionalisers), however, which has the effect that the SubC is tense bound by the T-chain of MC.

Subject and object CPs in Prs. do not only have an obligatory CMP, they must also be preceded by the DET *in*. It is a D° with a CP complement (cf. LOTFI 1997). Thus it is very evident that CPs in Θ-position are nominals.

(155) a) In ke u zabanshenasi mikhanad zarar nadarad.
       this - CMP - he - linguistics - studies - harm - NEGhave

   "That he studies linguistics does not do any harm."

   b) In ke u   raghsid   ma ra   khandand.
      this - CMP - he - danced – we – ACC/DEF - made-laugh

   "That he danced amused us."

AGR is a structural relation between the subject and V°, more formally the correspondence between a structure of φ-Fs associated with NOM case on the nominal side and the same φ-features on the verbal side. There is no reason why nominal and clausal arguments should be subject to different case conditions only because they lack overt case marking in many languages. In others, they do not. We do not think it is plausible to assume that their categorial status varies between grammars.

We propose that the Persian CMP is in fact preceded by the DET *in* in subject clauses not only to be determined but also to be overtly case marked. Prs. object clauses must also be determined and be provided with the additional postpositional accusative PTC *ra*, if they precede V. Before the ACC marker and DET can apply, however, the proposition must be nominalised by CMP.

(156) Man [$_{DP}$ **in** [$_{CP}$ **ke** [$_{VP}$ gorbeha shir doost darand]] **ra**] midanam. (SOV)
       I – this – CMP – cats – milk – like – have – ACC – know

   'I know that cats like milk'

The CMP is very clearly crucial for both case marking and the use of a determiner; it must be the element changing the category of S to [N]. Therefore, there are no CMPless object clauses preceding V. And there are no preverbal argument clauses that are not case marked.

(157) a) *Man [$_{DP}$ **In** [$_{VP}$ gorbeha shir doost darand] **ra**] midanam.

   b) *Ke gorbeha shir doost darand tabi'i ast.

Since we assume that the category DET is a means to make case overt, it does not come as a surprise that subject clauses must be preceded by a determiner in several languages.

(158) To   óti   spudázi glossología, den   vlápti.   (Gr.)
       DET – CMP − *studies − linguistics − NEG – harm*

       'that he studies linguistics does not harm.'

(159) a) To ka viņš dejoja mums patika   (Ltv.)
           this − CMP − *he − danced − us*DAT − *amused*

       'that he danced amused us.'

       b) Tas ka viņš mācās lingvistiku viņam nekaiš.
           This − CMP − *he − studies − linguistics − him*DAT − NEG*harm*

       'that he studies linguistics does not harm him.'

In It. (cf. 160), speakers tend to embed a CP subject under an N meaning *'fact'*.

(160) (il fatto) che lui danzasse ci ha divertiti
       the – fact – CMP – he – danced SJT – us – has - amused

Even though this is not only an option in Italian, it has to be questioned if this is only stylistic variation. Firstly, this construction is not used with object clauses:

(161) so (*il fatto) che il ragazzo studia linguistica
       know -1[st]sg – *the – fact* – CMP – DET – *boy – studies – linguistics*

Secondly, there are the languages above where subjects are *obligatorily* determined. We think that assignment of abstract case to CMP as the nominal category heading the Θ-clause takes place in all languages with CMPs, and that even if case is not overt, it can be reflected by certain distinctions between subject and object clauses. The obligatoriness of CMPs in Θ-positions, however, follows from the relevance of their F [N] for licensing the Θ-role by receiving case.

This also explains complementary distribution of V2 clauses in Gm. and overtly realised Θ-positions. Since Θ-positions are either case positions or part of a case chain, a real argument clause is always case marked. Argument clauses that lack a CMP cannot be case marked. Therefore, they can appear neither in Θ-position nor be in a case chain. If it is not in a chain with a Θ-position, an extraposed clause is not assigned case and can therefore lack a CMP.

Since there are case vs. non-case V (as discussed by PESETSKY 1982), we have to account for the lack of distinction in case marking of CMPs in languages like Eng. .

(162) a) John asked the time.

      b) John wondered *(about) the time.

(163) a) John asked what time it was.

      b) John wondered (*about) what time it was.

If CPs are nominals, why aren't there ACC-CPs and "PP-CPs"? There is a simple answer to this. Case assignment vs. P°-assignment to objects is not a universal inherent property of predicates, but is idiosyncratic.

(164) a) John remembers the good old days (ACC) of GB theory.

      b) Hans erinnert sich [**an** die guten alten GB-Zeiten]
        John – remembers – RFL[94] – to – the – good – old – GB – times

(165) a) John is true **to** GB theory.

      b) Hans ist der GB Theorie treu.
        John – is – the(DAT) *– GB – theory – true.*

DAT, ACC and the P° of prepositional objects express abstract case. P° has no structural function. Since case assignment to the CP is obviously not sensitive to interveners to case-government by V (in contrast to, e.g., ECM:

(166) a) I believe very deeply that she is a genius.

      b) I believe (*very deeply) **her** to be a genius.

), it is likely that a CMP is not only of the category N, but also expresses case autonomously – independently of whether it realises ACC or another case, which is otherwise realised by P°. Thus, if there is no case marking of CPs, there is no reason why there should be an overt realisation of a preposition that serves

---

[94] 'remember' is a lexical reflexive V in Gm. . Since the use of reflexives is more restricted in Eng., there are neither resultative reflexive medial constructions, cf.

  (i)   Das Buch verkauft sich gut.
       the – book – sells – itself – well
       'The book sells well.'

, nor lexical reflexives. Thus the Eng. sentence

  (ii)   *He reminds himself **of** the good days of GB.

is neither an appropriate translation nor a systematic explanation for the different subcategorisation.

nothing but the morphological marking of abstract case. Of course, this is different in languages with overt case marking of CPs. In Persian, there are also PP-CPs, both as objects and as adverbials.

(167) a) Man [PP **vase** [DP in [CP ke [TP autobus biyad]]]] mi-istam
             I – for– DET – CMP – bus – comes – wait

       b) Man [PP **be** [DP in [CP ke u   nayamad]] e'teraz daram
             I − to − this − that − s/he − not-came − objection − have

       c) Man [PP **az** [DP in [CP ke u   nayamd   asabani shodam]]
             I − from − this − that − s/he − not-came − angry − became

       d) Man minunam [PP **ta** [DP in [CP ke [TP to biyayi]···]
             I – stay – till – DP – CMP – you – come

In Japanese, there are not only CPs marked for NOM and ACC, but also for DAT or LOC. The case marking PTCs may be best analysed as postpositions[95].

(168) a) John wa [PP [CP [Mary ga gengogaku o benkyousuru no] **ni**] kizuite-inai.
             J. – TOP – M. – NOM – Lx – ACC – studies – CMP – DAT – notice - NEG

           ≈ "That Mary studies linguistics does not get a notice from John".

       b) [PP[CP [kare ga gengogaku o benkyou-suru] koto] **ni**] wa nanno mondai mo nai

             he − NOM − lx − ACC − study − CMP – LOC – TOP – any − problem – POL – NEG

           ≈ " There is no problem in the fact that he studies linguistics"

This leads us directly to

2.3.2.   Case Marking in Japanese

As indicated above, the most obvious evidence for case marking of clauses is found in Jps.[96]. There are three main ways of embedding semantically unmarked propositions.

First, there is the nominal item ***no***. Since it receives case, it has in traditional grammar been called a "nominaliser"[97].

---

[95] Another possibility would be that it is directly attached to the nominal element [+N] that selects the clause. This cannot be decided on the basis of the data.

[96] Note also that Japanese is the only language in our corpus where both subjects and all complements occur exclusively to the left of the heads of their phrases, irrespective of the category (vs. the distinction in Dutch or German) and their "heaviness" (vs. *extraposition* in Dutch or German).

[97] KAISER & al. (2001, 69) still state that in this case 'a whole clause has been converted (nominalised) into an NP by ***no*** or ***koto***'. Generative researchers, too, have treated those PTCs as 'nominalisers' and contrasted them to CMPs, especially since they are assigned case (cf.

(169) a) Mary wa John ga koohii o nomu **no o** mi-ta
Mary − TOP − *John* − NOM − *coffee* − ACC − *drinks* − CMP − ACC − *see*PST

"Mary saw that John drank coffee".

   b) Mary **wa** John **ni** jibun **ni** hana **o** motteku **ru no o** tanon **da**
Mary −TOP − *John* – DAT − *her* − DAT − *flowe*r − ACC − *bring* – PRS − CMP − ACC − *ask* – PST

"Mary asked John to bring her flowers."

That clauses with CMPs like *no* must be case-marked in a language like Jps. where case morphology is represented as final PTC, is exactly what our assumptions above predict. In our account, the distinction between "nominalisers" and "complementisers" becomes irrelevant, since CMPs are nothing else but nominal elements (i.e. heads carrying a F [N]) selecting a proposition. Therefore, we need not explain the relation between a nominal like *no* and its clausal complement. That a CMP follows the clause is also expected in a language that is strictly head-final.

The same we would claim for the nominal item *koto,* literally 'thing', which can take a propositional complement. *koto* is also overtly case marked. It has been suggested that it was a noun taking an IP complement and that its denotation compared to English '*the fact that*'.

> As a general tendency, *no* indicates that the complement clause is immediate or concrete, whereas with *koto* it is more abstract, as for instance "the fact that".
>
> (KAISER & al. 2001, 224)

As shown below, however, its translation does not correspond to a noun like *fact*. Therefore we rather suggest analysing it as a kind of *factive* CMP, whereas *no* is neutral with respect to the presupposition.

(170) a) Watashi wa kare ga   benkyo shi-ta   **koto**   **o**   shira-nakat-ta.
I − TOP − *he* − NOM − *study* − *do*PST − CMP - ACC − *know-NEG*-PST

   (?) "I did not know the fact that he studies."

JOSEPHS 1976, 313ff). That a CMP is assigned case is not counterevident to its status as a CMP in our framework. Since CMPs are there to give clauses a F [+N], all CMPs are in fact "nominalisers". That abstract case is not expressed morphologically in many languages is just a surface phenomenon. Note also that all CMPs in Indo-European have been grammaticalised from nominals (cf. BRUGMANN 1904, 641ff; ÖHL, *forthcoming* a).

b) Watashi wa watashi no seito ni shiken o suguni saiten suru   **koto o**
yakusoku   shi-ta.

*I − TOP − I − GEN − students − DAT − exam − ACC − soon − correction −
do*PRS *− CMP − ACC − promise − do*PST

(?) "I promised to my students the fact that I will correct the exams soon".

c) watasi wa anata ga gengogaku   o   benkyosi-nai   **koto   o** youkyusu-ru
*I – TOP − you − NOM − linguistics − ACC − study*Neg *− CMP − ACC − demand*

(?) 'I demand the fact that you don't study linguistics.'

Though ***no*** and ***koto*** seem to be mostly exchangeable, they are complementary in
specific contexts. This is the case

(A) in the context of *experience* or *perception*:

(171) a) watasitati ni wa [Yumi ga ut-teiru] **no**/*koto ga   kikoeru
we − DAT − TOP − Yumi − NOM − sing-PRG *− CMP − NOM − can-hear*

"We can hear that Yumi is singing."

b) Ken wa [yama ga moe-teiru] **no**/*koto o mi-ta
*Ken − NOM − mountain − NOM − burn*PRG *− CMP − ACC − saw*

"Ken saw that the mountain is in fire."

(B) in cleft sentences predicating over a person:

(172) [kono kyoku o kai-ta] **no**/*koto **wa** John da
this − music − ACC − wrote − CMP − TOP − John − was

"It was John who wrote this music." (Lit. "It (he wrote the music) was John."

Only ***koto*** is used in the case of predication of a proposition:

(173) [Ken wa doitu ni it-ta] **koto**/*no **ga** aru
Ken – TOP – Germany – LOC – went – CMP – NOM – exist

Lit.: "That Ken has been to Germany is real."

The contrast becomes most obvious with perception Verbs:

(174) a) Hanako ga piano o kiku **no** o kiita.
H. – NOM – piano – ACC – play – CMP – ACC – heared

'I heard Hanako play the piano'.

b) Hanako ga piano o kiku **koto** o kiita.
H. – NOM – piano – ACC – play – CMP – ACC – heared

'I heard that Hanako played the piano'.

Interestingly, there is another CMP *to* in Jps., which is never case marked[98] and applies exclusively with *verbs of saying and thinking*. This we take as very strong evidence for our generalisations made above. According to SUZUKI (2000), *to* is a *de dicto* CMP, whereas *no* and *koto* are *de facto* CMPs.

(175) a) Noam Chomsky wa ningen no gengo nouryoku wa umaretsukinomono dearu **to** i-u.

*N.C. − TOP − human − GEN − language − facility − TOP − innate-thing − be*PRS *− CMP − say*

'Noam Chomsky says the human language faculty is innate.'

b) Skinner wa gengo shuutoku ga tannaru joukenzuke dearu **to** kakushin shi-ta.

*Skinner −TOP − language − acquisition − NOM − merely − conditioning − be*PRS *− CMP − conviction do*PST

'Skinner was convinced language acquisition was mere conditioning.'

c) watasi wa sono syonen ga gengogaku o benkyo-siteiru **to** it-ta
*I −TOP − this − boy − NOM − linguistics − ACC − study*IPF*− CMP − say*PST

'I said this boy was studying linguistics.'

d) Watashi wa watashi no seito ni shiken wo suguni saiten su-ru **to** yakusoku shi-ta.

*I − TOP − I − GEN − students − DAT − exam − OBJ − soon − correction − do*PRS *− CMP − promise − do*PST

'I promised to my students I would correct the exams soon.'

Koto/no and *to* are in complementary distribution. *to* can neither have a complement introduced by one of the nominals, nor can they have a complement introduced by *to*. All three CMPs have S as complements. And none of them can be dropped since all of them have their specific function. A sentence like

(176) Watashi wa watashi no seito ni shiken wo suguni saiten su-ru **to/koto** yakusoku shi-ta.

*I − TOP − I − GEN − students − DAT − exam − OBJ − soon − correction − do*PRS *− CMP − promise − do*PST

has two different readings with either *to* or *koto*:

(177) a) I promised my students: [s I will correct the exams soon].
(*to*-reading: S denotes an utterance which has independent time reference and an independent truth condition)

---

[98] However, clauses with this CMP can have topic marking.

(i) Sono otokonoko ga benkyou suru **to** **wa** watashi-wa omowa-nakat-ta.
*the − boy − NOM − study − do*PRS *− CMP − TOP − I −TOP − think*-NEG-PST

b) I promised it to my students, that [s I would correct the exams soon].
(***koto***-reading: S denotes the speech act of promise; it has dependent time reference and a presupposed truth condition)

Therefore we suggest that, unlike ***no*** and ***koto***, ***to*** is not a CMP but a PTC marking indirect speech. It "is used for quoting the content of a communication (...) or thought (...) in both direct and indirect quotations" (KAISER & al 2001, 531). For this reason it cannot be used with V of the types we assumed not to be able to embed speech in Gm., Dt., Nw. and Rus. . Since Jps. V cannot have CMPless clausal objects, ***to*** cannot be used. With the others ***koto*** or ***no*** can, but ***to*** can too. Again, the CMPs ***koto*** and ***no*** call for case marking, whereas ***to*** does not.[99] This parallels the situation in the CMP drop languages discussed in 2.2.1.

(178) John ***understands/ expects/ regrets/ believes/ wants*** *(that) Mary studies linguistics.

(179) a) John wa [Mary ga gengogaku o benkyousuru] koto/ no o rikaisi-teiru

John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - CMP - ACC - *understand*PRG

b) John wa [Mary ga gengogaku o benkyousuru] koto/ no o kitaisi-teiru

John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - CMP - ACC - *expect*PRG

c) John wa [Mary ga gengogaku o benkyousuru] koto/ no o koukaisi-teiru

John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - CMP - ACC - *regret*PRG

d) John wa [Mary ga gengogaku o benkyousuru] koto o/ no sinji-teiru

John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - CMP - ACC - *believe*PRG

e) John wa [Mary ga gengogaku o benkyousuru] koto/ no o kibousi-teiru
John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - CMP - ACC - *want*PRG

(180) a) *John wa [Mary ga gengogaku o benkyousuru] **to** rikaisi-teiru
John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - PTC - *understand*PRG

b) *John wa [Mary ga gengogaku o benkyousuru] **to** kitaisi-teiru
John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - PTC - *expect*PRG

c) *John wa [Mary ga gengogaku o benkyousuru] **to** koukaisi-teiru
John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - PTC - *regret*PRG

d) *John wa [Mary ga gengogaku o benkyousuru] **to** sinji-teiru
John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - PTC - *believe*PRG

---

[99]   Whereas case markers are licensers that can only apply to nominals, ***wa*** is a discourse marker that can also follow ***to***.

    e) *John wa [Mary ga gengogaku o benkyousuru] **to** kibousi-teiru
      John - TOP - *Mary* - NOM - *linguistics* - ACC - *studies* - PTC - *want*PRG

Whereas V of *saying and thinking* allow a non-case marked 'CMP' (in our terms a marker of indirect speech), V with factive denotation are specified for **koto** as a CMP. The most neutral CMP is **no**. The semantic difference is explicit with the V "say", which can have all three CMPs.

(181) a) (John wa) [amerika e iku] **no o** tuge-ta
        John − TOP− *America* − GOAL − *go*PRS − CMP − ACC − *say*PST

      b) (John wa) [amerika e iku] **koto o** tuge-ta
        John − TOP− *America* − GOAL − *go*PRS − CMP − ACC − *say*PST

      c) (John wa) [amerika e iku] **to** tuge-ta
        John − TOP− *America* − GOAL − *go*PRS − PTC − *say*PST

To differentiate them, the most suitable translations are:

(182) a) John told us that he would go to America.

      b) John told it that he would go to America.

      c) John said he would go to America.

The **no** construction simply embeds the proposition, meaning "*John reported the purpose of going to America*". The **koto** construction has factive interpretation, meaning "*We knew that he would go since he told us"*. And the **to** construction reports John's utterance.

     One can make a generalisation that subordinate clauses must always have a marker in Jps., and that in contexts other than *embedded speech,* it must be a case marked CMP. There is very clearly a parallel between this phenomenon and the selectional properties of V in languages that have SubCs without CMPs only with V embedding speech. This follows from the fact that CMP is generally the functional category in the structural extension of V which substitutes the lexical property of nominal categories to be able to bear case.

     As should be expected, it is impossible to use the PTC **to** with subject clauses. Unless marked as TOP, they must always be marked as NOM, (cf. the next paragraph). **koto** and **no** are used with subject clauses since they can receive case.

(183) Watashitachi-ga onaji kyoumi o mot-tei-ru **koto ga** watashi nitotte ureshii koto da.

     we − NOM − *same* − *interest* − ACC − *have* − *thing* − NOM − *we* − *for* − *pleasant* − *thing* − *be*PRS

"I am glad that we have the same interest".

(184) [kare ga gengogaku o benkyousuru] **koto ga** nanno mondai nimo nara-nai

he − NOM − linguistics − ACC − study − thing − NOM − any − problem − become-NEG

That he studies linguistics does not do any harm.

(185) [Mary ga gengogaku o benkyousiteiru] **no ga** odoroki-da (surprise+copula).
Mary − NOM − Linguistics – ACC – study – CMP – NOM – surprise – is

"It is surprising that Mary studies linguistics."

Thus, Japanese also gives evidence that case assignment is a crucial constraint on a propositional subject, which is always characteristic of a nominal category. The question why Japanese should employ a marker of indirect speech at all might have a trivial answer. Although V embedding speech do not have to assign case to their complements, they license them within VP. In a language like Jps., where this licensing domain is ambiguous and could equally be a Θ-position, C expressing independent time reference must be identified by a specific PTC. One could assume that *to* is not a CMP but the head FOC° which is lexicalised if it must PF-interpret autonomous C.

Like in Gm. and Eng., SPEC/FOC is also the site for topicalisation. Topicalisation (cf. our discussion in Ch. 2.1.2) in Japanese is morphologically marked by the topic marker *wa*. It is in complementary distribution with the structural case markers *ga* and *o*. Usually the position for an argument marked as topic by *wa* is the top of the clause.[100]

---

[100] The phrases marked as topic can also stay in base position, or just be scrambled. In this case, the utterance has a contrastive connotation (cf. p41).

(i) a) John **ga** sono neko **wa** pettosyopu **de** kat ta.
        John – NOM – this – cat – TOP – petshop – LOC – buy – PST

   b) John **ga** sono neko **o** pettosyopu **de wa** kat ta.
        John – NOM – this – cat – ACC – petshop – LOC – TOP – buy – PST

   c) sono neko **o** John **wa** pettosyopu **de** kat ta.
        this – cat – ACC – John – TOP –petshop – LOC – buy – PST

   d) John **ga** pettosyopu **de wa** sono neko **o** kat ta.
        John – NOM – petshop – LOC – TOP – this – cat – ACC – buy – PST

Like in other OV languages, scrambling is there as an option to also structure information without specific topic marking.

(ii) a) asa   **ni**   John   **ga**   itumo   kohi   **o**   nomu
         *morning − LOC − John − NOM − always − coffee − ACC − drink*PRS

    b) kohi   **o** asa   **ni**   John   **ga**   itumo nomu

(186) a) John **wa** sono neko **o** pettosyopu **de** kat ta
        John – TOP – *this* – *cat* – ACC – *petshop* – LOC – *buy* – PST

        "John bought this cat in the petshop".

    b) sono neko **wa** John **ga** pettosyopu **de** kat ta.
        this – *cat* – TOP – *John* – NOM – *petshop* – LOC – *buy* – PST

        " This cat, John bought in the petshop".

    c) pettosyopu **de wa**[101] John **ga** neko **o** kat ta.
        petshop – LOC –TOP – *John* – NOM – *a – cat* – ACC –*buy* – PST

        " In the petshop John bought a cat ".

As explained above, we assume that the F [FOC] is realised at the top of the clause giving it a topic/comment structure. For us *to* is not actually a CMP (which would be a nominal category receiving case) but [FOC]*. In a head final language like Japanese, the structure of an embedded clause is as follows:

(187) watasi wa [[$_S$ sono syonen ga gengogaku o benkyo-siteiru] **to**[102]] it-ta[103]
     I −TOP − *this − boy* − NOM − *linguistics* − ACC − *study*IPF− FOC − *say*PST

     'I said this boy studied linguistics.'

    (iii)a) varentain dei **ni** John **ga** itumo Mary **ni** akai bara **o** mottekuru

        Valentine − day − LOC − *John* − NOM − *always* − *Mary* − DAT − *red* − *rose* − ACC − *bring*PRS

      b) akai bara **o** varentain dei **ni** John **ga** itumo Mary **ni** mottekuru

[101] There is a crucial difference between structural case and semantic markers with respect to topicalisation (cf . SHIBATANI 1990, Ch.11). The latter must not be deleted under topicalisation. DAT seems to be somewhat in between structural and lexical case. The marker can either drop or stay under topicalisation.

    (i)   a)   Taro **ni wa** eigo ga wakara-nai.
                Taro − DAT − TOP − *English* − NOM − *know*-NEG

        b)   Taro **wa** eigo ga wakara-nai.

However, there is some slight difference in interpretation. In (a), the speaker gives a report on his THEME Taro, who is not capable of speaking English. (b) is used in contrastive contexts, where the speaker compares Taro to someone else who <u>has</u> the ability to speak English.

[102] If S is the complement of a V selecting a CP, instead of the head FOC° there is the nominal head C° and obligatory case marking by a particle.

[103] Since it absolutely cannot be decided on the empirical basis, we leave it open whether Japanese has a head-final IP (which then could have the PST-marker as a head) or a syncretic I/VP. We also leave it open whether a case PTC is attached to the head it marks (like an affix) or whether it is a separate head (i.e. a postposition) selecting a nominal XP. However, the graph does not contain separate projections for simplification of the presentation.

(188)

```
                              FocP
                        ╱            ╲
                      DP              Foc'
                    ╱ |             ╱      ╲
                   ╱__|           VP        Foc°
                watasi wa       ╱    ╲        |
                             FocP     V       ∅
                           ╱      ╲    |
                         DP        Foc'  it-ta
                       ╱ |        ╱    ╲
                      ╱__|      VP      Foc°
                 sono syonen wa ╱  ╲      |
                             DP     V°    to
                           ╱ |      |
                          ╱__|   benkyo-siteiru
                      gengogaku o
```
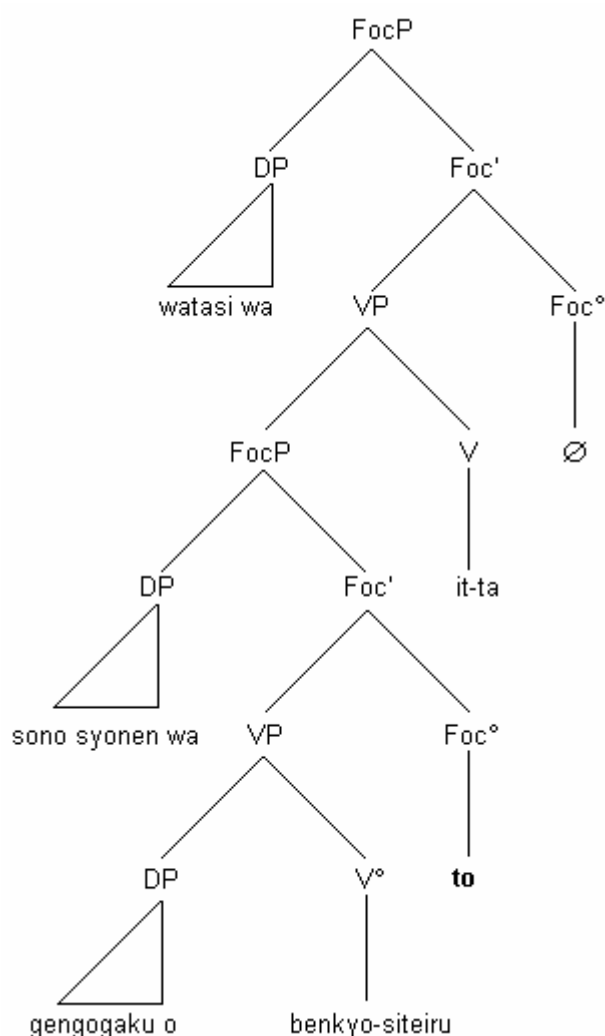
Thus, there is rich evidence that CMPs are a nominal category specified for the selection of VP or IP in order to make them able to receive case. If *V* assigns abstract case to its complement or *I* does so under agreement, there must be something to receive it. Case belongs to the inflectional categories of nominals. Therefore, it has morphological representation only with nominals in inflectional languages like Eng. .

The functional extension of V contains features relating subject and predicate to speech. Besides semantic (modal) Fs, there are the inflectional categories and information structures represented according to parameterisation in a number of domains. If a proposition is selected by V, it gets assigned a role, which must be born by an individual normally represented by a nominal. This means it becomes a Θ of V, and Θs have to be licensed by case. Case, however,

must be associated with a categorial F of nominals. Representation of this feature is the motivation for CMPs. In order to be a subject or an object, a proposition must have a functional feature making it able to receive case.

Japanese is a language with finite embedding, which is strongly constrained by the obligatoriness of CMPs that must be overtly case marked. In the other languages of our corpus, case marking of CMPs is less obvious. In Persian, however, there is an ACC case marker used with preverbal CP objects, besides, object and subject clauses must have a DET. Subject clauses are also determined in languages like Greek and Latvian. In all languages of our corpus, CMPs of subject clauses cannot be dropped. We assume that the reason for this is subject-verb agreement, and that the CMP carries (abstract) nominative case.

Japanese also shows very evidently that embedding without case marking is restricted to a specific kind of V. As a rough generalisation, we classify them as *V of saying and thinking*, which is supported by the *de dicto* reading of the Jps. marker ***to***. They are V that can embed speech, a property we attributed also to V that allow CMP-drop in the languages discussed before, with the restriction that the lexical conceptualisation of *acts of speech and thought* may idiosyncratically vary between languages.

In contrast to Japanese, the V in the other languages can have complements that are structurally identical with main clauses. However, they are not generated in their Θ-positions but in a separate licensing domain. Jps. does not have extraposition. Instead it has a lexicalised representation of FOC representing independent C, which licenses embedding of speech clause internally.

2.4. CMPs, Fronting of V and Topics – Some Half Closed Issues

2.4.1. *Unrestricted Constituent Fronting and Forbidden CMP drop*

As shown above, Yiddish and Icelandic (like the other Scandinavian languages) have V2 structure and a layered CP. In contrast to MlSc, Gm. and Dt., however,

Yiddish and some dialects of Icelandic[104] (and also Faeroese, cf. VIKNER 1995) have embedded V2 in all object clauses, independent of the embedding V.

(189) a) Jón harmar að þessa bók skuli ég hafa lesið.
           John – regrets – that – this – book – shall – I – have – read

       b) Jonas bedoyert az dos bukh hob ich geleyent.
           John – regrets – that – this – book – have – I – read

           'John regrets that I have read this book.'

The same is possible in subject and adverbial clauses.

(190) a) [$_{CP}$ Að [$_{FocP}$ við [$_{Foc'}$ **höfum** [alltaf [$_{VP}$ V° sömu áhugamál]···] gleður mig.
           CMP – *we – have – always – same – interest – makes-glad – me*

           'that we always have the same interests makes me glad.'

       b) [$_{FocP}$ [$_{PP}$ Vegna þess [$_{CP}$ að [$_{FocP}$ margt fólk [$_{Foc'}$ **segir** [oft [$_{VP}$ V° [$_{CP}$ að
           [$_{FocP}$ núadögum [$_{Foc'}$ séu [$_{IP}$ málvísindi leiðinlegt fag]···] [$_{Foc'}$ munum [$_{IP}$ við reyna
           að sanna hið andstada]···]

           because – this – CMP – many – people – say – often – CMP – nowadays –
           *is*SJT *– linguistics – boring – subject – will – we – try – to – show – the –*
           contrary

           'Since many people nowadays often say that linguistics is a boring subject, we
           will try to prove the opposite.'

Thus it seems that the existence of a site for topicalisation in Yiddish and Icelandic SubCs does not depend on specific properties of the head selected by V$_{MC}$[105].

---

[104] VIKNER (1995, 72) builds on examples from RÖGNVALDSSON & THRAINSSON (1990, 23); however, as confirmed by my informants of Icelandic, most Icelandic speakers have the same restrictions of using embedded V2 as speakers of MlSc languages. On the other hand, SIGURÐSSON (1989) has similar judgements to RÖGNVALDSSON & THRAINSSON, which indicates that embedded topicalisation can indeed be independent of licensing. Since this seems an internal dispute of Icelandic linguists that cannot be judged from outside, we are left with the realisation that such sentences exist at least in natural language – which is confirmed also by Yiddish, of course.

[105] Note that several of my informants reject embedded topicalisation in all of the following sentences:

(i)   a) Mér skilst að strákurinn leggi stund á málvísindi
          *me*DAT *- understands*RFL *– CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

          'It is understandable to me that the boy spends some time on linguistics.'

      b) Ég býst við að strákurinn leggi stund á málvísindi
          *I - count - with – CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

          'I count on it that the boy spends some time on linguistics.'

      c) Ég er hissa á að strákurinn leggi stund á málvísindi
          *I - am – amazed − by – CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

          'I am amazed by it that the boy spends some time on linguistics.'

The same is indicated by the Greek data. Gr. is not a V2 language, but it fronts topics and focus independently of the semantics of the embedding V. It is always possible to front the object in embedded clauses, either involving *clitic doubling* or focus stress.

(191) a) (Egó) Ída, óti to agóri spúdaze ti glossología.
  I − saw − CMP − DET − boy − studied − DET − linguistics

   b) (Egó) xéro , óti to agóri tha spudási ti glossología.
  I − know − CMP − DET − boy − FUT − study − DET − linguistics

(192) a) Kataleveno oti o Petros agapai ti glossologia.[106]
  *understand*1st*sg − that − the − Peter − loves − the − linguistics*

---

  d) Ég harma að strákurinn leggi stund á málvísindi
   *I - regret – CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

   'I regret that the boy spends any time on linguistics.'

  e) Þeir neita að strákurinn leggi stund á málvísindi
   *they - deny – CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

   'They deny that the boy spends any time on linguistics.'

  f) Ég staðhæfi að strákurinn leggi stund á málvísindi
   *I − claim − CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

   'I claim that the boy spends some time on linguistics.'

  g) Ég veit að strákurinn leggur stund á málvísindi
   *I - know - CMP – boy*DET *– lays – time – on – linguistics*

   'I claim that the boy spends some time on linguistics.'

  h) Ég efast um að strákurinn leggi stund á málvísindi
   *I - doubt – CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

   'I doubt if the boy spends any time on linguistics.'

  i) Ég trúi/held að strákurinn leggi stund á málvísindi
   *I - believe – CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

   'I think that the boy spends some time on linguistics.'

This means, the subject initial structure is in fact strongly preferred. Topicalisation was accepted, but regarded as very marked, in these two sentences:

(ii) a) Ég vil að strákurinn leggi stund á málvísindi
   *I - want – CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

   b) Þeir segja að strákurinn leggi stund á málvísindi
   *'they – say – CMP – boy*DET *– lays*SBJ *– time – on – linguistics*

(iii) a) %Ég vil að á málvísindi leggi strákurinn stund
   *I - want – CMP – on – linguistics – lays – boy*DET *– time*

   *'I want that on linguistics, the boy spends some time.'

   b) %Þeir segja að á málvísindi leggi strákurinn stund
   *they – say – CMP – on – linguistics – lays – boy*DET *– time*

   'They said that on linguistics, the boy spends some time.'

Whether this allows us to analyse Icelandic embedded clauses simply as CPs selecting IPs that can be replaced by a FocP in only a few marked cases can be judged only in an extensive study of Icelandic syntax which we cannot provide here.

[106] According to Anna Roussou, p.c., this sounds a little more natural with a proper name as the subject.

b) Katlaveno oti ti glossologia o Petros **tin** agapai.

c) Katalavento oti TI GLOSSOLOGIA agapai o Petros

However, it is never possible to drop CMP.

(193) a) Katelaveno *(óti) ti glossología to agóri spúdazi
  I – understand-1stsg – CMP – DET – *linguistics* – DET – *boy* – *studies*

 b) Arnunde *(óti) ti glossología to agóri spúdazi
  deny-3rdpl – CMP – DET – *linguistics* – DET – *boy* – *studies*

 c) Ipostirizo *(óti) ti glossología to agóri spúdazi
  claim-1stsg – CMP – DET – *linguistics* – DET – *boy* – *studies*

 d) Ksero *(óti) ti glossología to agóri spúdazi
  know-1stsg – CMP – DET – *linguistics* – DET – *boy* – *studies*

 e) Pistevo *(óti) ti glossología to agóri spúdazi
  believe-1stsg – CMP – DET – *linguistics* – DET – *boy* – *studies*

 f) Lene *(óti) ti glossología to agóri spúdazi
  say-3rdpl – CMP – DET – *linguistics* – DET – *boy* – *studies*

 g) Perimeno *(óti) ti glossología to agóri tha spúdazi
  expect-1stsg – CMP – DET – *linguistics* – DET – *boy* – FUT – *studies*

Since nothing seems to contradict it, we assume a structure like

(194) Perimeno [$_{CP}$ oti [ti glossologia [$_{IP}$ o Petros tha [$_{VP}$ agapisi]
  *expect*1stsg – CMP – DET – *linguistics* – DET – *Peter* – FUT – *love*

However, we have to explain why SPEC/Foc can be occupied without being licensed by an embedding V. A natural assumption would be that this follows from different properties of the functional heads in the C domain that are lexicalised by V$_{FIN}$. If topics in the SPEC position of V$_{FIN}$ appear to need licensing, this must follow from the fact that they are the SPEC of a head that needs licensing by either selection or illocution and therefore carries a specific IF – like our head Foc°. If they do not have to be licensed, Foc is not a relevant category for lexical parameterisation of the selectional properties of V. One could assume that theme-rheme structuring in SubCs is, like in scrambling languages, subject to pragmatics.

What is interesting is that CMP drop is licensed in neither of these languages. The possibility of CMP-drop in some languages being constrained by conditions that interfere with structural information organisation, whereas others do not allow it at all, is a quite general question. Why is there no CMP-drop in Danish and Swedish, although they have the same licensing conditions on V2 as Norwegian, where CMPs can apparently be dropped?

Above we correlated CMP drop to a licensing domain that does not contain a Θ-position. Since Gm. has implicit arguments of V that denote an act of speech or thought, V2 clauses can be generated there without being case marked, since they are not in a chain relation with a case position. This is not true for extraposed clauses with a CMP – therefore they need a CMP and can have an overt correlative in Θ-position.

(195) a) Hans hat *(es) geglaubt, Linguistik sei alles.
       *John – has – it – believed – Lx. – is-*SJT *– everything.*

    b) Hans hat (es) geglaubt, dass Linguistik alles sei.
       *John – has – it – believed – that – Lx. – everything – is-*SJT

Now note that neither Icelandic nor Swedish allow extraposition of object clauses with a correlative that could be assigned case.

(196) a) Hans hélt (*það), adh málvísindi vaeru allt.
       John – believed – it – that – linguistics – was – everything

    b) Hans har trott ?det, [att lingvistik är allt][107]
       John – has – believed – it – that – linguistics – was – everything

We take this as evidence that those languages parametrically do not have the option to explicate an implicit argument by a non-argument in an external domain. This means, saturation of arguments must be transparent in their Θ-position.

Nevertheless, licensing a head FOC° allowing independent information structuring may depend on the embedding V°, if lexical entries are parameterised according to the selection of such an IF. Therefore V expressing an act of speech or thought in languages like Sw. must license independent information structure in their complements, such that only case marking and thus an overt CMP are left as obligatory.

2.4.2.   *VSO*

Very puzzling for all generativist accounts are V1 languages where V_{FIN} always precedes the subject. If V is in I°, why does the language not obey the EPP? Why doesn't it even optionally allow SVO or SOV? If V_{FIN} is in C°, why doesn't it

---

[107] The comment of my informant was that this would be possible only in conversation situations, if the speaker seems to have realised too late that the reference of *det* is unclear.

cause markedness with respect to focus or clause mood, as it does in other languages fronting V?

One of the better-investigated V1 languages is Welsh, a Celtic VSO language. Although we cannot offer an account of Welsh syntax which is as elaborate as work like the most recent ROBERTS (*to appear*), we feel we have to say something about this phenomenon, which might otherwise conflict with our assumptions made above.

In contrast to V2 languages, there are no topics preposed to V in Welsh.

(197) a) **Mae'r** bachgen yn astudio ieithyddiaeth
         AUX − *boy* − PRG − *study* − *linguistics*

     b) **Astudia'r** bachgen ieithyddiaeth.
         *study*PRS-3ʳᵈsg − *boy* − *linguistics*

     'Does the boy study linguistics?'

Descriptively, this constitutes the difference between V1 and V2. However, topicalisation of constituents can apply optionally, giving the Welsh sentences V2 order. Like in Gr. and It., the Θ relation of the topicalised constituent and V has to be represented by a pronominal[108] that is not necessarily cliticised but can be in base position.

(198) Ieithyddiaeth, [ₛ fydd y bachgen yn **ei** hastudio un diwrnod]
         linguistics − AUX − DET - *boy* − PRG − *it* − *study* − *one* − *day*

Above (cf. pp.151ff) we argued that resumptives may indicate that these 'topics' are in fact left dislocated adjuncts, whereas the pronoun represents the argument.

Welsh has a "general focussing strategy which allows exactly one XP to be fronted over the verb" (ROBERTS *to appear*, 39[109]). In this case, V is preceded by a PTC ***a*** or ***y***, depending on whether the fronted element is a structural Θ or VP, or not. Note that also in Welsh, focussed constituents in contrast to topics do not need a resumptive. In our terms, this indicates that they are generated in the (potential) Θ-position SPEC/Foc.

---

[108] We tend to regard these elements as resumptive pronouns, but compare ROBERTS & SHLONSKY (1996).

[109] Note that our reference to page numbers is according to the Ms., such that it may not always parallel the printed version.

(199) a) Y dynion (FOC) ***a*** werthodd y ci.
  the – men – PTC *– sold – the – dog*

  b) Ym Mangor ***y*** siaradais I llynedd.   (ROBERTS *to appear*, 39)
  in – Bangor – PTC *– spoke – I – last-year*

Thus it seems that these PTCs represent the IF FOC which is in a chain relation with V_{FIN} and specified by the focussed element. The question, then, is where is V_{FIN} located? Affirmative declaratives can also have a PTC (***fe*** or ***mi***, which vary dialectally) that always follows but never precedes frame adverbials (ROBERTS *to appear*, 38).

(200) Bore'ma **mi** glywes I'r newyddion ar y radio.
  morning – this – PTC *– heard – I – the – news – on – the – radio*

Apparently, the fronted constituents do not occupy the SPEC of the phrase where V_{FIN} is, at least if there is a PTC. The question which cannot be answered on the basis of this evidence under the V-to-C analysis of VSO languages, is whether there is <u>always</u> a (possibly Ø-) head intervening between fronted constituents and V or not.[110]

 It was proposed for Irish (cf. DOHERTY 1996) that VSO order is due to V movement to C. This analysis of VSO is rejected by ROBERTS (*to appear*, 23ff) on several grounds (see also MCCLOSKEY 1996 on Irish). He assumes that only the PTCs shown above are heads in the CDom (more exactly in either the FOCP or the FINP of a RIZZI-1997-model), whereas V_{FIN} in Welsh is in a higher head of the IDom (AGR°). A minimalist model could explain this through strong V-features in

---

[110] JONES & THOMAS (1977) propose that the PTCs *fe* and *mi* can be phonologically deleted but are still present in clauses where consonant mutation (i.e. initial lenisation of V) can be observed, which is otherwise typical for the PTC-initial structure. In middle Welsh there was richer evidence for clause initial PTCs which were phonologically reduced before the 17th century (WILLIS 1998, 205). However, they are rather pronominals which were the source for grammaticalisation (cf. ROBERTS *to appear*, 201), like the expletive *fe* which could also be dropped.

 (i) a) **Fe** welodd Arthur farchog.   (WILLIS 1998:178)
   fe − saw − Arthur − knight

   'Arthur saw a knight.'

  b) Gorvüost   ar dy   elynion... (WILLIS 1998:196)
   *overcame-*2S *− on − your − enemies*

   'You overcame your enemies...'

 For a diachronic account for the loss of those PTCs in these sentences see BURY (2001); for an alternative analysis of consonant mutation see ROBERTS (*to appear*), 104ff.

AGR°, whereas the subject is in the SPEC of the subjacent lower phrase (TP) due to weak D-features in AGR and strong ones in T.

Since according to ROBERTS (*to appear*) there is no adjunction to TP, this provides an explanation as to why V and the subject are always adjacent in Welsh; that nothing can intervene between V and the PTC except pronouns cliticised to V (cf. ROBERTS *to appear*, 38), he explains through the absence of any phrase between FINP and AGRP which could host an adverbial or fronted constituent.

What, however, excludes adjunction to AGRP (or an intervening adverbial site, which would be a more adequate assumption in a CINQUE-1999-like model) ? Given that in RIZZI's (1997) model, V is assumed to be in FIN° in V2 languages like German (cf. also ROBERTS *to appear*, 211ff), there is enough evidence for adverbials between V and the subject, even if they are in front of the *Wackernagel position* - which is in our view the best evidence that it is in the higher SPEC position (which should correspond to SPEC/AGR in this model). That they are even base generated there, and not the result of some obscure scrambling phenomenon, is shown by the lacking reconstruction effect that would apply with lower adverbials.

(201) a) In der Tat ist in Peters$_i$ Büro er$_i$ allein der Chef.
    in – the – deed – is – in – Peter's$_i$ – office – he$_i$ – alone – the – boss

    b) Damals hat an Marias$_i$ Geburtstag Paul ihr$_i$ einen Heiratsantrag gemacht.

    then – has – on – Mary's$_i$ – birthday – P. – her – a – proposal-of-marriage – made

(202) a) *In der Tat schläft in Peters$_i$ Büro er$_i$ manchmal.
    in – the – deed – sleeps – in – Peter's$_i$ – office – he$_i$ – sometimes

    b) *Damals hat in Marias$_i$ Bauch es ihr$_i$ weh getan.
    then – has – in - Mary's$_i$ – stomach – it – her$_i$ – pain – done

We want to suggest an alternative analysis on the basis of our model, which does not relate the adjacency of PTCs, V and the subject to their positions and restrictions on the adjunction sites between them. In fact, we suggest relating it directly to the generation of VSO structure.

We think that V can in fact go to C, but not in the same way it does in V2 languages. V1 can't mean that all Welsh sentences have maximal sentence focus – like the declarative V1-sentences in Gm. discussed in 2.1.2. Therefore it would

not be reasonable to assume that V in Foc° in Welsh interprets focus in the same way, such that everything c-commanded by it is focussed.

However, it is still possible that this V1 structure is the basic input for pragmatic interpretation. Remember that also in V2 languages it is optional which element stands in SPEC/Foc. It can be a Foc or Bgr element, an expletive or a frame adverbial. Frame adverbials and focussed elements are there in Welsh, too, and even topicalised arguments, if there is a resumptive (cf. above). What is different is the correlation of the different PTCs, and the fact that the preverbal position is not occupied in general, even in non-rhematic sentences.

We assume that what is done purely structurally in languages like Gm. is carried out by the PTCs in Welsh. All PTCs adjacent to V are merged in Foc°, however, marking different ways of pragmatic focus structure. E.g., only if the focus is inverted (this means if a focussed element is fronted), is this also morphologically expressed by Foc° = *a* or *y*. PTCs like *fe* or *mi* fulfil other functions, they might e.g. be in a chain relation with a clause internal topic. In addition there are semantically marked PTCs, like *interrogative a* or the sentence negation *ni*.[111] The reason why nothing can intervene between them and V_{FIN} is that the PTCs are clitics by lexical parameterisation. Thus, all the PTCs morphologically mark the Foc-head. They always attach to the fronted V_{FIN} interpreting the pragmatic IF Foc. Since cliticisation through head-to-head adjunction has taken place, nothing can intervene between those PTCs and V. If there is no PTC in front of V, markedness is not expressed lexically and focus interpretation takes place pragmatically.

Thus, if there is no independent reason to assume a split IP in Welsh, it is also not necessary to assume a subject in a TP dominated by AgrP. Nevertheless, the fact that nothing may intervene between V_{FIN} and the subject needs an explanation. Roberts & Roussou (2002) proposed that if the chain between C representing [*t, t°*] and T is not PF interpreted, the WFD is also not LF interpretable due to a condition on disambiguity of identification. They suggest

---

[111] Cf. our remark above that sentence negation generated in lower positions is interpreted at the root through procrastination. Welsh provides evidence that it can also be generated there if there is a suitable semantically marked focus PTC.

that if C has no autonomous PF-interpretation, it must be identified by means of the structural configuration of a higher F in CDom identifying C as being distinct from T. If V_{FIN} (and thus T) is in C, something in front of it must identify the dependency, e.g. an operator like the *Q*-operator in V1 interrogatives of languages without *Q*-PTCs.

We suggest that in languages with predominant V-initial structures, T must be lexically parameterised for identification of the chain. This may happen through AGR, which in Welsh, like in Eng., must be positionally licensed. Since the SPEC/head configuration has been erased through fronting, the structural relation of government must replace it. We assume that, in order for the AGR-dependency between V_{FIN} and the subject to be transparent (note that Welsh is lacking overt AGR), while at the same time identifying the dependency between C and T, there must be no intervener. Thus, FOCP immediately dominates IP, and no non-Θ-marked element or maximal projection that could be a barrier may intervene. We repeat the notion of barrier from above:

(203) A is a ***barrier*** for B iff   (cf. CHOMSKY 1986b, 14)
         A is a maximal projection and A immediately dominates C, C is a BC for B.

(204) ***BC*** ('blocking category')
         C is a blocking category for B iff C is not L-marked and C dominates B.

Of course this analysis is not yet very elaborate and the illustration sketchy. It is not more than a pointer as to how some issues that are still open in any account might be approached in our framework. The completion of this investigation we must leave to future research.

2.4.3.   Languages without 'real' CMPs

If the feature represented by CMPs giving the projection of V a nominal extension is crucial for finite embedding, this predicts that a language with no representation of this feature will not have finite embedding.

In the following paragraphs we discuss data from two languages lacking CMPs as we defined them above which behave very differently from the other languages with respect to finite embedding, such that they support the view that the way of selecting subject and object clauses in Θ-positions as it exists in

languages like those discussed above is not possible without the category CMP. The first of them is Bengali, the second one is Mandarin Chinese.

Bengali has a subordination marker *je* in SubCs, which can occur in two positions in the clause: Preceding or following the subject. Therefore, it has to be analysed as a subordinating PTC rather than a CMP (cf. BAYER 1995).

(205) a) Ami bol-lam **je**   chele-TA lingwistiks pORe.
        I −   said − SUB *− boy*DEF *− linguistics − studies*

    b) Ami bol-lam chele-TA **je** lingwistiks pORe.
        *I −   said − boy*DEF *−* SUB *− linguistics − studies*

     'I said that the boy studied linguistics.'

Nevertheless it is a syntactic PTC with a specific functional domain. Any attempt at analysing it as a discourse particle is destined to fail, as the comparison with Gm. modal particles shows.

The German PTC *wohl* is cognate with English *well* and expresses epistemic modality of assumption. Besides, it divides the embedded proposition into a focussed and a non-focussed section. Either the part of the structure preceding or following the PTC can be focussed. Stress indicates the focussed part. In the sentences below, the focussed part is set in small capitals; the stress is indicated by the apostrophe preceding the stressed syllable.

(206) a) Ich sagte, dass DER JUNGE LIN'GUISTIK STUDIERT.

    b) Ich sagte, dass **wohl** DER JUNGE LIN'GUISTIK STUDIERT.
       I – said – CMP *–* ptc *− the − boy – linguistics – studies*

    c) Ich sagte, dass der Junge **wohl** LIN'GUISTIK STUDIERT.

    d) Ich sagte, dass DER 'JUNGE **wohl** Linguistik studiert.

    e) Ich sagte, dass der Junge Linguistik **wohl** STU'DIERT.

    f) Ich sagte, dass der Junge LIN'GUISTIK **wohl** studiert.

je is an item with totally different properties. Firstly, *je* is free of modal connotations. Secondly, it obeys the conditions on CMP-drop shown for Gm., Dt., MlSc., Rus. and others. After V of saying and thinking, *je* is optional, but it is obligatory after V like *understand*.[112]

---

[112] In colloquial Bengali *je* tends to be dropped also with other V, like in colloquial English.

(207) Ami bol-lam (**je**) chele-TA lingwistiks pORe.
      *I − said − boy*DEF *− linguistics − studies*

Even if it is not a CMP, it is a particle indicating subordination, i.e. embedding in the superordinate tense dependency. This shows that case marking of an element with an F [N], selecting clauses (i.e. a CMP) and structural representation of the F [C_{SUB}] do not necessarily co-occur. Since it is not assigned case, a subordination PTC does not have to be peripheral, however, which is obligatory for a CMP.

Since they cannot be case marked, according to our account Bng. SubCs should not function as arguments and therefore should not occur in Θ-positions. This seems to be true. Firstly, unlike e.g. Persian which has CMPs that can be case marked, preverbal object clauses are impossible, whereas nominal objects in the SOV language Bengali *always* precede V. Secondly, there are neither clausal subjects nor topicalised object clauses. The only way of expressing propositional subjects or topics is in left dislocation, with a case marked pronoun in Θ-position.

(208) a) o   **je**   nachlo, *(sheTa) amaderke hashalo.
        he − SUB − danced − this − us − amused

        'that he danced, this amused us.'

      b) chele-TA **je** lingwistiks pORe, *(sheTa) ami bol-lam.
        boy − SUB − linguistics − studies − this − I − said

        'that the boy studies linguistics, this I said.'

The particle **je** indicating syntactic subordination is then obligatory[113], since it has to express C_{SUB}.

      (i)   ami dekh-lam o dour-a-lo
            I − saw − he − ran

[113] It cannot occur clause initially however. The reason for this we can only hypothesise about.

      (i)   ***je** o nachlo, sheTa amaderke hashalo.
            SUB – he – danced – this – us – amused

That it can precede the subject only in extraposed object clauses should certainly not make us conclude that it is a CMP only there.

      (ii) amar mone hOe [(je) [chele(-Ta) (je) [$_{VP}$ lingwistiks poR-be   ]···] Ek din
            (*I think*) −   SUB − *boy*DEF − SUB − *linguistics − read*FUT − *one − day*

            'I think that one day the boy will study linguistics.'

It rather might have a FOC function here, which is a natural assumption given that V2/ embedded topicalisation, and thus focus extension, in most languages is excluded from subject and topic clauses.

Subjects and topics with argument status need overt case marking. Since *je* is not a CMP, these clauses cannot be case marked. An anaphoric DEM takes their place in the second clause of a paratactic structure. All Bng. 'argument' clauses have the same distributional properties as V2 clauses in Gm., which can be neither subjects nor objects, if not extraposed. We repeat our examples from p. 173.

(209) a) *Er ist ins Kino gegangen, stimmt.
  he – is – into-DET – *cinema – gone – is-true*

 b) *Er ist ins Kino gegangen, bin ich mir sicher.
  he – is – into-DET – *cinema – gone – I – am – myself*DAT – *sure*

 c) Ich bin mir sicher, er ist ins Kino gegangen.
  *I – am – myself*DAT – *sure – he – is – into*-DET – *cinema – gone*

 d) Dass er ins Kino gegangen ist, bin ich mir sicher.

 e) Dass er ins Kino gegangen ist, stimmt.

According to our account above, the only clauses which do not need case marking are those generated outside the clause in a specific licensing position. They must either be extraposed clauses, then case is not assigned to them, or they must be left dislocated, then case is assigned to the *resumptive pronoun.*

(210) a) Er ist ins Kino gegangen, das stimmt.
  he – is – into-DET – *cinema – gone* – R-PRN − *is-true*

 b) Er ist ins Kino gegangen, dessen bin ich mir sicher.
  he – is – into-DET – *cinema – gone* – R-PRN − *am – I – myself*DAT – *sure*

Both are, in our view, paratactic structures rather than genuine hypotaxis. The same we assume to be true for "subject-clauses" and left dislocated object clauses in Bng.. Since *je* is not a CMP giving its nominal category to the clause, but nevertheless marking the clause as subordinate, we suggest that it is a marker of propositional dependency, the plain PF realisation of C_{SUB}.

(211) [o   **je**   nachlo]. [sheTa amaderke hashalo]
  he − SUB − *danced* − *this* − *us* − *amused*

Thirdly, *je* can neither be preceded by a stressed constituent, nor can it be placed lower than after the subject.

(212) a) *Ami bol-lam CHELE-TA **je** lingwistiks pORe.

 b) *Ami bol-lam chele-TA lingwistiks **je** PORE.
  I − *said* − *boy*DEF − *linguistics* − SUB − *studies*

  "I said that the boy studied Linguistics."

This indicates that it is lower than or identical to Foc°, but never lower than I°. What is very puzzling is that *je* cannot occur after the first constituent, if it is not the subject (213).

(213) Amar mone hoE *(**je**) lingwistiks-Ta (***je**) keu   V-Day-te poR-te   chae-na.

   *I − think − SUB – linguistics-DEF − SUB − nobody − V-Day-on − study − wants*NEG

MC topics are usually marked by the topic marker *i* which does not occur in SubCs.

(214) lingwistiks-**i**   chele-TA   poR-be
   *linguistics −TOP − boy*DEF − *read*FUT

   'Linguistics, the boy will study.'

If we assumed that *je* could represent a Foc F in SubCs, we should wonder why topics other than the subject couldn't be fronted to it. However, since Bng. has scrambling, fronted topics do not necessarily indicate a specific position.

(215) Ami bujh-chhi   **je** lingwistiks-Ta   keu V-Day-te poR-te   chae-na.

   *I − understand*PRG − SUB − *linguistics*-DEF *nobody − V-Day-on − study − wants-NEG.*

This is another issue we have to leave to future research.

Let us now turn to Mandarin Chn.. In Chn., there are neither CMPs like Eng. ***that*** or Jps. ***no*** or ***koto,*** nor subordination PTCs for subject and object clauses like in Bng.. There are indeed PTCs specific for different types of adverbial clauses, but it is arguable whether they are real connectives, such that Chn. linguists traditionally term adverbial constructions as *paratactical* (cf. Eifring 1995, 28).

   Researchers claimed that there was a CMP ***de*** marking attribute clauses.

(216) [John du]-**de** shu
   John − read − DE − book

   'the book that John read'

However, the PTC ***de*** is not really a CMP or subordinator of clauses but rather a PTC generally marking attributes. It can also be attached to nouns and adjectives.

(217) a) [John]-**de** shu
      John − DE − book

      'John's book'

    b) [hen hou]-**de** shu
        very − thick − DE − book

        'a very thick book'

For these reasons, CHU (1998, 233) treats all subject and object clauses as nominalisations of V, however, without overt morphology like *infinitive* inflection in synthetic language systems.

(218) a) Haizimen shang daxme shi tamen ziji de shi.
         *children – go*NOM *– college – be – their – own –* REL *– matter*

         'the children's going to college is their own business.'

      b) Women houlai cai faxian ta yijing zou le.
         *we – later – not-until – find – he – already – leave*ACC *– now* [114]

         'We found out only later that he had already left.'

The first thing to note with respect to 'argument clauses' is that there is no main/embedded asymmetry in word order or other syntactic behaviour. Moreover, "main" and "subordinate" clauses can appear in either order.

(219) a) Wo shuo neige nanhaizi du   yüyanxue.
         I − say − DET *− boy − read − linguistics*

      b) Neige nanhaizi du yüyanxue wo shuo.
         DET *− boy − read − linguistics − I − say*

         'I say the boy studies linguistics.'

(220) a) Wo (jiu) zhidao neige nanhaizi hui du yüyanxue.
         I − PST *− know −* DET *− boy − will − read − linguistics*

      b) Neige nanhaizi hui du yüyanxue wo (jiu) zhidao.
         DET *− boy − will − read − linguistics − I −* PST *− know*

         'I knew the boy would study linguistics.'

Subordination appears here mainly as a conceptual relation. There seems to be no formal evidence that the propositional argument is expressed as an 'embedded' clause except the data on Wh-extraction presented in work like HUANG (1982), which will be discussed further below. Propositions that can be expressed as subjects in English must be coordinated to an expression or a clause following them, or paraphrased in another way.

(221) a) Ta tiaowu, women juede haoxiao.
         he − dance − we − feel − funny

         'that he danced amused us.'

---

[114] *le* is a "change of state particle" mostly the best translated as 'now'; cf. CHU (1998, 126).

b) Ta lai le, women zhen   jingya.
   he − come − PRF − we − really − surprised

'that he came surprised everyone.'
(Lit: He has come, we are really surprised'.)

c) Ta du yüyuanxue, mei guanxi.
   he − read − linguistics − no − matter

'that he studies linguistics does not do any harm.'

d) Chuanghu kai zhe, wo hen haipa.
   window − open − DUR − I − very − scared

' That the window was open frightened me.'
(Lit: The window is/ was open, I was/ am very scared.)

Since 'complement clauses' have the same structure as main clauses, the object can, in principle, always be topicalised, independently of the superordinate V.

(222) Wo gen tamen jiang, [zheme duo cai], wo yiding chi bu xia.
      I − with − them − say − this − much − food − I − sure − eat − not − down

"I told them that I couldn't possibly eat so much food."
(Lit: ' I told them: So much food I could certainly not eat'.)

(223) a) bu xiangxing neme piaoliang de yifu   ni lian kan dou bu kan
         not − believe − such − pretty − REL − clothes − you − even − look − or − not − look

      'I do not believe that you do not even look at such pretty clothes.'

   b) mei zhuyi dao neme piaoliang de yifu   ni lian kan dou bu kan
      I − NEG − notice − such − pretty − REL − clothes − you − even − look − or − not − look

      'I did not notice that you did not even look at such pretty clothes.'

   c) mei houhui neme piaoliang de yifu   ni lian kan dou bu kan
      I − regret − such − pretty − REL − clothes − you − even − look − or − not − look

      'I regret that you do not even look at such pretty clothes.'

In both main and "subordinate" clauses a topic can be fronted, the only condition being that something must follow V, otherwise the predicate deprived of the object loses too much of its prosodic weight. If the predicate is weightier or the verb itself is complex, topicalisation sounds more natural.[115] Therefore, some kind

---

[115] In fact this is not unusual, but a well known phenomenon also from languages like Eng. or Gm..
   (i)   a) I donated 20 pounds.
          b) 20 pounds I donated ??(to the salvation army).
   (ii)   [VP Ein Zug angekommen] ist ??(nicht/ vor 5 minuten).
          a − train − arrived − is − not/ − before − 5 − minutes

of particle is needed after the verb, e.g. a deontic modal like in the following example.

(224) Yüyanxue,   neige nanhaizi hui do dao
linguistics − that − boy − will − read – MOD (obligation)

'Linguistics, that boy will have to study.'

We argue that Chinese has neither subject clauses nor 'real' finite object clauses, since V cannot case mark them. The best argument for the lack of case marking is that there are no passivised sentences – which is to be expected if there is no case alternation. Other objects can be passivised, which is indicated by the PTC **bei** which is often (but not always obligatorily) followed by the implied agent..

(225) neiben   shu yijing bei Peter sung gei Mary
that − book − already − by − Peter − give − give − Mary

'that book has already been given to Mary by Peter.'

Sentences like

(226) That Mary was a virgin is still believed by many people.

, on the other hand do not exist in Chn..

Apparently contradictory data like long distance binding of *Wh*-expressions by the *Wh*-PTC **ne,** which is explained in derivational accounts as covert *Wh*-movement to SPEC/C of the MC, like

(227) Ta yiwei shei$_i$ xihuan shenme$_i$ ne$_i$?   (AOUN & LI 1993, 215)
he – think – who – like – what – Wh

'Who does he think likes what?'

is also only possible in Chn. with those V called *bridge-verbs* in the literature (see above, pp.160ff) that also allow clauses without CMPs and non-selectional licensing in other languages. Those clauses are not generated in Θ-position and therefore do not need CMPs.

Since it lacks inflection totally, the term 'finite embedding' is admittedly curious applied to Chn. It is not easy to see whether an embedded clause is infinitive. However, ECM verbs like WANT whose conjunct cannot be coordinated show clear evidence that their complement must be infinitive. This is suggested by the fact that in contrast to the V above where topicalisation is free, the object

can not be topicalised to the top of the embedded proposition, but only to the top of the whole clause. Nothing can appear between *yao* and *ni*.

(228) a) Wo *yao   ni*   lai   kan   **zheitao   yifu**
          I − want − you − come − look − this-outfit − clothes

          'I want you to come and look at this outfit.'

      b) *Wo yao **zheitao yifu** ni lai kan

      c) **zheitao yifu** Wo yao ni lai kan

The V UNDERSTAND (if it does not denote an utterance or thought) cannot have declarative "complements". However, it selects *Wh*-clauses.

(229) Wo mingbai   **weisheme** meiyou-ren qingrenjie du yuyuanxue
          I − understand − why −   no−person − V-Day− read − linguistics

This can also be understood against the background that this is the only way to give the V a 'real' object to which it can assign case. *Wh*-pronouns like *why* are nominal elements able to bear case. Note that even in English they can be selected as direct objects. Since there is neither verbal inflection nor case morphology in Chinese, there is no evidence against interpreting the Chinese sentence like the English one below.

(230) I have never understood the how and why of explaining syntax derivationally.

An argument from Chinese syntax could be that neither topicalisation nor putting the adverbial before the subject is acceptable under normal prosody, although it is normally quite free in Chinese matrix Wh-clauses. However, if this is not a *Wh*-clause but a *Wh* pronoun with an infinitive VP as a complement, this restriction follows naturally.

(231) a) *Wo mingbai   weisheme **qingrenjie** meiyou-ren du yuyuanxue
          I − understand − why − V-Day − no−person − read − linguistics

      b) *Wo mingbai   weisheme **yuyuanxue** meiyou-ren qingrenjie du
          I − understand − why − linguistics − no−person − V-Day− read

In the following structure, which we analyse as a paratactic construction, topicalisation is possible without any restriction – finite clauses obviously have a topicalisation site below the *Wh*-phrase.

(232) wo zhen bu dong [$_{CP}$ weisheme [**neme piaoliang, neme pianyi de yifu** [$_{IP}$ ni lian kan dou bu kan]···]

      I − really − not − understand − why − such − pretty − such − cheap − REL − clothes − you − even − look − all − not − look

'I just don't understand: Why don't you even look at these beautiful and inexpensive clothes!'

That *Wh*-clauses are, in fact, nominals, like *that*-clauses, is also confirmed by Persian. Like clauses introduced by **ke**, they are preceded by a specific DET if they are in Θ-position. What is interesting is that *Wh*-fronting is optional, a *Wh*-clause can either be introduced by the specific DET **an** or by the DET **in** which is specific for **ke**-clauses.

(233) a) An [CP che (ke) mardom fekr mikonand] mohem nist.
      that − what − CMP *− people − thought − do − important −* NEG*is*

   b) In [CP ke [TP mardom che fekr mikonand]]] mohem nist
      this − CMP *− people − what − thought − do − important −* NEG*is*

'About what people think does not interest me.'

Under the assumption that Chinese is paratactic it follows naturally why apparent asymmetries with respect to the binding of subject and object '*pro*' in 'embedded' clauses are there, as discussed by HUANG & LI (1996, 80f).

They note that only empty subjects, but not objects, may be bound by an antecedent in the embedding clause.

(234) a) Zhangsan$_i$ shou [*e$_i$* bu renshi Lisi]
      Z. – say – not – know – Lisi

   b) *Zhangsan$_i$ shou [Lisi bu renshi *e$_i$*]
      Z. – say – Lisi – not – know

Of course there is no such asymmetry with overt pronouns.

(235) a) Zhangsan$_i$ shou [**ta***$_i$* bu renshi Lisi]
      Z. – say – he – not – know – Lisi

   b) Zhangsan$_i$ shou [Lisi bu renshi **ta***$_i$*]
      Z. – say – Lisi – not – know – him

If the former are in fact coordinated sentences with subject *pro-drop*, which is always licensed, and object *pro-drop*, which is licensed only in certain contexts, the ungrammaticality of the (b)-sentence needs no further explanation. Sentences with object *pro*-drop mentioned by HUANG & LI (1996, 79f) are the following:

(236) a) *pro* kanjian *pro* le
      he – see – him – ASP

'He has seen him.'

   b) Zhangsan shou, *pro* kanjian *pro* le
      Z. – say - he – see – him – ASP

'Zangsan said he saw him.'

This is only possible, however, since there is a antecedent interrogative, giving the object as a theme (cf. HUANG & LI 1996, 79f):

(237) Zhangsan kanjian Lisi le ma?
    Z. – see – Lisi – ASP – Q

    'Has Zhangsan seen Lisi?'

A question like

(238) Zhangsan kanjian *pro* le ma?
    Z. – see – him – ASP – Q

    'Has Zhangsan seen him?'

would not be possible however. Thus, this could be a phenomenon of spoken language, something like sloppy "theme-drop" which could also exist in other languages like Gm. or English.

(239) A: Hast du Hans schon getroffen?
        have – you – John – already – met

    B: Nein, treff' ich erst morgen.
        no – meet – I – only – tomorrow

If we regarded the answer to (A) above as a case of object *pro*-drop, even Gm. would be an object *pro*-drop language.

Of course, a question like

(240) A: *Hast du *pro* schon getroffen?
        have – you – ∅ – already – met

would not be interpretable without context in any language and therefore not be regarded as acceptable. We cannot discuss the huge amount of literature on object *pro*-drop in Chn. (e.g. HUANG 1982, 1998). But this little discussion should show that some of the evidence can easily be explained without referring to syntactic parameters.

A second example HUANG & LI (1996, 83) mention is:

(241) nei-ben shu$_i$ [kan-bo-dong e_i **de** ren henduo]
    that-CL – *book – can – not – understand* – DE – *person – many*

    'that book, I know many people who can't read [it] .'

Their analysis is that overt pronouns may only be bound by animate antecedents, thus object-*pro* must be licensed there. From this would follow that only

inanimate objects may bind *pro* – which is a no more plausible assumption than to assume that only inanimate objects may be extracted from the ***de*-**attribute-clause construction. Thus, the 'object-*pro*' problem above might really not be a binding problem, but rather a licensing problem.

If there are languages without finite embedding (as has been claimed for ancient IE, cf. KIPARSKY 1995 and a whole arsenal of literature from the early neogrammarian days to the climax of typological research in the 1980s, e.g. LEHMANN 1980, JUSTUS 1980 a+b, JEFFERS 1987), Chinese is a good candidate to be one. According to KIPARSKY's (1995) analysis, the rise of finite embedding in the grammar of a natural language is correlated to the development of a functional category CMP (a formal account of its development through grammaticalisation is given in ÖHL, forthcoming, a). In our framework this means that there must be a head [+N] that can select clauses, making them able to receive case from the embedding V.

3.   The Syntax and Semantics of Questions

In this chapter, we will discuss the syntax and the semantics of questions. First we introduce some generative accounts assuming that there is a clause type 'interrogative' with a specific representation of a formal typing feature [*Wh*] or [*Q*]. We discuss the assumption that *Y/N*-questions and *Wh*-questions are formally parallel with respect to this typal feature and the implication of this for complex sentences.

We will show that *Wh* and *Q* are IFs that must be generated independently of each other and that a feature like *Q* is rather a specific function of a semantically contentful head (i.e. C°) than a matter of formal syntax. The logical function of *Q* we identify as a *nonveridical operation* on predicates blocking the assignment of a truth-value to their world reference. What all interrogatives have in common, is that they cannot be assigned a *truth-value*. The interpretation of different interrogative MCs and SubCs follows from specific LF interpretation of a *nonveridical dependency*. *Wh* is actually a lexical quantifier with inherently wide scope (like the *distributor*, cf. 1.2.2.9). Only if a *Wh*-clause also has the IF *Q* in C, is it an interrogative.

How PF interpretation of this dependency can take place differs according to lexical and phonological parameterisation of the representation of IFs in SDs. In this sense, interrogative clauses are in fact typed as questions, however, which is shown in a final look at the interpretation of clause mood, not through a syntactic F in the CP but through a nonveridical dependency specific to different interpretations of *nondeclarative* clauses.

3.1.   Questions as a Clause Type

The proposal that in natural language clause mood must be syntactically encoded by specific typal properties was first generally formulated by CHENG (1991, publ. 1997). This follows from generalisations on the base of comparative research on questions in English, Chinese and other languages. In Chinese, there are two different sentence final particles marking *Y/N*- and *Wh*- interrogatives. In absence of the *Wh*-marker, the pronoun **shenme** is interpreted as indefinite.

(1)   a) Hufei chi-le   *shenme* ma.
         H – eat-Asp *– what – Q*   "Did Hufei eat anything"?

       b) Hufei chi-le   *shenme* ne.
         H – eat-Asp *– what –* Wh   "What did Hufei eat?"

       c) Hufei chi-le   *shenme* .
         H – eat-Asp *– what*   "Hufei ate something"

CHENGS (1997) analysis: When a *Wh*-word is interpreted as interrogative, it is licensed by a *Wh*-particle binding it. Polarity reading is triggered by a *Y/N*-particle or negation. In the absence of particles, pronouns are bound by "existential closure" applying to VP-internal elements, and interpreted as being indefinite.

Interrogatives in languages like English have inflected verbs fronted to C (only auxiliaries (AUX) or dummy-*do* in English). There is no ambiguity of *Wh*-words such that they are interpretable as indefinites.

(2)   a) *Did Hufei eat what?

       b) *Hufei eat what.

On this empirical basis, CHENG (1991, 1997) made the following generalisations:

(3)   **CHENG'S** *Generalisations*

       - If a language has I-to-C in *Y/N-Q*, it has it in Wh-*Q* (but not vice versa).

       - If a language has Wh-particles, it has *Y/N*-particles (but not vice versa).

       - Languages with ambiguous wh-words always have a Wh-particle. (Chinese)

       - Languages without Wh-particles do not have ambiguous Wh-words. (English)

Her hypothesis following from this, that clauses must be typed in syntax, she formulated as follows:

(4)   *Clausal Typing Hypothesis*

       Every clause needs to be typed. In the case of typing a wh-question, either a wh-particle in C is used or else fronting of a wh-word to the Spec of C is used, thereby typing a clause through C by Spec-head agreement.   (CHENG 1997, 22)

This implies not only that all languages must have the possibility of specifying clause types, but also that all clauses, independent of their status as either MCs or SubCs, must have Fs indicating their type. Note, however, that this does not imply one type feature like 'interrogative' that is common to both *Y/N-* and *Wh*-Qs.

Three parameterised ways of typing clauses have been formulated by BRANDNER (1996), who, like CHENG, only treated interrogatives.

3.1.1. *Direct Typing*

Specific particles can mark questions in many languages. BRANDNER (1996, 93ff.) gives examples from Korean.

(5)   a) ku-ka   seoul-e   ka-ass-**ta**.
          he-Nom – *Seoul*-El – *go*-Past-**Decl**

          "He went to Seoul".

       b) ku-ka   seoul-e   ka-ass-**nunya**.
          he-Nom – *Seoul*-El – *go*-Past-*Q*

          "Did he go to Seoul?"

       c) ku-ka   eti-e   ka-ass-**nunya**.
          he-Nom – *where*-El – *go*-Past-*Q*

          "Where did he go?"   (**Korean**; cf SHIN 1993, 53ff)

Very often, they also occur in SubCs, where they are accompanied by a SubC PTC.

(6)   a) Bill-un   John-i   wa-ss-**ta**-ko   sayngkakhanta.
          Bill-TOP – *John*-Nom – *come*-Past-**Decl**-Sub – *thinks*

          "Bill thinks that John came."

       b) Bill-un   John-i   wa-ss-**nunya**-ko   mwul-ess-ta.
          Bill-TOP – *John*-Nom – *come*-Past-*Q*-Sub – *asked*

          "Bill asked if John came."

       c) Hans-nun   Maria-ka   ku-lul   salang-ha-**nunya**-ko mwul-ess-ta.
          Hans-TOP – *Maria*-Nom – *who*-Acc – *love*-Q-Sub   –   *asked*

          "Hans asked who Maria loved."   (**Korean**; cf BHATT&YOON 1991, 2)

The conclusions drawn from this are:

1. If the clause is typed by the particle, *Wh-in-situ* is licensed.
2. 'Interrogative' is a clause type subsuming both *Y/N-* and *Wh*-questions.
3. Typing applies to MCs and SubCs in the same way.

BHATT & YOON (1991) build, based on this data, a model where in languages like Korean the rich verbal morphology interprets the relevant IFs (*Wh* and *SUB*) in C° and V moves to I and C covertly, whereas in languages like Gm. and Eng. (see below) the morphology is poor but V moves to C° overtly in order to type the clause. This kind of typing, BRANDNER (1996) calls *Automomous Typing*.

3.1.2. *Autonomous Typing*

Syntax can also mark clause types autonomously by clause structural means, without specific morphology. According to BRANDNER, this happens through functional extension of IP to CP by movement of V (or I) to C. A *Wh*-operator must be moved to SPEC/C to type the clause through SPEC/head agreement. BRANDNER assumes that in languages without *Q*-particles, *Y/N*-interrogatives always have a *Wh*-operator in SPEC/C which is phonologically $\varnothing$. Therefore, Y/N-Qs are always V1.

(7)   a) [$_{CP}$ $\varnothing$ [$_{C'}$ studiert [der Junge Linguistik t]] ?
                 studies – the – boy – linguistics

     b) [$_{CP}$ was [$_{C'}$ studiert [der Junge]] ?
           what – studies – the – boy

(8)   a) [$_{CP}$ $\varnothing$ [$_{C'}$ does [the boy study linguistics]] ?

     b) [$_{CP}$ what [$_{C'}$ does [the boy study]] ?

Note that this assumption is based on the generalisation drawn from Korean that *Wh*-questions and *Y/N*-questions have a common F *Wh,* which in this case is interpreted by a *Wh*-operator.

3.1.3. *Typing via selection*

Specific V subcategorise for clauses typed by *Q*. There are two syntactical possibilities of typing a subordinate clause:

1.   A specific CMP (like Gm. ***ob*** or Eng. ***if***) expresses *Q*.

(9)   a) Ich frage mich [$_{CP}$ [$_{C'}$ **ob** [der Junge Linguistik studiert]].
          I – ask – myself – if – the – boy – linguistics – studies

     b) I wonder [$_{CP}$ [$_{C'}$ **if** [the boy study linguistics]]

2.   If a *Wh*-operator moves to SPEC/C, it expresses *Q*, therefore a specific CMP can be dispensed with.

(10)   a) Ich frage mich [$_{CP}$ was [$_{C'}$ $\varnothing$ [der Junge studiert]].
          I – ask – myself – what – the – boy – studies

     b) I wonder [$_{CP}$ what [$_{C'}$ $\varnothing$ [the boy studies]].

Note that an account like this can neither explain why there is no CMP at all in *Wh*-Qs, nor why embedded Qs cannot have the same form as MCs. Moreover,

why can't a $\varnothing$-*Wh*-operator type a *that*-clause through SPEC/head agreement, the same way it can a V2 clause? This should be possible at least in languages allowing doubly filled CPs, like Swabian.

(11) a) I woiß it **wer dass** so äps liast.
          I – know – not – who – that – such – thing – reads

  b) *I woiß it $\varnothing$ **dass** äbber so äps liast.
          I – know – not – that – someone – such – thing – reads

  c) I woiß it **op** äbber so äps liast.
          I – know – not – if – someone – such – thing – reads

3.1.4.   *Some Counterevidence*

Comparative data from many languages shows that such theoretical claims building on CHENGS (1990, 1997) empirical generalisations are somewhat too simplified and also too strong. There is evidence for a broader typology and more elaborate structural representations of typal features.

        First, not all languages have syntactic marking of interrogatives. Languages like Urdu can mark them only intonationally and do not move *Wh*-items.

(12) a) wo laṛkaa bhaasaa-vijnan paṛhtaa hai
          this – boy – linguistics – study – is

          "Does this boy study linguistics?"   ***or:***   " This boy studies linguistics."

  b) wo ladka sayad **kya** paṛhtaa hai?
          this – boy – probably – what – study – is

          "What does this boy study, probably?"

This cannot be explained in a theory that postulates obligatory syntactic typing. For a framework like ours that assumes primitive semantic IFs that are PF interpreted at the articulatory/perceptual interface, this is not a problem, however, since specific intonation can be seen as PF interpretation of a semantic F *Q* too.

        Evidence from Russian on the other hand seems to suggest redundant marking, since V movement and a *Q*-particle can co-occur. A clause introduced only by *li* is ungrammatical. The fact that the *Q*-particle is not inflectional morphology of V (which would parallel it to *Korean* in a BHATT-YOON-like account) can be seen in predicative constructions without copula, where it can follow a nominal predicative.

(13) a) Izučajet **li**   mal'čik lingvistiku?   "Does the boy study linguistics?"
            studies – Q – boy – linguistics

   b) *****Li** mal'čik izučajet lingvistiku?

   c) Pravda **li** èto?   "Is this the truth?"
           truth – Q – this?

There has been a recent proposal by RUDNITSKAYA (2000) which correlates ***li*-**insertion and focus-fronting to account for this Russian peculiarity (which is, by the way, also characteristic of Finnish, cf. LUUKO-VINCENCZO 1987). Without going into the details of this now, it seems clear that there must be more to the role of V-fronting than just clause typing in Russian – which suggests that this can be true for other languages too.

There are obviously languages with ambiguous *Wh*-words and without *Wh*-particles, for example German. This has as a consequence that so called '*echo-questions*' which are *Wh-in-situ* are unlike in Eng. syntactically ambiguous.

(14) a) Da hat **wer was** gesagt ?   "Who has said what?" (echo-*Q*.)
        there – has – who – what – said

   b) Da hat **wer was** gesagt ?   "Someone said what? "
        there – has – someone – what – said

   c) Da hat **wer was** gesagt.   "Somebody has said something."
        there – has – someone – something – said

(15) Hat da **wer was** gesagt?   "Did anybody say anything?"
    has – there – who – what – said

Echo-Qs are in fact Qs, even though they are of course different from the 'regular' *Y/N*- and *Wh*-Qs. The major difference is that they do not just ask for information, but they presuppose some information that is expected to be asserted by the hearer. Further below (pp. 256 ff) we will argue for their semantic similarity to the regular interrogatives, which are free of presupposition. Even if syntacticians may claim that only syntactic features are computationally relevant, they do have to admit that there must be a relation between *echo-* and *non-echo*-Qs. What exactly determines whether there is a *Wh*-feature or not?

Evidence from Urdu shows that typing via selection must yield different representations of IFs for *Wh*- and non-*Wh*-SubCs. Why should a language *not* fronting *Wh*-items use different CMPs for the two kinds of interrogative clauses, if they are not in fact different clause types? If one assumed that *Wh*-items can type the clause *in-situ*, the whole generalisation would be in vain.

(16) a) tumhe   pattaa   hae **agar** vah laṛka bhaasaa-vijnan parhtaa hai?
you(DAT) – *knowledge* – *is* – *if* – DET – *boy* – *linguistics* – *study* – *is*

"Do you know if that boy studies linguistics?"

b) muje malum nahin **ki** wo ladka **kya** padh raha hain?
*I*DAT – *know* – NEG – CMP – *this* – *boy* – *what* – *studies*

"I do not know what the boy studies."

On the other hand, the possibility of 'autonomous typing' by a *Q*-PTC in addition to *Wh* movement is parametrically given even in selected clauses, which is shown by varieties of a language as closely related to Gm. and Eng. as Dutch.

(17)   Ik vraag me af wie (**of**) (dat) taalkunde studeert.[116]
I − *ask* − *me* − *of* − *who* − *if* − CMP – *linguistics* − *studies*

"I wonder who studies linguistics."

More controversial evidence comes from the so-called *Wh*-imperatives in Gm. (cf. REIS & ROSENGREN 1991, WRATIL 2000, 92ff). In Gm., long distance extraction from *Wh*-clauses embedded by imperatives is possible. The same applies to complex interrogatives, which are commonly analysed as interpreting the *Wh*-feature of the clause by means of the extracted item.

(18) a) Who$_i$ did you say e_i wrote "War and Peace"?   (*Q*)

b) Wer sag mir bitte e_i hat "Krieg und Frieden" geschrieben!   (*IMP*)
who – *tell* – *me* – *please* – *has* – *W&P* – *written*

c) Wieviel schätz mal dass er essen kann!   (*IMP*)
how-much – *guess* – *once* – *that* – *he* – *eat* – *can*

If *Wh*-items are attracted by a syntactic *Wh*-feature that corresponds to the IF of an interrogative clause, one has to wonder why *Wh*-imperatives are not interpreted as interrogatives by the logical conceptual module. It seems that the marking of the clause type and the correlation of an F [+*Wh*] with the type "interrogative" is in fact more differentiated than suggested by analyses like those above.

3.2.   The Problem of the Formal and The Functional Type

Nowadays many formal syntacticians have adopted some account of formal clause typal features. Already KATZ & POSTAL (1964, 89) assumed *abstract morphemes*

---

[116] Both the *Q*-PTC and CMP are optional, such that *of* is parameterised either as only a semantic marker or a semantically marked CMP. Although this does not, according to Hans Kamp (p.c.),

like (*Q,* I) marking the *clauses types* interrogative and imperative in deep structure, triggering specific syntactic realisation.

One should note, however, that the idea of *clause types* is actually inherited from traditional *functional* grammar. In traditional grammar a view had become established where four clause types are defined according to prototypical functions of clauses in discourse.

(19) *Clause Types*

declarative clause - interrogative clause – imperative clause – exclamative clause

(GREWENDORF & ZAEFFERER 1991, 270)

Obviously, this terminology is not according to formal properties of clauses but functionally motivated. The functional burden of clause types raised extensive discussions in the Gm. linguistic literature of the eighties. Since paying attention to the separation of *functional types* and *formal types* of clauses is often difficult, the classification of the clause types *declarative, interrogative, imperative* and *exclamative clause* is not unproblematic for both functional and formal accounts (cf. GREWENDORF & ZAEFFERER 1991, 270). This has been noted by (MEIBAUER 1987, 3)[117] especially for *interrogatives*:

> What gives us the right to describe two kinds of clauses that are formally as distinct as the Y/N-interrogative-clause and the *Wh*-interrogative-clause by one single term like *interrogative*? It can only be a homogeneous semantic representation giving the property to the literal meaning of those clause types that we can ask questions with them. This account implies a semantic definition of *clause mood*, whereas clause types are characterised by *phonology*, *morphology* and *syntax*.

The often cited argument that interrogatives have identifiable common syntactic properties – mainly that of being selected by the same class of V – we will discuss and reject further below.

---

correspond to Dt. standard, it was confirmed by three different speakers of Dt., so it seems to be at least colloquially possible.

[117] Translated from German, P.Ö.: Was berechtigt uns eigentlich, zwei formal so unterschiedliche Satztypen wie den E-Interrogativsatz (Entscheidungsfragesatz) und den W-Interrogativsatz (Ergänzungsfragesatz) als dem "Interrogativmodus zugehörig" zu beschreiben? Doch wohl nur eine einheitliche semantische Repräsentation, die es der wörtlichen Bedeutung dieser Satztypen zuschreibt, dass man mit ihnen Fragen stellen kann. Nach dieser Auffassung sind Satzmodi semantisch fundiert, Satztypen phonologisch, morphologisch und syntaktisch.

People have tried to resolve the problem of form and function by differentiating the formal type from the function of clauses, which was then called *clause mood*.

(20) ***Clause Mood***

Declarative – Interrogative – Imperative – Exclamative – Optative

(cf. LOHNSTEIN 2000, 1f)

This view enables us to differentiate between different types of clauses that can express the clause mood *interrogative.* Note, however, that this does not yet distinguish the levels of description *syntax, semantics* and *pragmatics.* Moreover, the generalisation over two kinds of clauses that they serve to ask questions is still an abstraction from their discourse function, not from *semantic analysis.*

An exhaustive account for clause types can only be granted if we find an exactly defined borderline between appropriately classified levels of description (cf. MEIBAUER 1987, 2). We have found that theories of clause mood and clause types do often not sufficiently succeed in divorcing syntax and semantics, and the form and the function of *clause types.* A modular theory of grammar, however, *must* consider the formal (both syntactic and semantic) and the functional (both semantic and pragmatic) aspects very carefully.

It is our conviction that semantics plays a decisive role for both the formal marking and the functional potential that clauses can (or must) have. Therefore, clause types cannot be just specific formal realisations of utterances serving for specific purposes. We follow CHOMSKY (1986a) in assuming that language is epiphenomenal in that it was not created to communicate but is a property of human beings that was preserved and maybe even optimised during evolution through *survival of the fittest* in the sense of DARWIN (1859). This kind of adaptive evolution may have produced UG with its modules, each driven by universal features. To extend this assumption to the universality of clause types by *syntactic* definition lacks, in our view, some plausibility.

Autonomy of syntax must not mean that it is doing the jobs of semantics and pragmatics, providing structures that are derived by means of formal Fs anticipating the function a clause is meant to fulfil. Human beings do not ask questions or give commands because they have an *interrogative* or *imperative*

clause type, but they structure those utterances making creative use of the primitive semantic and syntactic Fs that are at their disposal. The formal type must be a language specific representation of the functional type that interprets those Fs represented in syntax through projection from our lexicon. We want to emphasise that this in no way negates the essential assumption that the function may not determine the formal properties of LF. In contrast, we try to remove the notion of functional *clause typing* from generative syntax.

We should regard *clause mood* as a phenomenon reflecting the modular organisation of our cognitive system, since it is something that can only exist if language is used in the cognitive context and licensed by the interpretation it gets at the interface with pragmatics (which is e.g. not true for purely semantic concepts like *tense* or *negation*, or purely syntactic ones like *case* or *agreement*). This was phrased also by MEIBAUER (1987, 5):

> Clause mood is an outstanding opportunity to learn more about modularity of grammar and pragmatics, since it is realised on the different levels of description (i.e. syntax, semantics and pragmatics, P.Ö.). Therefore a theory of clause mood must proceed "transmodularily" and integrationally. [118]

GREWENDORF & ZAEFFERER (1991) therefore suggested differentiating between *syntactic, semantic* and *pragmatic* moods, and BRANDT & al. (1992) also termed three units *clause type*, *clause mood* and *illocutionary type*.

Of course one can assume that syntax has established specific ways of expressing discourse functions, i.e., representing clause mood structurally. However, if one relates these *clause types* to more precisely defined discourse functions in terms of *speech acts* (cf. SEARLE & VANDERVEKEN 1985), one finds not only that formal types in no way reflect the pragmatic diversity numerically, but also that clause types are partly underspecified for the options of expressing or describing the speaker's attitudes. We give a summary listing types of illocutions as related to clause types from BRANDT & al. (1992, 58ff) and ROSENGREN (1992, 1993) with the performative analysis in parentheses.

---

[118] Translated from German, P.Ö.: Satzmodi sind nun insofern eine hervorragende Möglichkeit, mehr über die Modularität von Grammatik und Pragmatik zu erfahren, als sie offenbar in die verschiedenen Beschreibungsebenen eingebunden sind, so dass eine Theorie des Satzmodus "transmodular" und integrativ verfahren muss.

(21)   *Types of Illocution*

   a) *Declaration*

      i. Declarations are *declarative utterances* free of performative attitudes like claim, believe, deny or admit.
      Ex.: I am opening the banquet. (≠ I believe, claim etc. that the banquet is opened.)   (*declarative clause*)

   b) *Expression*

      ii. *Declarative utterances* express the speaker's psychological attitude. They are also free of performative attitudes.
      Ex.: (I) Thank you. (≠ I believe, claim etc. that I thank you.) (*declarative clause*)
        I am shocked what a lot of work this is.

      iii. *Exclamative* utterances indirectly express an affective-emotional attitude of the speaker towards the state of affairs denoted by the proposition. The interpretation as exclamative is dependent on the speaker's characterising the denoted fact as unexpected.[119]
      Ex.: What a lot of work (this is) !

   c) *Description*

      iv. Declarative or assertive utterances of performative attitudes such as claim, believe, deny or admit.
      Ex.: It is raining. (= I believe, claim etc., that it is raining.)   (*declarative clause*)

      v. Explorative (interrogative) utterances of performative attitudes such as questions
      Ex.: Is it raining? (= I do not know if it is raining.)   (*interrogative clause*)

   d) *Regulation*

      vi. Directive utterances of performative attitudes like command, warning or persuasion.
      Ex.: Listen! (= I want you to listen)   (*imperative clause*)

      vii. Requests
      Ex.: May I continue? (= I want to continue.)   (*interrogative clause*)

      viii. Comissive utterances of performative attitudes like promise.
      Ex.: I will help you. (= I want to help you.)   (*declarative clause*)

      ix. Permissive utterances
      Ex.: You may stay. (= I want you to stay.)   (*declarative clause*)

      x. *Optative* utterances are close to regulations.[120] However, such a sentence can directly realise neither a directive illocution nor a performative attitude.[121]

---

[119] Translated from ROSENGREN (1992, 265, after FRIES 1988, 4): Die betreffenden *Äußerungen* [drücken] stets eine affektiv-emotionale Haltung des Sprechers zu dem durch die Proposition (...) denotierten Sachverhalts aus. (...) die *Exklamativ-Interpretation* (...) [ist] dadurch ausgezeichnet, dass der durch die Proposition (...) denotierte Sachverhalt als (...) vom Sprecher *unerwartet* gekennzeichnet ist".

[120] We neglect the discussion whether or not sentences can autonomously express a performative attitude (cf. BRANDT & al. 1992; ROSENGREN 1992, 1993), since we think that they correspond to an autonomous interpretation of clausal mood. Therefore they at least fulfil the condition of a type interfacing with pragmatics.

[121] Summarised and translated from ROSENGREN (1993, 41): "Offensichtlich gehören Äußerungen solcher Sätze in die Nähe der Regulierungshandlungen. Der Satz kann aber (...) weder eine direktive Illokution noch eine Einstellungsbekundung (...) direkt realisieren."

Ex.: If (only) you could stay. (= I would like it, if you stayed.)

Declaratives can perform illocutions free of performative attitudes (i+ii), *assertions* (iv) and *regulations* (viii + ix). The clause type traditionally called *interrogative* can perform both *explorations* (v) and *regulations* (vii). An *exclamative* can express what is encoded lexically in a declarative expressive act (ii), i.e. psychological attitudes like astonishment or fright (iii). This cannot be encoded by syntax or a logical function explicitly, however, therefore ROSENGREN (1997) rejects the view that *exclamatives* can be treated within a theory explaining *declarative, interrogative* and *imperative* clause mood. Exclamatives do not have distinctive syntactic properties but are pragmatic interpretations of clauses expressing diverse semantic types. This issue will be discussed in more detail below.

Only what is traditionally called *imperatives* seems, according to this table, to unambiguously express just one subtype of the regulating illocutions (vi). All the other clause types that express specific illocutionary types (and are named after them) can in fact also be used for other functions.

(22)   a) Be as overworked as I am and you won't do anything but watch TV.
                                   (conditional imperative, cf. LOHNSTEIN 2000, 117)

       b) You want to leave already?   (assertive question)

       c) You will stay here!   (directive assertion)

       d) That is an interesting question!   (declarative exclamation)

       e) Isn't this impolite?   (exclamative rhetorical question)

       f) Why not move to Chicago?   (interrogative regulation/ suggestion,
                                                      cf. ZWICKY&SADOCK 1975, 25)

       g) Why don't you just leave me alone!   (interrogative imperative)

So, why not also term those clauses according to the function they fulfil in discourse? The answer that comes to mind off hand is that the cases above can of course always be explained as secondary illocution (cf. SEARLE 1975; SÖKELAND 1980), maybe including additional marking of the *basic propositional attitude* (cf. ALTMANN 1987, 25) by means of intonation.[122] One could suggest that clause

---

[122] - which in our view would be nothing other than a specific PF-interpretation of the semantic IF changing the modality.

types have *default interpretation* that can be *reinterpreted* by the force of illocution.

However, there is a clear graduation with respect to pragmatic vs. grammatical markedness in different kinds of 'reinterpretations' of syntactic structures, where prosody (intonation) serves to mark the intended illocutionary type.

(23)   a) Peter gave what to whom?

       b) Would you please tell me the time?

       c) Will you be quiet!

       d) Bisch du jetzt still!   (Swabian, Alemannic)
          are – you – now – quiet

Whereas (a) above is interpreted as a question (and can't be anything else) independently of 'type marking' in the sense of CHENG (1997) only due to the morphological presence of *Wh*-elements, the clause in (b) cannot get the reading of a Y/N-interrogative even if this is suggested by word order to be one. In both cases one cannot speak of a basic illocution, which is reinterpreted. The same we would claim for (c) which is formally not an imperative (if it was, *you* would be optional) but syntactically an interrogative type. The same is true for (d), which is an example from upper Gm. dialects where this has been grammaticalised and even replaced the imperative construction diachronically.

(24)   Sei jetzt still!
       be – now – quiet

This shows that syntax is here kind of ambiguous with respect to encoding *clause mood*, or better, those cases must be *unspecified* in the sense of ZWICKY & SADOCK (1975, 2). Thus the *syntactic type* of interrogatives does not, in fact, seem to be fully specified for interrogative reading. In our view it cannot be right that we use syntactic interrogative clauses to express something else. Instead, HL expresses specific semantics by adequate structures, which are interpreted more specifically at the *pragmatic interface*.

Although illocutionary interpretation depends on pragmatics, it must be constrained by the range of options given by clause mood that may be encoded in syntax through specific features. Therefore it has been suggested by BRANDT & al. (1992, 58ff) that pragmatics chooses a suitable clause type whose semantics is

interpreted by the pragmatic module. This idea has the advantage that the notion of *default interpretation* that must be secondarily reinterpreted is irrelevant. The interpretational system may just access formal properties to derive the perlocutional options.

We think, however, that this should be developed much further, in order to get rid of the functional load that must be carried by the abstract notions of *clause mood* and *clause types*. Both terms, as used in the traditional sense, subsume overgeneralisations over functional types as default uses of sets of formal types and need much more specification – especially, if one attempts exact research on generative grammar. This is since the functional types that are meant to be encoded are not more than rather unspecific abstractions from functions speech acts fulfil in discourse.

We aim to provide a model where semantic Fs of clauses are directly PF- and LF-interpreted at the interfaces, such that illocutionary types can be formally produced without functional reinterpretation of an abstract entity like *clause type* that actually follows from functional generalisations that do not always hold. We think a theory of clause mood should be able to catch parallels *and* asymmetries of formal types by only looking at their formal and functional *markedness*.

3.3.   Markedness

3.3.1.   *Interrogatives are Marked Propositions*

We agree with BRANDT & al. (1992) and LOHNSTEIN (2000), who advocated this from the semantic point of view, and with ROBERTS & ROUSSOU (1999, 2002) respectively ROBERTS (*to appear*, 207ff), who did the same from the syntactical one, that the functional types which are not declarative are marked by informative modal features (IFs). There are a number of arguments for this, which we want to list in short.

Propositions are expressed unmarked, through declarative clauses. Utterances that are unmarked with respect to the presentation of the proposition are *per se* suitable to perform *declarations* and *assertions*. The semantic markedness of interrogatives is obvious due to the lack of a truth-value. Normally, a declarative extensionally expresses the assignment of the truth value 1 to a

proposition *p*, which is then the extension of *p* in the world *w* at the time *t* within a propositional model *M* implying a specific fixation of all variables *g*. A proposition, i.e. the intension of SD, is then valid for the class of worlds and times where it is true. This is the core of all intensional semantics of *worlds* and *times* (cf. STECHOWS 1992, 90ff, language *ILwt*).

(25)   a) Paul loves Mary.

      b) Extension: $[\![\text{love'(Paul', Mary')}]\!]^{M,g,w,t} = 1$

      c) Intension: $\lambda w \lambda t[\text{love'}(w,t,\text{Paul', Mary'})]$

If we agree that propositions are, in fact, sets of possible worlds of instantiations of events or situations, which are classified according to their truth, an utterance that cannot be evaluated is marked. This is the case with all interrogatives. The functional generalisations over clause types imply specific logical relations between a proposition and a truth value, giving the speaker X the potential to express a certain attitude towards the truth of a proposition *p*. This can be regarded as the *functional potential of clause types*, the cases of specified illocutions can be called the *intentional mood* of a clause (cf. PASCH 1989, 18ff).

(26)   ***Functional Potential of Clauses***   (compare PASCH 1989, 33)

      Given a speaker X and an utterance containing the proposition *p*, then in a

      a) declarative clause: X regards p as potentially true.

      b) Y/N-interrogative: X regards p in as potentially either true or false

      c) Wh-interrogative: X presupposes an undefined individual x for which p is true.

(27)   ***Intentional mood*** **of clauses**

      Given a speaker X and an utterance containing the proposition *p*, then in a

      a) declarative clause, X makes a statement about *p*

      b) Y/N-interrogative, X questions *p*

      c) Wh-interrogative, X seeks information about a presupposed undefined individual x involved in *p* .

This means that an interrogative is a function of a proposition, since it does not just take the value away (then it would reduce the proposition to an non-evaluated event), but it adds an alternative value. This has been formalised by BRANDT & al. (1989, cf. BRANDT & al 1992, 38ff; REHBOCK 1992b, 188ff), using an operator 'OPEN' that is ambiguous between a propositional operator and a quantifier over

individuals. Declaratives are treated as *instantiations of events*. Interrogatives are marked by the OPEN operator.

(28)   a) ∃e [e INST [SLEEP PETER]

          (→ the speaker regards 'Peter Sleeps' as true)

       b) OPEN [∃e [e INST [SLEEP PETER]

          (→ the speaker regards 'the dog bites' as potentially true or false)

       c) [[OPEN x[person x]] [∃e [e INST [SLEEP x]]]

          (→ X presupposes an undefined individual x for which p is true.)

This is admittedly a simplified version of the formal logic of interrogatives; the logic of the operator OPEN is very opaque; a more transparent and explicit semantic account of this kind of operator has been developed already by BRANDT & al (1992, 38ff) and REHBOCK (1992b, 188ff). Further below (pp. 248 ff), we will develop a compositional account based solely on quantification. However, for the time being, this account sufficiently illustrates the concept of semantic markedness.

(29)   ***Markedness***   (cf. MEIBAUER 1987, 8f)
       a) A is marked in comparison to B if it differs from B through an additional feature.
       b) A is marked in comparison to B if it is a function of B.

(28a) says that there is an event that *instantiates* the predicate *bite* applied to *dog* such that 'dog bites' is true. In (28b) an operator OPEN is added, such that the instantiation is either given or not, which means that the proposition is either true or false. If this operator quantifies over the individual *dog*, it is the existence of the individual that is either given or not.

That clauses with semantics marked as *open* with respect to the truth value are used for exploration is neither a matter of syntax nor of semantics alone, but one of pragmatics interpreting semantics. A clause is, in principle, not fully specified for a discourse function by syntactic or semantic structure. Therefore, clause types can have different readings. The fact that sentences like the following can be interpreted as imperative

(30)   a) Will you be quiet!

       b) Willst du wohl still sein!
           want – you – well – quiet – be

           'Do you want to be quiet!'

does not hold since the sentence structurally looks like an interrogative, but because it expresses the semantics

(31)   OPEN [∃e [e INST [QUIET (you)]   (tense is neglected)

that can get imperative reading under certain conditions. This is then secondarily marked by intonation after pragmatic interpretation. Before these conditions are explored, it does not make much sense, in our view, to explain generation of the two kinds of interrogatives through syntactic features (Y/N or *Wh*), or even generalise a syntactic clause typing principle. Cf. also PASCH (1989, 8f)[123]:

> Linguistics should face the question of what the criterea for the subsumption of a clause to a certain clause type are and why it can have this or that function or interpretation. Only if this question is solved can we decide how many clause types there are and what clause type is assigned to a specific clause.

There is semantic markedness, and with respect to methodological economy it would be a gain if exactly this semantic markedness could be paralleled to syntactic markedness. Thus our aim will be to find out what semantic Fs could be expressed by the representation and configuration of syntactic markedness. This means we pursue the strategy not to abstract from the clause type, but to try instead to determine primitive modal features that are involved in the derivation of clauses with certain moods.

Not only because they effect what has traditionally been accounted for as clause mood, we decided to call the IFs we want to find and which mark the presentation of the proposition the '*modal features'*. We will also argue that the markedness expressed by *verbal mood*, *modality* or *clause mood* is semantically less distinct than syntactically and may even be reducible to identical semantic IFs. They compositionally contribute their semantics to clauses and license different intentional functions of *matrix* and *complement* clauses.

To distinguish formal types of clauses with different modal markedness more specifically, we use the term *modal type* for a potential set of clauses sharing

---

[123] Translated from German, P.Ö.: (Die Linguistik) muss sich der Frage zuwenden, aufgrund welcher Kriterien ein Satz einer ganz bestimmten Satzart zuzuordnen ist aufgrund welcher Regeln er die und die Funktion (Interpretation) haben kann. Erst wenn diese Frage gelöst ist, kann über die Anzahl der Satzarten entschieden werden und die Frage kontrollierbar entschieden werden, welcher Satzart ein bestimmter Satz zuzuweisen ist.

the same (combination of) modal IFs. Our claim will be that clauses are not typed through the checking of FFs specific to syntax, such as [±*interrogative*], but that typing rather follows from primitive IFs in an SD, which can be represented in various ways in sentences of natural language enabling a sentence to function as an *interrogative* in discourse.

Clause types or clause moods like *interrogative* or *imperative* are certainly not primitives of natural language *per se*. Rather *exploration* or *regulation* are cognitive primitives. This is quite evident, since their performance is possible through pragmatic means in several ways – specific use of language is only one of them. Therefore, we cannot accept the view first proposed by CHENG (1991) that there is clause typing as a *syntactic* principle. Clauses do not introduce themselves by lifting their hat and showing their type feature telling us that they are an *exclamation*, a *command* or a *question*. A functional generalisation like 'explorational act' over different kinds of clauses like *Wh*-clauses and Y/N-Qs as a clause type should be controversial for any *formal* theory of syntax. What should the specific syntactic property that can be represented by such different structures be?

In the following paragraphs we will present data suggesting that *Wh*-clauses and *Y/N*-Qs must be looked at in a different way. "*Wh*-interrogative" is not an adequate description of the semantic and pragmatic diversity of *Wh*-clauses. We will argue that there are two fully distinct IFs *Q* and *Wh* and that *Q* does and *Wh* does not belong to the modal Fs. This assumption is also essential for explaining different contexts of licensing of embedded interrogatives.

3.3.2.   *Q ≠ Wh*

BRANDT & al. (1992, 29) suggested that all clauses of any semantic type are subject to selection, either by V_{MC} or by specification of the illocutionary type. They further assume that in order to generate the clause type *interrogative*, a specific F [+*wh*] must be in the periphery (CDom), either in SPEC or in C°. Their evidence is that that there are specific V embedding *interrogatives*, thus they conclude that those V select a specific F common to all interrogatives.

(32) a) Ich weiß nicht, **ob** er ihn gesehen hat.   (BRANDT & al. 1992, 31)
         I – know – NEG – if – he – him – seen – has

      b) Ich weiß nicht, **wen** er gesehen hat.
         I – know – NEG – whom – he – seen – has

They suggest that this F is [+*wh*], represented either by the head or by SPEC of CP. Declaratives according to them always have the F [−*wh*], therefore they are selected by V subcategorising for [−*wh*]. In fact there are V which suggest this, since they have both kinds of interrogative complements, but do not select declaratives (cf. FORTMANN 1994, 2ff.):

(33) a) Hugo fragt, **ob** jemand   von   den   Kirschen genascht hat.
         H. – asks – if – someone – from – the – cherries – nibbled – has

      b) Hugo fragt, **wer**   von   den Kirschen genascht hat.
         H. – asks – who – from – the – cherries – nibbled – has

      c) *Hugo fragt, **dass** jemand   von   den   Kirschen genascht hat.
         H. – asks – that – someone – from – the – cherries – nibbled – has

And there are V that select ***dass***-clauses but do not embed interrogatives.

(34) a) Hugo glaubt, **dass** jemand   von   den   Kirschen genascht hat.
         H. – thinks – that – someone – from – the – cherries – nibbled – has

      b) *Hugo glaubt, **ob** jemand   von   den   Kirschen genascht hat.
         H. – thinks – if – someone – from – the – cherries – nibbled – has

      c) *Hugo glaubt, **wer** von   den   Kirschen genascht hat.
         H. – thinks – who – from – the – cherries – nibbled – has

V which can embed all three kinds of clauses may optionally subcategorise for either [+*wh*] or [–*wh*].

(35) a) Hugo sagt, **dass** jemand   von   den   Kirschen genascht hat.
         H. – says – that – someone – from – the – cherries – nibbled – has

      b) Hugo sagt,   **wer**   von   den   Kirschen genascht hat.
         H. – thinks – who – from – the – cherries – nibbled – has

      c) Hugo sagt, **ob** jemand   von   den   Kirschen genascht hat.
         H. – says – if – someone – from – the – cherries – nibbled – has

However, there are V embedding *Wh*-Qs[124] but not ***ob***-clauses:

---

[124] It was suggested that clauses like this are embedded exclamatives which are selected by specific predicates like 'amazing', which would explain the presence of a *Wh* pronoun. However, this is obviously not the only kind of V allowing this asymmetry. Secondly, it is not even evident that this is a case of embedded exclamation. Verbs like those can always be negated or replaced by their antonyms which imply non-exclamative reading.

   (i)   John was (not) amazed what a nice guy Bill was.
   (ii)   John was ignoring what a nice guy Bill was.

(36) a) Hugo staunt, **wer** sich hier mit wem gegen ihn verschworen hat.

H. − is-amazed − who − himself − here − with − whom − against − him − conspired − has

   b) Hugo staunt, **dass** sich seine Nachbarn gegen ihn verschworen haben.

H. − is-amazed − that − themselves – his − neighbours − against − him − conspired − have

   c) *Hugo staunt, **ob** sich seine Nachbarn gegen ihn verschworen haben.

H. − is-amazed − if − themselves – his − neighbours − against − him − conspired − have

Whereas in the sentences above one could argue that they are cases of embedded exclamatives, the following example of a *factive* verb that is able to embed a *Wh*-interrogative but not an *if*-clause clearly shows that an account of formal equality of the two kinds of interrogatives is very problematic.

(37) a) Helmut hat begriffen, **dass** er demnächst gehen muß.
John − has − realised − that − he − soon − leave − must

   b) Helmut hat begriffen, **wer** demnächst gehen muß.
John − has − realised − who − soon − leave − must

   c) *Helmut hat begriffen, **ob** er demnächst gehen muß.
John − has − realised − if − he − soon − leave − must

Therefore, this generalisation has already been rejected by FORTMANN (1994, 3):

> Verbs subcategorising for a *[+w]*-complement should be unspecified for its realisation and therefore allow generally both a *Wh*-clause and a clause with the *[+w]*-CMP (Gm. **ob**).[125]

English clauses have exactly the same contextual distribution.

(38) a) John is amazed **who** has been conspiring against him.

   b) John is amazed **that** his neighbours have been conspiring against him.

   c) *John is amazed **if** his neighbours have been conspiring against him.

(39) a) John has realised **that** he must leave soon.

   b) John has realised **who** must leave soon.

   c) *John has realised **if** he must leave soon.

Evidence for the asymmetry of *Wh*-Fs and *Q*-Fs also comes from long-distance-extraction of *Wh* and the so called *was-Wh*-interrogatives in Gm. where an

---

[125] Translated from German, P.Ö.: Verben, die für einen *[+w]*-Komplementsatz subkategorisiert sind, sollten gleichgültig gegen dessen spezifische Realisierung sein und daher generell sowohl

expletive Wh-pronoun ***was*** ('what') binds the *Wh*-item in SPEC/C of the embedded clause of a complex interrogative construction, which in Gm. can optionally replace long distance extraction (cf. BRANDNER 1996).

(40) a) Wer$_i$ hast Du gesagt *e*$_i$ dass *e*$_i$ "Krieg und Frieden" geschrieben hat?
who – have – you – said – that – W&P – written – has

   b) Was$_i$ hast Du gesagt wer$_i$ "Krieg und Frieden" geschrieben hat?
what – did – you – say – who – W&P – written – has

BRANDNER (1996, 98ff) calls this phenomenon *interrogative concord*. The clause is typed by concord of the root and the complement clause.

(41) ***Interrogative Concord***

   for α, β ∈ {CP}:

   a) α is the complement clause of β

   b) the typers of α and β are coindexed

   c) α and β are of the same type

(42) ***Coindexation***

   typer α is coindexed with typer β iff

   a) β c-commands α

   b) β locally A'-binds β

Thus BRANDNER (1996, 99) has now four kinds of typing.

(43) ***Proper Typing***

   Every Clause α must be Properly Typed. α is properly typed iff

   a) α is typed by autonomous typing

   b) α is typed by selection

   c) α is directly typed

   d) α is part of an *interrogative concord*

What is striking for our assumption is that *Wh*-clauses and Y/N-interrogatives cannot show *cross concord* – there can be neither *Wh*-concord with Y/N-Qs nor Y/N-concord with *Wh*-Qs.

(44) a) *Was$_i$ glaubst Du ob$_i$ er gekommen ist?
what – believe – you – if – he – come – is

   b) *Glaubst$_i$ Du wer$_i$ gekommen ist?
believe – you – who – come – is

---

einen Satz mit einleitender w-Phrase zulassen als auch einen mit dem *[+w]*-Komplementierer ***ob***.

There are basically two potential explanations for these asymmetries:

1. There are three Fs relevant for subcategorisation (*DCL, Q, Wh*). The subcategorisation frame of V like *fragen/ask* contains [*Q, Wh*], that of *glauben/believe* only [*DCL*], *sagen/say* has [*DCL, Q, Wh*] and *staunen/be amazed* and *begreifen/realise* [*DCL, Wh*].

However, we think this would be nothing but a descriptive *ad hoc* translation of the facts into feature symbols. Instead, we suggest something like the following:

2. There is only one IF '*Q*' relevant for s-selection. *Wh*-clauses selected by V not subcategorising for *Q* do not contain the F. The presence of the *Wh*-operators is not dependent on *Q*, but gives additional markedness to SD.

How do *Wh*-clauses embedded by interrogative V differ from those in the other contexts and why can they be embedded by non-interrogative V at all? There is an obvious difference in the interpretation of the *Wh*-clauses in (33) or (35) and (37) , (34) or (72). The former propose a fact (*somebody nibbled from the cherries*), about which information is sought or given (*who did it*). The argument marked by *Wh* morphology is focussed and thus the subject of the information. Thus the semantics of those *Wh*-clauses do not differ much from the ***if***- clause where, instead of an argument, the whole proposition is focussed and the subject of the information. Both clauses are therefore pragmatically *explorational*.

This is not true for the other *Wh*-clauses. *Staunen/be amazed* in (34) is an experiencer-V. Unlike that of interrogative V, its object does not have the Θ-role THEME and therefore cannot be an explorational clause. The same is true for the subject of *erschüttern/shock* in (72). The proto-agentive role of the embedded clause excludes the interpretation as an interrogative.

Begreifen/realise in (37) is a *factive epistemical* V and thus embeds a proposition presupposed as factive, but not an interrogative. *Factivity* (cf. Kiparsky & Kiparsky 1970) can be tested through negation – the factive presupposition of the proposition embedded by factive predicates stays also under their negation. This is also true of the other two predicates, thus the *Wh*-clauses embedded by them can't be explorational. They are propositions like the following *dass*/***that*** –clauses, except that they contain a variable.

(45) a) Er hat nicht begriffen, **dass** er gehen muß.

   b) Er hat nicht gestaunt, **dass** sich seine Nachbarn gegen ihn verschworen haben.

   c) Es hat ihn nicht erschüttert, **dass** sich jemand als Denunziant betätigt hat.

(46) a) He has not realised **that** he must leave soon.

   b) He is not amazed **that** his neighbours have conspired against him.

   c) It has not shocked him **that** somebody has denounced him.

This suggests that these *Wh*-clauses are factive declarative clauses with a *Wh*-indefinite in focussed position. Although *Wh*-clauses carry something like *'openness'* as a lexical feature, openness is not a property of the truth-value of the whole clause. It rather applies to the individual bound by the *Wh*-operator, i.e. the variable. Therefore we assume that the operator forcing *openness* onto S must be directly introduced by the merger of the *Wh*-item with its specific lexical entry.

FORTMANN (1994) also notes that the relevant difference between *Y/N*-Qs and *Wh*-Qs is the definition of openness of presupposition. In the first case, the event instantiation is open (which corresponds to an undefined truth value), in the second one it is the Θ–reference (which corresponds to a variable).

(47)

	Θ – reference	event instantiation
Y/N-Q, ***if*** – clause	**+**	**−**
Wh-*Q*	**−**	**+**
declarative, that clause	**+**	**+**

What should be added is that *Wh*-Qs also represent an open event instantiation. This is evident since the reference to an empty set {} is impossible.

(48) a) What did Paul say? Nothing.

   b) $\Rightarrow$ $\neg\exists e\neg\exists x[said(e,Paul,x)]$

   c) $\not\Rightarrow$ $\exists e\neg\exists x[said(e,Paul,x)]$

Since it is simply not possible that an event takes place where someone says anything which is *nothing*, one has to allow for the openness of event instantiation also with *Wh*-Qs. In the notation of BRANDT & al. (1992), which is also used by FORTMANN (1994), the twofold openness would have to be formalised like:

(49) [OPEN x [e OPEN[INST [SAY (PAUL, x)]···]

FORTMANN's analysis does not explain <u>why</u> open Θ-reference triggers interrogative reading however. Open reference is also there with indefinite pronouns, and they never do so.

(50)   Something annoyed him. (≠ What annoyed him?)

We assume that fronted *Wh* is nothing but a *focus operator* for open values/ variables that inherently has wide scope, like the distributor discussed in 1.2.2.9. In any case is not directly correlated to an exploration. This operation restricts the exploration logically to the focussed variable through binding by *Wh*.

(51)   a) He was asking [if anybody did not listen] .   (maximal focus)

       b) He was asking [who] did not listen.   (focus through binding)

A *Wh* -position in embedded clauses can also be licensed by a factive predicate. In this case the reading is not explorational. The asymmetry of focus/non-focus is also there in factive clauses however. The *Wh*-item is, in this case, interpreted as an indefinite in Gm., and we would claim that this is true also for the fronted *wh*-item.[126]

(52)   a) Er hat gemerkt, **dass** da wer nicht zugehört hat.
          he – noticed – that – there – someone – not – listened – has

          (⇒ factive clause, – focussed x)

       b) Er hat gemerkt, **wer**$_i$ da **x**$_i$ nicht zugehört hat.
          he – noticed – who – there – not – listened – has

          (⇒ factive clause, + focused x)

Thus, if we term an IF in the CDom *Wh*, it must be an operator specific to open values which always binds a variable and can also be licensed by some factive predicates. It is an operator with inherently wide scope, like the distributor. Besides, there must be the IF specific to interrogatives, which we take to represent a specific function in C°. *Wh*-items can interpret *Q*, but *Wh* is not the *relevant* IF for the interpretation as an interrogative. We claim that only if *Q* (*nonveridicality*) is licensed as modal IF of a clause, can it be interpreted as explorational.

---

[126] Other factive predicates cannot focus an individual in the embedded clause, therefore an open value of a variable can only be interpreted as indefinite. In formal terms this means that they do not license a *Wh* F in SubC.

(i)   a) Er hat bedauert, daß da wer nicht zugehört hat.   (⇒ factive clause, – focus)
          he – has – regretted – that – there – someone – not – listened – has

     b) *Er hat bedauert, wer da nicht zugehört hat.   (⇒ focus not licensed)
          he – has – regretted – who – there – not – listened – has

Whereas in MCs the functional type is pragmatically selected and the IF is licensed by the force of illocution, V_{MC} determines the type of SubCs by the selection of an IF. As noted above, SubCs are dependent propositions whose modal F Q like C_{SUB} must be structurally licensed. Therefore, embedded *Wh*-Qs are only possible where *if*-clauses are also licensed.

(53) a) Er fragt, **ob** wer das Radio repariert hat.
        he –asks – if – someone – the – radio – repaired – has

      b) Er fragt, **wer** das Radio repariert hat.
        he – asks – who – the – radio – repaired – has

A soon as V_{MC} does not license Q, the *Wh*-clause does not have the functional potential of an interrogative.

(54) a) Er berichtet, **dass** wer das Radio repariert hat.
        he – reports – that – someone – the – radio – repaired – has

      b) *Er berichtet, **ob** wer das Radio repariert hat.
        he – reports – if – someone – the – radio – repaired – has

      c) Er berichtet, **wer** das Radio repariert hat.
        he – reports – who – the – radio – repaired – has

In SubCs there can be a focus position independent of Q, if they are selected by V licensing a Foc F. Only if such a V also subcategorises for a Q F in C°, is the embedded *Wh*-C interpreted as indirect Q, where the *Wh*-item also interprets the F *'Q'*. This assumption is supported by contrastive data from Dutch, where *Wh* and Q can have separate representations, but only if the *Wh*-clause is interrogative:

(55) a) Ik vraag me af wie (**of**) (dat) taalkunde studeert   (Dt.)
        I − ask − me − of − who − if − linguistics − studies

      b) Ik wist wie (***of**) (dat) taalkunde studeert.
        I – know – who – if – linguistics – studies

      c) Het is ongelooflijk wat (***of**) een mooi weer het gisteren was.
        it − is − amazing − what − a − nice − weather − it − yesterday − was

Further evidence comes from *Wh*-Qs with emphatic markers that can only modify fronted *Wh*-items in interrogatives (PESETSKY 1987). This is true for both Eng. and Gm..

(56) a) What the hell did Sue give to whom?

      b) *Who did Bill meet where the hell?

(57) a) Was zum Teufel tust Du da?
        what – to-the – devil – do – you – there

        'What the devil are you doing?'

b) *Er hat da was zum Teufel getan?
   he – has – there – what – to-the – devil – done

   'He has what the devil done?'

The emphatic expression seems to be correlated to the first position, which we assume to specify *Q*. From this it should follow that these expressions are only licensed in *Wh*-SubCs embedded by V licensing *Q*, which is in fact true.

(58) a) Who wondered who the hell bought this book.

      b) Who believed who (*the hell) bought this book.

                                                          (cf. PESETSKY & TORREGO, *to appear*)

(59) a) Er fragte sich, wer zum Teufel das lesen würde.
         he – asked – himself – who – to-the – devil – this – read – would

      b) Er wußte bereits, wer (*zum Teufel) das lesen mußte.
         *he – knew – already – who – to-the – devil – this – read – must*PST

The different semantics of "real" *Wh*-Qs and non-*Q Wh*-Cs also has a syntactic reflex in Eng. varieties. Belfast Eng. (cf. HENRY 1995) has V-fronting in embedded *Wh*-Qs. This is not true for non-*Q Wh*-SubCs (MCCLOSKEY 1992).

(60) a) She asked who had I seen.

      b) *He admitted what did he buy.

The same conditions exclusively hold, if NPIs in *Wh*-SubCs are licensed.

(61) a) He asked who bought anything.

      b) *It is obvious who bought anything.

Only in the presence of the *Q*-F, which yields PF-interpreted of FOC by V in Belfast Eng. and which licenses NPIs, *Wh*-Cs are embedded explorations. Otherwise, they are declaratives with a *Wh*-focus operator binding a variable. Therefore *Wh*-SubCs can share the context both with ***if*-** and ***that*-** clauses.

3.3.3.   *Assumptions about Lexical Entries for* OPEN *Operators*

The sentence with the embedded *non-interrogative Wh*-clause

(62)   It shocks me, who has denounced me.

logically means something like:

(63) a) shock'(λw$\lambda\phi\forall$x*$\exists$x$\exists$t[x*$\subseteq$x&$^{\otimes}$person'(w,x)&ϕ(w,x*)$\rightarrow$t<t°&denounce'(w,x*,x°)],x°)

   b) 'the class of possible worlds w for which it is true that if an atom x* is in the set
      of persons x that are φ, then there is a time t when x* denounced me in w,
      shocks me.'

φ is the property common to the informers – which may be rather general but can be rather specific. The sentence could be paraphrased as

(64)   That all the persons that are φ denounced me shocks me.

Note these sentences have distributive reading of the *Wh*-term. Many *Wh*-items are ambiguous between distributive and collective readings (cf. PAFEL 1999). If there are several, the *Wh*-item with the widest scope is always a distributive quantifier (cf. PAFEL 1997, 308ff). This means we also merge the distributor. A distributor merged in SPEC/C might then be an independent reason for *Wh* fronting.

(65)   What did he give to whom?

On the other hand, *Wh*-sentences containing universal quantifiers can be ambiguous, although *Wh* is fronted. $\forall x$ can have wide scope if it is read as distributive.

(66)   What did every student read?

And, of course, there are non-distributive wh-items that are also fronted.

(67)   Who will carry the coffin?

This suggests that there are different kinds of implicit quantifiers in the left periphery. Some may be specific to scope relations between *Wh*-items (cf. PAFEL 1997, 325). This might even yield an explanation for multiple *wh*-fronting, but at the moment we cannot go into this more deeply. For the time being we restrict ourselves to the treatment of distributive *wh*-quantifiers.

        The reason why we need a λ-operation on a set of possible worlds in the logic of *who* is the openness of reference, which does not implement a truth value and thus cannot produce an extension for $x^* \subseteq x$. Therefore *who* can only have intensional reading, which means a denotation generalised over possible worlds. Thus we assume a rather complex lexical entry for *distributive who*:

(68) $\lambda\pi\lambda\varphi\lambda x\lambda w\forall x^*[x^* \subseteq x \& ^{\otimes}\text{person}'(w,x) \& \varphi(w,x^*) \rightarrow \pi(w,x^*)]$

Both the *denunciation* and the *shock* have an extension in (62) however; the extension of *who* in S is defined through the biconditional restriction of the possible values for λφ and λπ. If this assumption is right, then the semantic markedness of S is manifested through the presence of the operator *who* without denoting an interrogative. Interrogatives must be marked by an additional IF like *Q*.

Since we agree with ROBERTS & ROUSSOU (2002) that there are only positive values of F encoding markedness, we assume that *declaratives* do not need a modal IF to be interpreted. The CP is sufficiently defined if not marked by a modal IF. Thus the markedness of *DCL* equals [C], *Q* is [C + *Q*]. *Q* must be an operator on the truth value of the proposition, such that the whole proposition lacks an extension. In the next paragraph we will look more closely into its semantics, which we assume to introduce a logical relation between the actual world $w°$ and a set of possible worlds $w*$ through a proposition p, like:

(69)   a) $\lambda p \lambda w*[p_{w*} \leftrightarrow p_{w°}]$

       b) 'the class of propositions p in the class of possible worlds $w*$ equaling the extension of p in $w°$, such that p is true'

This general quantification over the set of possible worlds of p allows us to interpret p as 'open' without assuming a primitive operator like OPEN, since we do not presuppose an extension of any of the predicates included in p. *Wh*, however, is an IF operating independently of the modal IF in C°. It is a quantificational DP with wide scope. In the sentence above it operates on a variable in a clause not marked as an open proposition by *Q*.

Evidence for *wh* and *Q* constituting two different IFs also comes from Chinese and Japanese. As shown above (p.220), Y/N-Qs and *Wh*-Qs have different PTCs in Chn.:

(70)   a) Wo xiang zhidao, ta du yüyanxue **ma**?   (Chn.)
        I − want − know − he − read − linguistics − Q

        'I wonder if he studies linguistics.'

     b) Shei dagai   du   yüyanxue **ne**?
        who − probably − read − linguistics − Wh

        'Who studies lingustics, probably?'

If we assume that Chn. has a head final CP (which is, in our view, suggested by the PTCs), this is direct evidence that the content of CP is not the same in the two types of interrogatives. We assume that Chn. ***ma*** represents the lexical entry of an operator over worlds like (69), whereas ***ne*** might represent *Q* and the scope feature of *Wh* at the same time.

In Japanese, another *Wh*-in-situ language, *Q*-SubCs have a *Q*-CMP ***douka*** that cannot be used in *Wh*-SubCs.

(71) a) Watashi wa [CP kare ga benkyo suru   no [127]   ka] **douka o** shira-nai.
          *I − TOP − he − NOM − study − do*PRS *− CMP − Q − CMP − ACC – know*NEG

"I do not know if he studies."

  b) Mary wa [FocP [CP [VP **dousite** barentain dei ni John   ga   jibun ni
      Mary − TOP   − why − Valentain − day − LOC − John − NOM − her − DAT −

hana   o   syottu   motteki-ta] no   ka] to]   omo-u
*flower − ACC − not-at-least-sts − bring*PST *− CMP – Q − CMP − wonder*PRS

"Mary wonders why John not at least sometimes brings her flowers for Valentine's day".

Although this data is quite puzzling because of the two CMPs in (a), it is evident that the content of the CPs must be different.

Indirect evidence comes also from Gm. and Eng.: *Q* in SubCs must always be licensed by s-selection, therefore external Θ-clauses can never be ***if***-clauses. Nevertheless there are external *Wh* clauses.

(72) a) es hat alle erschüttert, **dass** sich jemand als Denunziant betätigt hat.

      it − has − shocked − everybody − that − himself − somebody − as − informer − occupied − has

  b) es hat alle erschüttert, **wer** sich hier als Denunziant betätigt hat.

      it − has − shocked − everybody − who − himself − as − informer − occupied − has

  c) *es hat alle erschüttert, **ob** sich hier jemand als Denunziant betätigt hat.

      it − has − shocked − everybody − if − himself − somebody − as − informer − occupied − has

Again, it is the same in Eng..

(73) a) It has shocked everybody **that** somebody committed denunciation.
  b) It has shocked everybody **who** committed denunciation.

---

[127] The obligatory *Q*-PTC ***ka*** is regularly combined with the CMP ***no***.

c) *It has shocked everybody **if/ whether** somebody committed denunciation.

Last but not least, relative clauses and *Wh*-exclamations in Eng. and *Wh*-imperatives in Gm. (cf. REIS 1992, WRATIL 2000, 92ff) imply that a fronted *Wh*-element does not directly correlate to the modal type of a sentence.

(74)   a) What he said is exactly what I think.

     b) What beautiful weather we have today!

     c) Was überleg mal, dass Erna wohl denken wird!   (WRATIL 2000, 94)
        what – think-over – once – that – Erna – well – think – will

        "Consider what Erna might think!"

3.3.4.   What is 'Q'?

We now want to take a closer look at *Q* and also specify why we think that it is a semantic rather than a syntactic IF.

First we present two possible transparent LFs for *Wh*- and *Y/N*-Qs according to the assumptions made by STECHOW (1993, 74ff, 77ff). They differ mainly in the content of SPEC/C, which contains two different types of operators. A *Wh*-operator is a function containing a variable that is identical to a variable in the proposition (which then has to be regarded as unsaturated).

(75)   "Who smiles?"
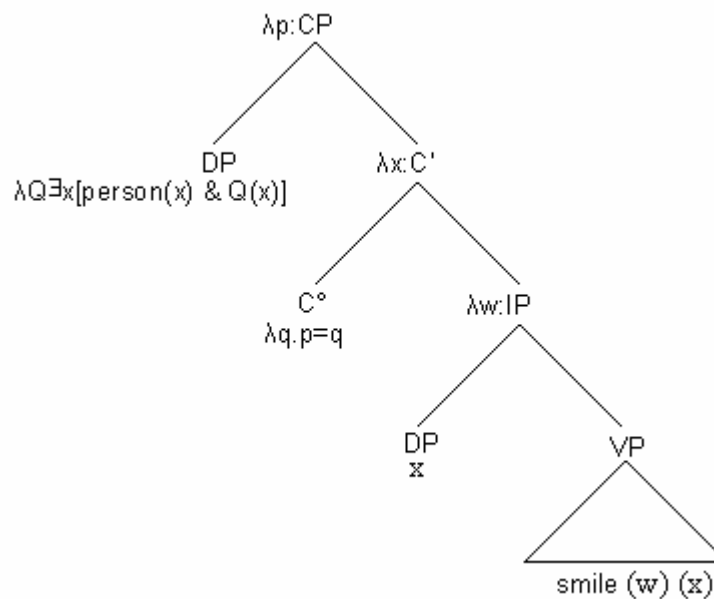
C° contains an equation with a second predicate variable referring to the unsaturated proposition. Thus, STECHOWs structure roughly reads as follows:

(76) λpλQ∃x[person(x) & *Q*(x) & λx(λq.p=q (λw.smile_w(x))])

'the class of propositions *p* is about the class of predicates Q where there is an individual x, x a person with the predicate Q, and the class of individuals x smiles in the class of propositions *q* about the class of worlds where x smiles, which are identical with *p*.'

Although this treatment of the *Wh*-operator and its interaction with the individual variable in the proposition *q* allows a consistent and compositional analysis of the logic of *Wh*-Qs, we have some doubt as to the feasibility of the syntactic account − especially if we compare the content of C° to that of C° in Y/N-Qs. There, STECHOW (1993) has an operator in SPEC/C containing the two predicate variables *q* and *p*. The formula interpreting interrogativity is fully encoded by this Y/N-operator in SPEC/C. However, he both remains silent about the category of this operator and denies the existence of any semantic content in C°. In contrast to *Wh*-Qs, there is a purely syntactic F [*Wh*], which is, in our view, a rather unsatisfactory proposal. For illustration, we replace his example (he uses the predicate RAIN, compare STECHOW 1993, 77) with an equivalent containing the predicate SMILE.

(77) a) Does Charlotte smile?

b) λpλq([q=p ∨ q = λw (¬p(*w*)) & p((smile(*w*,Charlotte))]

c) 'the class of propositions *p* and the class of propositions *q* such that *q* either equals *p* or the class of worlds *w* of ¬*p*, and *p* is the set of *w* where Charlotte smiles.'

(78)
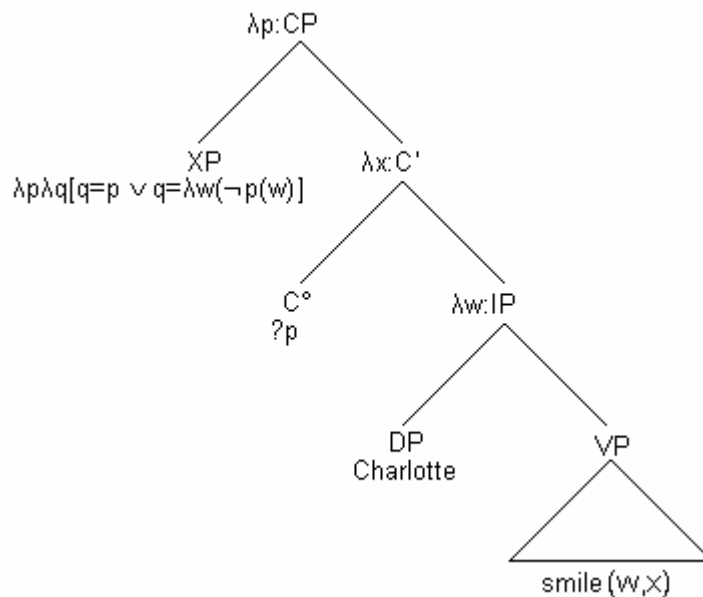
This builds on assumptions by KARTTUNEN (1977) (cf. also HAMBLIN 1976, 256; COMOROVSKI 1996, 6) which is also implied in the preliminary semantic analysis of openness we used above (p. 233ff), where the semantics of Qs is equivalent to the set of possible answers.

(79)   a) Is it raining?

       b) $\lambda p\ [\ p = rain \lor p = \neg rain\ ]$

       c) {it is raining; it is not raining}

Following this, LOHNSTEIN (2000, 187) suggests that such a logical representation of *Y/N*-Qs is a *bipartition* of index-dependent propositions, such that possible answers are valid in either of the propositions in one index of worlds and times $i = \langle w,t \rangle$.

(80)   a) Is it raining?

       b) $\pi = \{\ \lambda i\ [\ rain\ (i)\ ]\ |\ \lambda i\ [\ \neg rain\ (i)\ ]\ \}$

'*to smile or not to smile'*, that's the question in (77). We think we can propose a concept where Y/N-Qs do not need an empty operator in SPEC/CP, and where *Wh*-Qs differ from Y/N-Qs exactly by having an operator there. The nature of C°, however, is exactly identical in both kinds of interrogatives and semantically encodes the missing truth-value of *p*.

First we want to make our suggestion more concrete by replacing the formal F *Q* of interrogatives by a more primitive concept of semantic IFs which we assume to belong to a group of global, not necessarily C-specific, Fs. We propose a formalism based on the semantic concept of *veridicality* adapted to syntax by GIANNAKIDOU (1998, 106ff).

(81)   a) A propositional operator Op in a given context c is *veridical* iff it holds that:
           $[\![\ Op\ p\ ]\!]_c = 1 \rightarrow [\![\ p\ ]\!] = 1$

       b) A propositional operator Op in a given context c is **nonveridical** iff it holds that:
           $[\![\ Op\ p\ ]\!]_c = 1 \ -\!/\!\!\rightarrow [\![\ p\ ]\!] = 1$

       c) A nonveridical operator is **antiveridical**, iff it holds that
           $[\![\ Op\ p\ ]\!]_c = 1 \rightarrow [\![\ p\ ]\!] = 0$

Negative polarity items (NPIs) in Eng. are *anti-licensed by veridicality* (cf. GIANNAKIDOU 1998, 171f). This means that they appear only in nonveridical contexts. Only a *nonveridical* predicate licenses the NPI **any**, as do antiveridical ones, which constitute a proper subclass of the nonveridical operators.

(82)   Linguistics is *(**not**) any hobby.

The standard *antiveridical* operator *NEG* inverts the polarity of a predicate and thus licenses the NPI. Through inheritance by CP, the proposition is assigned the truth-value 0.

(83)   a) Linguistics is fun:
          p = [[fun (Lx)]] = 1

         b) Linguistics is **not** fun:
          p = [[fun (Lx)]] = 0 (but derived from the SD of [[¬fun (Lx)]])

We suggest regarding nonveridical operators as representation (and PF-interpretations) of items containing the IF [nonveridical] with the subtype [antiveridical]. To be uniform with the notation used so far, we suggest symbolising the IF [nonveridical] as *Q*, the IF [antiveridical] as *NEG*. Like all semantic IFs, they are lexical entries for a specific logical function (which we will specify below). [128]   Roughly speaking, they have the effect of changing the polarity of the part of the structure they c-command. Therefore, NPIs are always licensed only in the part of the structure c-commanded by the operator.

(84)   a) Linguistics is not any hobby.

         b) *Any hobby is not like linguistics.

Since ([[p]] = 0) is interpreted through inheritance and not through structural c-command of *p* through *NEG* (cf. above, p. 81), an NPI is not licensed in subject position. In *Y/N*-Qs, however, NPIs are licensed even in subject position.

(85)   Is any hobby like linguistics?   −/→ there are (no) hobbies like linguistics.

---

[128] We want to emphasise that, in our view, these IFs represent logical primitives and are not only syntactical markers operating on propositions and verbal predicates. Just as *NEG* has a lexical representation in items like ***not, no***, ***never***, ***none*** and ***nothing***, *Q* has it in words like ***possibly*** and ***how***. Both also have their reflexes in morphology. *NEG* can be lexically expressed by prefixes.

(i)   **un**known, to **de**valuate

Q is an F neutralising the presupposition of what is in its scope. It can be in I°, syntactically represented as *conjunctivus potentialis* in Gm. .

(ii)   Er behauptet, er **habe** es gewusst.   −/ → [[He knew it]] = 1
        *he – claims – he – has*SJV *– it – known*

So can *NEG*, represented as *conjunctivus irrealis*.

(iii)   Ich wünschte, ich **hätte** es gewusst.   → [[I know it]] = 0
        *I – wished – I – had*IRR *– it – known*

It can be concluded that a nonveridical operator above IP changes the polarity of the whole proposition. There is no reason to assume that a Y/N-operator has to operate from SPEC/C. *Nonveridicality* can, according to our account, be represented in syntax as an IF *Q* syncretised with FOC in C°. The function represented by the IF *Q* is a semantic operator, even if it is syntactically a head. Therefore the CMP ***if*** *is a syntactical head but also a semantical operator* (BRANDNER 1994, 163). V° or I° have the same function if they work as *Q** (PF-interpretation of *Q*) in C°. In addition, one can assume that triggering rising intonation is a part of specific PF-interpretation of *Q*. An MC containing *Q* in C is interpreted as *interrogative.* As a result *p* cannot be evaluated, which is the basis of its interpretation as *Y/N-Q.*

(86)   Did you know it?   ⟦ You knew it ⟧ = 1 ∨ 0

Why is this so? We follow PAFEL (1997, 310f; 1999) in assuming that a function operates on the truth variable $\mathbb{B} = \{0, 1\}$ in Y/N-Qs in some way. This semantic operator imposes *nonveridicality* on the structure in its scope – which corresponds to the structure it c-commands in SD. The operator represented by *Q* in C° we notate as

(87) $\lambda\varphi\lambda w^*[\varphi(w^*)\leftrightarrow\varphi(w°)]$

The *possible world* that is related to the actual world $w°$ through the biconditional we notate as w^*, basically since further below we want to give it a parallel analysis to our notation of event time as t^*. A Y/N-Q is a function over possible worlds[129] (cf. BÄUERLE & ZIMMERMANN 1991, 339). The proposition *p* has thus two possible extensions $\mathbb{B} = \{0,1\}$, which means that it is a function without a fixed truth value.

(88)
$$f(w^*) = \begin{cases} ⟦\,\varphi\,⟧^{w^*}, \text{ if } ⟦\,\varphi\,⟧^{w^*} = 1 \\ ⟦\,\neg\varphi⟧^{w^*}, \text{ if } ⟦\,\varphi\,⟧^{w^*} = 0 \end{cases}$$

The sentence (77) discussed above (p. 249) we therefore analyse as follows:

(89)   a) Does Charlotte smile?

---

[129]   This basically parallels a proposal made by GROENENDIJK & STOKHOF (1984; in BÄUERLE & ZIMMERMANN 1991, 346ff) .

b) $\lambda w^*[\text{smile}(w^*,\text{Charlotte})\leftrightarrow\text{smile}(w°,\text{Charlotte})]$

c) 'the class of worlds where 'Charlotte smiles' is true iff 'Charlotte smiles' is true in $w°$ (and where it is false iff 'Charlotte smiles' is false in $w°$).

Because of the two possible extensions of $[[\varphi]]^{w^*} = 1 \vee 0$, this is the same as an operation on the truth value. On these assumptions, we can compute the following structural description (tense neglected):

(90)

$$\text{CP} = \lambda w^*[\text{smile}(w^*,\text{Charlotte})\leftrightarrow\text{smile}(w°,\text{Charlotte})]$$

$$\text{C}° = \lambda\varphi\lambda w^*[\varphi(w^*)\leftrightarrow\varphi(w°)]$$

$$\text{IP} = \text{smile}(w°,\text{Charlotte})$$

$$\text{DP}\ \text{Charlotte}$$

$$\text{VP} = \text{smile}(w°,x)$$
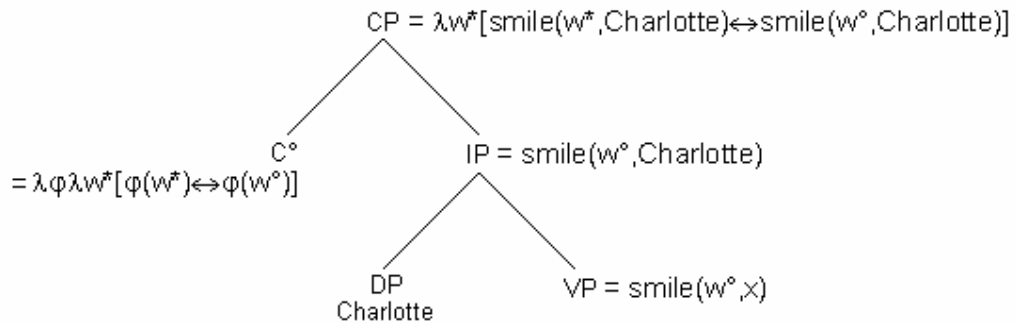
Note that above we analysed A-movement as procrastinated saturation, such that the DP *Charlotte* is merged in SPEC/I in Eng.. Because of structural economy, SPEC/C is not projected, since there is no item that has to be merged there. From this structure, the structure of the *Wh-Q* only differs by having an additional operator in SPEC/C, which, in this case, is at the same time a distributive quantifier. Nonveridicality is represented by the lexical IF Q in C°, as it is in the Y/N-Q. Given our assumptions about the lexical entry of distributive 'who' on p. 245 and the classification of interrogative semantics as sets of possible answers, the logic of a *wh*-interrogative should be represented by the following formula:

(91) a) Who smiles?

b) $\lambda w^*\forall x^*\exists x[x^*\subseteq x\&^{\otimes}\text{person}'(w^*,x)\rightarrow\text{smile}'(w^*,x^*)]$
$$\leftrightarrow[x^*\subseteq x\&^{\otimes}\text{person}'(w°,x)\rightarrow\text{smile}'(w°,x^*)]$$

c) 'every atomic part x* for which it is true that if it is in a set of persons in the class of possible worlds w^*, then it smiles in w^*, exactly if it is true that if it is in a set of persons in the actual world $w°$, then x* smiles in $w°$'

The way the structural description of this is generated might be as follows: The element saturating the argument position of the predicate is an indefinite description like

(92) $\exists x[^{\otimes}\text{person}'(x)]$

The following operator binding the individual and introducing a conditional relation is merged in SPEC/C:

(93)   λφλπλw*λx∀x*[x*⊆x&π(w*,x)→φ(w*,x*)]

Together with the interrogative function, the structural description looks as follows (tense neglected; every oparational step is shown by the intermediate nodes):

(94)

CP =
λw*∀x*∃x([x*⊆x&®person'(w*,x)→smile'(w*,x*)]↔[x*⊆x&®person'(w°,x) →smile'(w°,x*)])

                    DP   C' = λw*∃x([®person'(w*,x)&smile'(w*,x*)]
                                                    ↔[®person'(w°,x)→smile'(w°,x*)])

λφλπλw*λx∀x*[x*⊆x&π(w*,x)→φ(w*,x*)]   C°   IP = λw*∃x[®person'(w*,x)&smile'(w*,x)]

                          λφλw*[φ(w*)↔φ(w°)]   DP   VP = λxλw*[smile'(w*,x)]

                                              λw*∃x[®person'(w*,x)]

This way of analysing the structure of *wh*-clauses has the same advantages as our model of ambiguous quantification presented in 1.2.2.9: First, the item inserted in SPEC/IP in order to saturate the Θ-grid is not the operator introducing the quantificational function. Its merger in its scope position does not only create a new position independently from the Θ-position without movement, it also allows quantification as a simple functional application following the application of the predicate function (λx[smile'(x)]). Parameterisation of '*wh*-movement' can again be explained as parametric PF-interpretation of the chain between the operator and the Θ-position (which are in a WFD due to the variables common to them) either at the foot (→ *wh*-in-situ) or at the head of the chain.

An additional IF that may be contained in C° is the IF Foc interfacing with pragmatics. The absence of the *Q*-operator in C° of those *WH*-clauses that presuppose the predicate φ (cf. p. 233) is responsible for the cases of V selecting *that*- and *Wh*-clauses but not *if*-clauses. It is simply a matter of subcategorisation: Those V do not subcategorise for [C°+*Q*].

Note that our concept of a nonveridical operator in C° is able to catch aspects of interrogatives that cannot be explained by the traditional concept of *possible answers*. As noted for *Wh*-Qs by HIGGINBOTHAM (1993), the *possible* answers should also include *incomplete* answers. In order to account for all possible answers, he introduced the notion of *partitions* of sets of answers. We repeat his simple example:

(95) *Q*: How many arrows hit the target ?

(96) a) *P*1: { seven }

b) *P*2: {sagittarius A hit twice; sagittarius B hit once; s. C hit four times; . . . }

c) *P*3: {nobody has shot yet}

d) **P*4: { isn't it hot here }

According to HIGGINBOTHAM (1993), only *P*1 contains the complete answer. *P*2 contains a set of possible answers that are not complete. *P*3 means rejection of the question, and only irrelevant answers (*P*4) are excluded. Each partition *P* is either a valid answer or a total rejection and thus a possible answer. Since it is not as restrictive or as specified as the notation [p∨¬p], our concept does *not exclude* partial answers from the logic of Y/N-questions. What *nonveridicality* denotes is that a truth value is not implied.

(97) Is it raining? $\quad\quad\quad\quad\quad\quad\quad\quad -\!/\!\!\to [\![\,\mathrm{rain}(w°)\vee\neg\mathrm{rain}(w°)\,]\!] = 1$

Thus *nonveridicality* is actually not an IF telling us that the proposition *p* might be either true or false, which makes us interpret it as open, but in fact our information is that there is a proposition *p* relevant for defining an extension in $w°$, which might be either 1 or 0. Therefore the two following questions do not have exactly identical implication (although they refer to the same sets of possible answers):

(98) a) Did Henry win the tennis match?

b) Did Henry lose the tennis match?

Winning and *losing* are predicates that do not have proportional truth intervals. This means that the proposition

(99) Henry won the match within three hours.

is neither true at every point of time within the three hours of the reference interval *i*, nor only for the right limit t_R of it. The winning of a match is, in fact, an

accumulation of subevents of winning and maybe losing with the final result of winning more than losing. All of the events have truth conditions of their own and may be summarised within arbitrary defined extensions. Therefore these predicates allow partitions of answers. If the possible answers were only

(100) {Henry won; Henry lost }

, the logic of (a) and (b) would be identical. The *partial answers* are not equivalent with respect to their relevance, however.

(101) He won the first set.

is information relevant through *inclusion* in (a), through *exclusion* in (b).

In our account, the logic of a Y/N-*Q* is not simply

(102) $\lambda\varphi[\varphi\vee\neg\varphi]$

but

(103) $\lambda\varphi\lambda w^*[\varphi(w^*)\leftrightarrow\varphi(w^\circ)]$

What is projected to C° in interrogatives is not a function implying either φ or $\neg\varphi$. It is a *nonveridical operator* quantifying over $\mathbb{B}$ and introducing an argument w^* such that all w^* are either compatible or incompatible with an extension w° by means of a relation defined by a function φ specific to S. This allows accounting for the specific relevance of partial answers not only to *Wh-*, but also to *Y/N-*Qs.

What is central to our claims about the feature content of the CP of interrogatives is that they cannot be assigned a truth value because of the generalised quantification over the set of possible worlds w^* from C° in combination with the biconditional correlation with w°. Because of the two possible extensions of $[[\varphi]]^{w^*} = 1 \vee 0$, this is the same as an operation on the truth value. This is what characterises interrogatives, whereas the generalised quantification over the variable by the *wh-*operator, which leads to the openness of an argument (respectively an adjunct), is an autonomous operation.

3.3.5.   The Cooperation of **Wh, Q** *and* F<small>OC</small> *in* **C°**

As argued in 3.3.2, we assume that fronted *Wh* is nothing but a *focus operator* for open values/variables that has inherently wide scope. If we relate this to our

analysis of V2 clauses above, we find that now there is more evidence for syncretism of IFs in C. We analysed V-fronting as the lexical marking of sentence focus through lexicalisation of FOC (cf. 2.1.2), which can be notated by labelling of C° as FOC°. If the head FOC° carries an additional F Q, a V1 clause with maximal focus[130] has the Y/N-interpretation. Note that V1 interrogatives differ from V1 declaratives only through rising intonation[131]. We assume that Q triggers specific PF-interpretation by intonation.

The SPEC of this position, however, like in declaratives, has the potential to host different kinds of elements – which obviously changes the focus configurationally. Like in V2 declaratives, a BGR constituent can be moved out of the focus, which parallels topicalisation.

(104) Peter hat [DOSTOJEWSKY gelesen] (FOC)?
      P. – has – D. – read

      'Peter has read DOSTOJEWSKY?'

This has been called *assertive question* (cf. above, p.230) since it has the appearance of a mixed type of declarative and interrogative (cf. ALTMANN 1987, 48). For our account, it is no problem to analyse this as focus restriction through topicalisation. Note that this still has the reading

(105) a) $\lambda\varphi\lambda w^*[\varphi(w^*)\leftrightarrow\varphi(w°)]$

      b) $\approx$ (the proposition is true in w^* if it is in $w°$).

However, by giving it a *theme,* it is now referring to a context – which is identified by the subject in this case. In natural language, this is interpreted as an assertive question. Things are different, however, if a constituent from FOC is singled out at the front:

(106) DOSTOJEWSKY (FOC) hat Peter gelesen?
      D. –has – P. – read

      'Is it Dostojewsky Peter has read?'

In this case it is implied that there is a set of possible worlds where Peter read something.

---

[130] I.e. the basic SD whose information structure might parametrically be modified through scrambling, intonation or fronting.

[131] See, however, fn. 72, p.153 and the relevant context.

(107) $\exists w^*\exists y(read(w^*,Peter,y)])$

The focus of the interrogative is fixed to *Dostojewsky* by the specification of FOC°
through procrastinated saturation. We assume that in this case, FOC° is
additionally marked by an existential quantifier over possible worlds also PF-
interpreted by *Dostojewsky* (which are restricted by fixation of the variable *y* to
what can be referred to by *Dostojewsky*):

(108) $\lambda w^*[read(w^*,Peter,Dostojewsky)]\leftrightarrow\exists w\exists y[read(w,Peter,y)]$

This sheds a new light on the constellation of *Q*-PTCs and fronted elements in
Rus. and Finnish. V fronting takes place only in order to mark *maximal focus
projection* (cf. LUUKO-VINCENCZO 1987, RUDNITSKAYA 2000). The modal IF
responsible for clause mood, however, is represented by the Finnish *Q*-PTC ***kö/
ko***[132] and Rus. ***li*** respectively.

(109) a) Piti-**kö** Matti omenista?   (maximal focus)
         likes – Q – Matti – apples

         'Does Matti like apples?'

     b) Uznal **li** Ivan Petra?   (maximal focus)
         recognised – Q – John – Peter

         'Did John recognise Peter?'

If only one constituent is to be focussed, it is fronted to interpret FOC and V stays
in situ.

(110) a) OMENISTA-**ko** Matti piti?   (object focussed)
         apples – Q – Matti – likes

     b) MATTI-**ko** piti omenista?   (subject focussed)
         Matti – Q – likes – apples

     c) Aninu **li** knigu on prines?   (object focussed)[133]
         Ann's – Q – book – he – brought

         'Is it Ann's book he brought?'

---

[132] The alternation between ***kö*** and ***ko*** is due to phonological processes which we do not want to
     go into here.

[133] There is a further process involved resulting in the PTC not following the first constituent but
     in fact the first word. This can be explained as *prosodic inversion* of the syntactically clause
     initial *Q*-marker and the first word of the focussed constituent following it; cf. RUDNITSKAYA
     (2000).

Focus fronting of constituents does not conceptually differ much from focussing a *Wh*-element, i.e. an item with open reference, except that the latter binds the unsaturated part of the proposition by quantification. Thus, it represents at the same time the *Wh*-F, i.e. the operator binding the variable. We want to suggest that *Wh*-items can parametrically also PF-interpret the IF *Q*. The fronted *Wh*-item yields interrogativity of a specific kind through the wide scope of the quantificational *Wh*-DP. Therefore, there is no *Q*-PTC in *Wh*-interrogatives, where *Wh* interprets *Q*. Since V is fronted only under maximal focus, it is not in C° in *Wh*-Qs.

(111) a) Kuka (***ko**) opiskelee todennäköisesti lingvistiikaa?   (Fn.)
        who – *Q – studies – probably – linguistics

     b) Čto (***li**) Ivan kupil?   (Rus.)
        what – *Q – John – bought

That interrogativity in *Wh*-questions is interpreted by the *Wh*-operator rather than by *do-insertion* also gets support from Eng.. Assuming that do-insertion in *Wh*-clauses PF-interprets the F *Q* to mark interrogative mood is problematic for two reasons. Firstly, why is this F never separately interpreted in *Wh*-SubCs?

(112) a) *He wonders what did he not believe.

     b) *He wonders what if he not believed.

Secondly, why should *Q* not be interpreted in subject *Wh*-clauses which always lack *do-insertion*?

(113) a) *Who does believe that.

     b) Who believes that?

We assume that *Q* is interpreted by *Wh*. What V (respectively I) in C° interpret in *residual V2*, as it is there also in English, is not *Q* but Foc.

(114) a) Was hat Peter gelesen?
        what –has – P. – read

     b) What$_i$ has Peter read e_i?

The chain the fronted *wh*-item lexicalises is thus [*Wh*-Q-Θ*], whereas V or I in C realise [[Foc+C]*-I] in Eng. and [[Foc+C]*-[I+V]] in Gm..

     Since sentence focus does not need extension in subject initial clauses, there is no Foc F to be represented, and thus there is no *do*-insertion. *Wh*-items due to

their open Θ-reference can (but do not have to) interpret *Q*. Focus shift to a fronted quantifier is in our view only interpreted as interrogative if FOC is correlated with the relevant IF *Q*. All the other *Wh*-initial clauses do not have the functional potential of interrogative interpretation (cf. above, p. 248).

If we assume that [*Wh*+FOC]* is not a parametric option in Eng., we have a natural explanation of why *do-insertion* or AUX-fronting only have to take place there in *Wh*-clauses but not with topics, which can PF interpret FOC (cf. above, p. 149).

(115) a) Those books (*did) I read.
      b) What$_i$ *(did) you read x$_i$?

FOC must be interpreted by *do-insertion* or movement of AUX, if there is no *topic* interpreting the focus extension. The same happens if other fronted categories interpret a quantifier with inherently wide scope (which we assume frame *NEG* and *only-focus* do).

(116) a) What **did** he not believe?
      b) Never **would** he believe that.
      c) Only on Sundays **do** Londoners wear bowler hats.

It is possible that *Wh*-exclamatives like

(117) What nice weather we have today.

lack *do* for exactly this reason: There is no semantically interpreted *Q*- or *Wh*-F, but simply focus extension to the higher domain interpreted by the *Wh*-item that has the lexical feature of open reference independently. The same could in principal be achieved through other fronted items.

(118) a) Such nice weather we have today.
      b) Nice weather we have today.

What is important is that *nonveridicality* can not only imply either p or ¬p, but that it is unspecified enough to also question the reference of an open argument in *Wh*-Qs. This happens when the head where it is represented does not define the clause focus, i.e., when a *Wh*-variable is focussed in its SPEC, thus inverting the focus and thematising the proposition. The descriptive generalisation of this we have explicated above (p. 259). The semantic effect is that the non-evaluation

does not focus *p* but the fronted XP. But why? Consider a sentence expressing restricted nonveridical quantification like:

(119) When did it rain? $-/\rightarrow$ ⟦ rain ($w°$,t) ⟧ = 1

Since it is an operator binding the variable in the scope of *Q*, we do not have to wonder why *nonveridicality* affects it. Since *Q* also has scope over the whole sentence, the effect of *nonveridicality* is still that it cannot be evaluated whether the proposition [it is raining] is true at any time in the world of *p*. Nevertheless, neither *yes* nor *no* are appropriate answers. The reason is that they do not imply a quantified expression, which is the second condition on the sets of possible answers, which would be:

(120) a) P1: {only on Sunday; always; **never** }   (complete answers)
       b) P2: {it did **not** rain on Monday; on Tuesday; . . . }   (partial answers)

(121) a) When did it rain?
       b) $\lambda t^*\lambda w^*[\text{rain}'(w^*,t^*)\leftrightarrow\text{rain}'(w°,t^*)]$

Now the question is why quantified expressions like the following are not in the set of partial answers:

(122) *P2: {it rained sometimes; sometimes it did not rain}

The answer is that they do not fit the focus of the question. A sentence with a focussed element may be a valid answer to a question without it, but not the other way round.

(123) Did anything annoy him?
       a) ✓ Something annoyed him.
       b) ✓ DOSTOJEWSKY annoyed him.
       c) ✓ NOTHING annoyed him.

Interestingly, if the XP focussed in the interrogative has reference, it is even possible to give an irrelevant answer that leaves it open but would be pragmatically interpreted as *no*, even if it does not express that semantically. This must be explained by *pragmatic relevance* in the sense of GRICE's (1975, 45f) categories of the *cooperative principle* of conversation: The maxim 'Be relevant!' (i.e., the category of *relation*).

(124) DOSTOJEWSKY annoyed him?

a) *Something[134] annoyed him.

b) ✓ TOLSTOI annoyed him.

c) ✓ NOTHING annoyed him.

A *Wh*-interrogative requires focus on the expression replacing the quantified variable, which cannot be rendered by non-referential quantified expressions.

(125) What annoyed him?

a) *Something annoyed him.

b) ✓ DOSTOJEWSKY annoyed him.

c) ✓ NOTHING annoyed him.

In all questions, we interpret nonveridicality operating on the proposition, but what the set of adequate answers is depends on quantification over all variables and on the focus. It can in fact be [p∨¬p] if there are no *Wh*-quantifiers and the focus is maximal, but if the focus is restricted and especially in *Wh*-interrogatives, the possible answers are also further restricted. The sets of possible answers must include focussed referents which define the set of possible answers according to the set of possible referents in ⟨*w,t*⟩. Examples for logical representations of further *Wh*-Qs are then:

(126) a) Who reads this dissertation?

b) λxλ*w**[person(*w**,x)&read'(*w**,x,this-dissertation)↔read'(*w*°,x, this-dissertation)]

(127) a) P1: {Ian Roberts, Jürgen Pafel & Hans Kamp; **noone**}

((potentially) complete answers)

b) P2: {Ian; Jürgen; my sister won't; ... }   (partial answers)

Note that the possible answer ***noone*** can only be excluded by presupposition; the same is in our view true for Qs like:

(128) Who wrote this dissertation?

The semantic representation as

(129) λxλ*w**[person(*w**,x)&write'(*w**,x,this-dissertation)↔write'(*w*°,x, this-dissertation)]

is nevertheless possible, although there is no world for a complete answer that fulfils

---

[134] At least, if unstressed. The phenomenon that an indefinite may be focussed for emphasis of also leaving the reference open in an answer to a question has to be counted as a stilistic means

(130) a) *Nobody wrote this dissertation.

b) ¬∃w*∃x[wrote'(w*,x, this-dissertation)]

However, there are partial ones, e.g.:

(131) a) Dostojewsky did not.

b) ¬∃w*[wrote'(w*,Dostojewsky,this-dissertation)]

And suppose that dissertations could also be painted, one could even answer:

(132) Nobody. Peter painted it.

Thus, all evidence seems to support the assumption that all explorational clauses are marked by an operator interpreting an IF *Q* (= *nonveridical*) in the CP that is in a modal dependency with the predicate *V*. This dependency expresses an operation on the truth variable $\mathbb{B}$, which is in fact a generalised quantification of possible worlds. *Q* in C° can language specifically be PF-interpreted either by PTCs (which is according to our notation *Q**, i.e. lexical realisation), by *I* in C or by V, i.e. the foot of the chain PF-interpreting the modal dependency [*Q* –*I* – *V*] in C.

3.4. Licensing Modal Fs in SubCs – the Modal Dependency

3.4.1. Unselected embedded questions

We now turn to the question of how modal Fs are licensed in embedded clauses. Above we saw that modal IFs can be licensed through selection by $V_{MC.}$ Thus it seems that a verb is lexically specified through its selectional frame to license clauses with a specific F like *Q*, which could be notated as follows:

(133) ASK [V]
    c-selection: {CP, DP}
    s-selection: {Q}

However, the assumption of selection of a clause type according to lexical specification for these Fs does not seem to be observationally adequate. Compare FORTMANN (1994, 3):

---

however.

> Selection of a complement clause should be independent of semantic properties of the context, i.e. from harmony with other constituents of the matrix clause. This should be also true for V licensing both *[−w]-* and *[+w]-*complements.[135]

Licensing of embedded Qs can depend on *modality* and *polarity* of the MC however. This has been shown both for Gm. (cf. FORTMANN 1994) and Eng. (cf. ADGER & QUER 1996). Certain V not selecting Qs license ***if-*** clauses (***ob-*** clauses in Gm.) in the context of negative polarity.

(134) a) Julie mentioned that/ *if the bartender was happy.

b) **Did** Julie mention that/ if the bartender was happy?

c) Julie did**n't** mention that/ if the bartender was happy.

These 'unselected embedded questions' (UEQs) are licensed by the same elements as NPIs (cf. ADGER & QUER 1996).

(135) a) **Noone** mentioned **any**thing/ **if** the bartender was happy. (Negative Quantifiers)

b) **Only** Julie mentioned **any**thing/ **if** the bartender was happy.   ('only'-focus)

c) **If** Julie mentioned **any**thing/ **if** the bartender was happy, we could order another drink.   (Embedding Conditional)

d) We **refused** to mention **any**thing/ **if** they had the keys. (Adversative Predicates)

e) **Without** mentioning **any**thing/ **if** they had the keys, there's nothing we can do.
                                                                                ('without' clauses)

Thus, the ***if*** − complement seems to be not only licensed by selection, but also when it is in the scope of semantic licensers. The embedded clause must be c-commanded by this licenser.

(136) a) *The politician that noone believed mentioned **if** he had stolen the documents.

b) *Der Politiker, dem niemand glaubte, gab zu, **ob** er die Dokumente gestohlen hatte.

ADGER & QUER (1996) also save the generative concept of licensing by local s-selection of UEQs by proposing that V like *mention* (they call them „proposition selecting V", 2) select DPs and that the Qs are complements of a "clausal polarity item" (CPI) which is head of a DP.

(137) [$_{V'}$ mention [$_{DP}$ CPI [$_{CP}$ if [$_{IP}$ ...]

---

[135] Translated and adapted from Gm. (P.Ö.): Weiterhin sollte die Wahl des Komplementsatzes immun gegen semantische Restriktionen sein, die in der Verträglichkeit mit anderen Konstituenten des Matrixsatzes zum Ausdruck kommen. Entsprechendes gilt für Verben, die sowohl ein ein [−w]- wie ein [+w]-Komplement zulassen.

According to them, interpretation of the embedded CP depends on the polarity of D°. If it is bound by a licenser of NPIs, *if* gets the reading of an operator with the function ⟦ p∨ ¬p ⟧(which is called *openness of event instantiation* by FORTMANN and is weakened to *nonveridicality* in our framework). Otherwise it gets "free-choice" reading, which is "semantically peculiar" (ADGER & QUER 1996, 9), but not ungrammatical.

(138) a) Nobody mentioned, *if* there was life on Mars.

   b) ? NASA mentioned, *if* there was life on Mars.

   c) ? *if* there was life on Mars, nobody mentioned.[136]

This reading is constrained by non-syntactic restrictions. It is not generally possible with V licensing UEQs under negative polarity.

(139) a) Er hat **nicht** verstanden, ob sie ihn wirklich eingeladen hatte.
      he – has – not – understood – if – she – him – really – invited – had

   'He did not understand whether she really had invited him'.

   b) **Hat** er verstanden, ob sie ihn wirklich eingeladen hatte**?**

(140) a) *Er hat verstanden, ob sie ihn wirklich eingeladen hatte.
      he – has – understood – if – she – him – really – invited – had

   b) * He understood if she really invited him.

(141) a) Er hat sich **nicht** (*NEG*) erinnert, ob er schon mal Dostojewsky gelesen hatte.

      he – has – himself – not – remembered – if – he – already – once – D. – read – had

   'He did not remember if he had read Dostojewsky.'

   b) **Hat** er sich erinnert, ob er schon mal Dostojewsky gelesen hatte**?** (interrogative)

 (142) a) *Er hat sich erinnert, ob er schon mal Dostojewsky gelesen hatte.
      he – has – himself – remembered – if – he – already – once – D. – read – had

   b) *He remembered if he had read Dostojewsky.

We assume that (138) b+c are acceptable only as a *conversational implicature* (cf. GRICE 1975) implying that the truth value of the SubC was questioned before the event time. In both cases above, the *past tense* of the proposition *blocks* the implicature of a question.

(143) a) He understood the invitation. ↛ He wonders if she really invited him.

---

    b) He remembers reading Dostojewsky. ↛ He wonders if he read Dostojewsky.

What ADGER & QUER (1996) call "free choice reading" is very clearly semantically restricted. Besides, one cannot hold a claim that V like *claim/ behaupten* which select exclusively veridical clauses independent of polarity lack the ability to select DPs.

(144) a) Julie claimed *if the bartender was happy.   (cf. ADGER & QUER 1996)

     b) **Did** Julie claim *if the bartender was happy?

     c) Julie did**n't** claim *if the bartender was happy.

(145) Julie claimed [DP the truth].

We think that the solution of the problem of UEQs should be sought in the formal semantics of the specific group of V licensing them, not in the syntactic property that they might select DPs. Besides, we want to explain the phenomenon without postulating a functional category for which evidence hasn't been found in natural language.

    First we want to clarify the semantic peculiarity of V whose complements can be *if-* clauses in the scope of negative polarity. Besides *mention*, UEQs can also be licensed by *guess, show, reveal, know, see, recognise, say* (in the sense of '*mention*'), *get* and *hear* (in the sense of '*understand*'), *notice* (cf. 146 below) and more [137]. All these V are ***factive epistemical predicates*** (in contrast to *claim*). This means that, in contrast to implicative V, under negation and interrogation the factive presupposition is normally preserved. However, it can obviously be

---

[137] In our view, *zugeben/admit* also belongs to this group. ADGER & QUER also mentioned *admit* as a V licensing UEQs. Many Eng. and Gm. speakers, however, reject sentences like

(i) He did not admit *if* he robbed the bank.
(ii) Er hat nicht zugegeben, *ob* er die Bank beraubt hat.

One reason could be that *admit* has a semantic F implying guiltiness yielding factive presupposition also under negation (commentary by H. WEGENER at the GGS conference 2000). Besides, it is not clear if *admit* in fact belongs to the group of factive V (commentary by S. VIKNER): Can you admit something you did not do? We think this is true for the Gm. V *gestehen*, but not for *zugeben* (both mean *admit*). This points to idiosyncratic lexical semantic properties of *admit* minimally differing from speaker to speaker, yielding different properties of presupposition. Another interesting fact is, that

(ii)   He did not admit *whether* he robbed the bank.

is rather acceptable than the same construction with *if* (IAN ROBERTS, p.c.). This might not only give new aspects to the discussion of the minimal semantic difference between the two conjunctors, but clearly shows that the differences in acceptance are grounded on minimal deviations in interpreting both V and conjunctor.

replaced by ***open event reference***. In this case the CMP ***that*** will be replaced by ***if***, representing the F '*Q*'.

(146) a) *Er hat gemerkt, ob schon alle da waren.
          he – has – NEG – noticed – if – already – everybody – there – was

   b) Er hat nicht gemerkt, dass schon alle da waren. ***(factive)***
       he – has – NEG – noticed – if – already – everybody – there – was

   c) Er hat nicht gemerkt, ob schon alle da waren. ***(open)***
       he – has – noticed – if – already – everybody – there – was

   d) Hat er gemerkt, dass alle da waren? ***(factive)***
       has – he – noticed – that – already – everybody – there – was

   e) Hat er gemerkt, ob alle da waren? ***(open)***
       has – he – noticed – that – already – everybody – there – was

SubCs of ***implicative*** V become counterfactual under *NEG*.

(147) a) Er hat es zustandegebracht, dass alle zufrieden waren. ***(implicative)***
          he – has – it – achieved – that – everyone – satisfied – was

   b) Er hat es nicht zustandegebracht, dass/ *ob alle zufrieden waren. ***(nonfactive)***
       he – has – it – NEG – achieved – that/ if – everyone – satisfied – was

However, not all factive epistemical V allow UEQs.

(148) a) He did **not** realise that he was wrong.   → ⟦ He was wrong ⟧ = 1; ⇒ factive V

   b) *He did **not** realise *if* he was wrong.

Which conditions must ***factive epistemical*** V fulfil to select *Q* under negative polarity? The following example illustrates that not only negative polarity contexts license UEQs. Future tense and future interpretation obviously license an ***if***-clause (149a+b), otherwise it should be as ungrammatical as the others (c+d).

(149) a) She is in bad odour with me today. Now I **will** see **if/ that** she has an
          agreeable character.

   b) Today he realises **if/ that** she has an *agreeable* character.

   c) Did you see/ I did not see, **if/ that** she had an *agreeable* character.

   d) Now I have seen ??**if/ that** she has an *agreeable* character.

   e) At the moment I see ***if/ that** she has an *agreeable* character.

   f) She was in bad odour with me recently. Then I **saw *if/that** she had an
       '*agreeable*' character.

The veridical ***that***-clauses are not ungrammatical even if embedded by V$_{FUT}$. However, there is a contradiction between the attributive predicate '*agreeable*' and the presupposition triggered by the context. Therefore the use of *agreeable* will be interpreted as ironic. This effect is not given if the SubC is marked as

nonveridical, since then it is not presupposed. All of the utterances above where *Q* is not licensed have this contradictory interpretation, which is most obvious in (149f) where past tense excludes *Q* in the SubC.

The limiting value for the license seems to be present tense. The punctual-present interpretation in (149e) is enforced by 1^{st}sg. agreement – as soon as present cannot be interpreted as future, licensing of a *Q*-clause seems to be blocked. Future tense seems to be a function yielding nonfactual modality of its argument, exactly like *Q* and *NEG*. Therefore it must be a *nonveridical operator* in the sense of GIANNAKIDOU (1998).[138]

(150)   (They say)[139], they will go to school. $\nrightarrow \exists t^*[t° < t^* \& go(w°,t^*,\text{they-to-school})]$

We think that future represents *Q* on the level of projection where this temporal (or modal) function is performed. It can either be a defining F of the I head hosting it (in languages like Eng.), or an inherent lexical F of the AUX forming the verbal complex with main V in languages like Gm. (see above).

The moods *irrealis* and *potentialis* can have the same effect, and also specific modal constructions and *habitual* or *generic reading* of present tense:

(151) a) I wished I saw if the kids played truant.

   b) He said he saw if[140] I was right.

   c) He could see now if it was possible or not.

   d) He should reveal if all trumps were played out.

   e) The professor always tells us in time if we have passed the exam.

   f) Professors notice if the students have cheated.

---

[138] Note again that a *Wh*-SubC is licensed independent of tense, mood and polarity of the MC.

   i)   He is in bad odour with me today. Now I **will** see **what an** 'agreeable' character he has.

   ii)   He was in bad odour with me lately. Then I **saw what an** 'agreeable' character he had.

   Here, the *Wh* element expresses the focus of see, actually a subsective predication of the SubC's complement which has open reference. Thus, MC nonveridicality cannot license an FF *Q* in the SubC's type system. The licensing domain must be defined by the focus of the MC predicate.

[139] Therefore propositions in future tense are not easily embedded by many factive predicates. In fact there is implicature of deontic modality necessary in the SubC, which then is interpreted as factive.

   (i) ?? They realise/ report/ are shocked, that they will (~must) go to school tomorrow.

[140] Again some speakers prefer whether here, which we cannot explain at the moment.

We assume that in all these cases the modal F Q operates on the embedding predicate and thus can block the presupposition of the embedded proposition.[141] A nonveridical operator licenses, thus, nonveridicality in the SubC, which we can explain with our model of dependencies correlating related IFs. As there is a temporal dependency between MC and SubC, there is also a modal one, which is symbolised by co-indexation in the following examples. Formally, this means that there must be a chain between Q and V. Like the tense dependency, it also binds C_{SUB} and the modal Fs associated with it, such that it also licenses also Q in the SubC which then gets nonveridical interpretation.

Nonveridicality is also licensed in contexts where there is no overt operator. Present tense can have a future connotation, especially together with inchoative verbal semantics (b below).

(152) a) Today I see ?if/ whether I am right.
       b) Right now it[142] is revealing if I am right.

Since even habitual and generic readings license nonveridicality, the most natural assumption is that Q here is operating covertly in the inflectional system, where future, habituality or genericity do not have morphological representation. Q seems to be an inherent property of those three semantic types.

As shown above, this blocking can even be implicit or implicative, what is called „free choice reading" by ADGER & QUER (1996; cf.3.4):

(153) ?Of course I saw if he was right – in fact, he was not!

The precondition is always that V_{MC} belongs to this group of special V. There must be a semantic feature common to them that can be externally manipulated. Both factive V like *realise/begreifen* and non-factive ones like *claim/behaupten* seem to lack this F, which is descriptively notable because they do not license UEQs.

---

[141] Note that these are cases of *nonveridicality* not licensing NPIs. GIANNAKIDOU (1998, 171f) states explicitly that (NPIs) in Eng. are *anti-licensed by veridicality*, but not licensed by *nonveridicality* in general. It would be worth investigating what restricts the license for NPIs and what the difference between them and clauses with a nonveridical operator in C is.

[142] Since *it* is a correlative, the same licensing conditions apply as to the extraposed *if*-clause.

What is the semantic difference between those V and the others which license UEQs? We think that the property that is common to both V is that they inherently trigger a presupposition. This is true for *claim* although it is non-factive. However, although it does not define the truth-value relative to the world, it defines it relative to the statement the MC subject makes. To *claim* means to *urge* someone to presuppose the truth of what is said. Therefore, the complement proposition is „relatively veridical"[143] . – The complement of *realise*, however, is factive and absolutely veridical. Veridicality has the consequence that *Q* cannot be licensed externally.

(154) a) He (did (not) realise/ will realise), that/ *if John was lying.

      b) He (did (not) claim/ will claim), that/ *if John was lying.

In the following paragraph we try to define the lexical F that *realise* and *claim* both lack and what makes the licensing properties of V like *notice* externally controllable.

3.4.2.   "UEQs" are Selected by Complex Predicates

It is possible to reconstruct the way modals and other elements are able to influence s-selection by looking at the analysis of Gm. coherent infinitival constructions. As shown above (pp.124f), apparent *clause union phenomena* in Gm. can be explained as a projection of complex predicates. This is evident with verbs that do not select propositions but predicates. This results in the *obligatorily coherent infinitive* construction (cf. HAIDER 1994).

(155) a)   *Es hatte versprochen [PRO eine lustige Konferenz zu werden]
           it – had – promised – a – funny – conference – to – become

      b) Es hatte eine lustige Konferenz zu werden versprochen.

The formal subject of impersonal *promise* in Gm. cannot control the subject of an embedded infinitival clause. The impersonal reading of *promise* in Gm. is therefore obligatorily constructed as a coherent infinitive. The impersonal and the Θ-selecting V are unified as one predicate when projected from the lexicon.

---

[143] i.e. relative to the context, cf. GIANNAKIDOU (1998).

In fact, there is evidence that coherent infinitives license *Q*, where incoherent ones do not. If impersonal *promise* is combined with a factive epistemical V of the type in question, a selected clause is obligatorily a *Q*-clause, even in past tense. Without it, the V has an obligatory ***that***-clause as complement.

(156) a) Es hatte sich herauszustellen versprochen, ****dass/ ob*** etwas an der Sache dran war.

      it – had – promised – to – turn-out – that/ if – something – on – the – thing – on-there – was

      "It had promised to turn out if the deal had substance".

   b) Es stellte sich heraus, ***dass/ *ob*** etwas an der Sache dran war.

We think that prospective V like impersonal *'promise'* lexically operate on the predicate they combine with, as the operators *Q* and *NEG* do so syntactically. The complements of such V-clusters will therefore obligatorily be assigned the F *Q* and its presupposition will always be open. The question is, why this is obligatory in the coherent construction, as it is with some modals:

(157) a) Er sollte sich erinnern ***ob***/ *dass er schon einmal Dostojewsky gelesen hatte.
      he – should – RFL *– remember – if/that – he – already – once – D. – read – had*

   b) Er wollte sich erinnern ***ob***/ *dass er schon einmal Dostojewsky gelesen hatte.

Our framework treats predicates as functions applied to individuals. A complex predicate, however, is the combination of two functions, or, the application of a function to a function, such that their product may have a selection frame different from either single predicate. In this case this leads to s-selection of *Q* instead of an unmarked CP. Before insertion into SD, the complement clause is constrained to have the semantic F *Q*. There is some more evidence that selection of *Q* in Gm. depends on the presence of a complex predicate:

(158) a) [$_{VP}$ Sicher sein, dass/ ?ob das stimmt], sollte es erst schon.
      certain – be – that – if – that – is-true – should – it – be – yet

      "It should first be certain, that this is true".

   b) Es hat erst [$_{VP}$ sicher sein sollen, ob das stimmt].
      it – has – first – certain – be – shall – if – that – is-true

      "First, it should be certain if this is true."

In (a) above there is a topicalised VP-predicate containing the factive predicative *'sicher'* with a CP complement. It does not contain a nonveridical operator, thus the unmarked case is when the CP is factual. If the same CP is a complement of

the complex predicate in (b) containing the modal as a nonveridical operator, an *ob-* clause is selected.

We now return to the concept of compositional semantics introduced in 1.2.2.2. The V *turn out* in the following example is a function applied to an individual that can also be a proposition, which is then syntactically represented as a CP. In an unmarked context, the result of this function is assignment of the truth-value 1 to the embedded proposition – it implies the truth of the predicate in the actual world $w°$.

(159) $\lambda\varphi[$ turn-out'$([\exists t \ [\varphi(w°,t)]) \ ]$

Therefore, it subcategorises for the selection of a *that*-clause:

(160) Es stellte sich heraus, ***dass/ *ob*** etwas an der Sache dran war.
       it – turned – itself – out – that/ if – sth – on – the – thing – on-there – was

       'It turned out that there was some truth in this.'

Coherently constructed impersonal *versprechen* ('promise') changes the definition of this set. It is a higher function that can be applied to predicates like *herausstellen* ('turn out') before the selection of complements, thereby creating new restrictions on s-selection, such that a *Q*-clause is selected instead of a factive one.

(161) Es hatte sich [herauszustellen versprochen], ****dass/ ob*** etwas an der Sache dran war.
       it – had – promised – to – turn-out – that/ if – sth – on – the – thing – on-there – was

Impersonal *versprechen* thus implies a function like

(162) $\lambda\pi[$versprech'$(\pi(\lambda\varphi\lambda t\lambda w^*[\varphi(w^*,t)]) \leftrightarrow \varphi(w°,t)] \ ) \ ]$

, with π a predicate of the class in question. The selectional frame of this predicate has now changed:

(163) s-selection: [Q(p)]

where Q is the IF corresponding to nonveridicality in the C of a structural description visible to lexical selection and p is a proposition. Of course this implies a set of lexical rules not only for the formation of complex predicates, but also for the compatibility of IFs in their subcategorisation. However, since this can be analysed as applications of functions before syntax, which is given through

lexical compositional rules, anyway (unless a framework like distributive morphology, cf. HALLE & MARANTZ 1993, is assumed), we do not regard this as problematic for economy.

FREGE (1923-6) has already taken negation as an example that compositional meaning, i.e. the meaning of the whole as the sum of the meanings of its parts, results from saturating incomplete elements by complete elements. Negation is also a function over predicates. Interestingly enough, there is an asymmetry of QPs or CPs selected by negated predicates, which indicates that *NEG* operators can also be optionally constructed coherently.

(164) a) NICHT erwähnt hat Kohl, ob/ dass Schäuble davon gewußt hat.
          not – mentioned – has – K. – if/ that – S. – of-it – known – has

   (Wohl aber, dass . . .).
   well – but – that . . .

   b) Nicht erwÄHNT hat Kohl, *ob/ dass Schäuble davon gewußt hat,
       not – mentioned – has – K. – if/ that – S. – of-it – known – has

    (sondern es verschwiegen).
     − but – it – concealed

If the negated predicate is topicalised, an **ob**-clause is optional, unless stress on V yields contrastive focus. In this case, *NEG* can only be interpreted as sentence negation (164 b). If *NEG* is stressed, it can be interpreted as the negation of V in a complex, in which case it modifies s-selection. Paralleling this property to that of coherent infinitives, we want to suggest that selection of either a *that*-clause or an *if*-clause depends on whether negation takes place before or after selection. In the first case, we could speak of *coherent negation*. The selected CP can be the sister of V or the sister of [*NEG*[V], which should be semantically identical with the antonym of V.

(165) a) Es ist wirklich nicht sicher, ob das stimmt.
          it – is – really – not – certain – if – this – is-true

   b) [$_{V'}$ [*NEG* V] [$_{CP}$ ob . . .]]

(166) a) Es ist wirklich unsicher, ob das stimmt.
          it – is – really – uncertain – if – this – is-true

   b) [$_{V'}$ un-V [$_{CP}$ ob . . .]]

The structure can be disambiguated by an intervening adverbial, which automatically leads to the ungrammaticality of an **if**-clause.

(167) a) Es ist nicht [schon seit jeher] sicher, **dass/ *ob** das stimmt.
          it – is – not – already – since – ever – certain – that – this – is-true

     b) NEG[ADV [$_{V'}$ V [$_{CP}$ dass . . .]]

If the adverbial precedes *NEG* there is even a tendency to ***if***-license:

(168) a) Es ist [schon seit jeher] nicht sicher, ?**dass/ ob** das stimmt.
          it – is – not – already – since – ever – certain – that – this – is-true

     b) ADV [*NEG* [$_{V'}$ V [$_{CP}$ dass . . .]]

Further evidence for different domains of negation is that ***ob***- and ***dass***-clauses cannot be coordinated when the ***ob***-clause precedes the ***dass***-clause. If it follows it, there is no ungrammaticality effect, but it gets the marked 'free-choice-reading'. It must be pragmatically implied that the truth-value is in question.

(169) a) *Er hat nicht erwähnt, **ob** er das Buch gestohlen hat und **dass** er es gut findet.

          he – has – not – mentioned – if – he – the – book – stolen – has – and – that – he – it – good – finds

     b) Er hat nicht erwähnt, **dass** er das Buch gestohlen hat und **dass**/ ?**ob** er es gut findet.

          he – has – not – mentioned – that – he – the – book – stolen – has – and – that/if – he – it – good – finds

The explanation must be that if ***ob*** comes first, it fixes the reading to coherent negation, thus the ***dass***-clause is ungrammatical. If ***dass*** comes first, *NEG* is interpreted as sentence negation, ***ob*** can only be licensed pragmatically. The same is true if *NEG* is used in an elliptic construction, where it cannot be interpreted as coherent negation, or if the CP is directly negated.

(170) a) Er hat erwähnt, **dass** er das Buch gestohlen hat, und nicht, **dass**/ ?**ob** er es gut findet.

          he – has – mentioned – that – he – the – book – stolen – has – and – not – that/if – he – it – good – finds

     b) Nicht, **dass**/ ?**ob** er es gut fand, erwähnte er, sondern **dass**/ ?**ob** er es gestohlen hatte.

          not – that/if – he – it – good – finds – mentioned – he – but – that/if – he – the – book – stolen – had

In both cases, the ***dass***-clause is more likely to be expected, since the ***ob***-clause is not overtly licensed. Licensing requires a function that can be applied to the predicate before selection, making it subcategorise for nonveridicality.

The potential positions of generation in base position are indicated by the possible constellations in the *Vorfeld*.

(171) a) gezeigt [dass das stimmt] hat er uns aber nicht
          shown – that – this – is-true – has – he – us – but – not

     b) *NICHT zu zeigen [dass das stimmt] ist ihm aber gelungen
          not – to – show – that – this – is-true – is – him – but – succeeded

     c) NICHT zu zeigen [ob das stimmt] ist ihm aber gelungen
          not – to – show – if – this – is-true – is – him – but – succeeded

     d) ?gezeigt [ob das stimmt] hat er nämlich nicht
          shown – if – this – is-true – has – he – actually – not

Since we assume that fronted material always consists of a constituent, we reconstruct the following base structure:

(172) a) weil er aber [nicht [$_{VP}$ [dass das stimmt] gezeigt hat]]

     b) weil er aber [$_{VP}$ [dass das stimmt]$_i$ nicht e_i gezeigt hat]

     c) weil er aber [$_{VP}$ [ob das stimmt] [nicht [gezeigt hat]···]

     d) ?weil er aber [nicht [$_{VP}$ ob das stimmt] gezeigt hat]

The only way to have the **dass**-CP in front of *NEG* is scrambling (172b). Coherent negation is impossible, since then V selects the **ob**-CP (172c). (172d) is again marked since *Q* is not formally licensed.

Like HAIDER (1997a) we assume that "extraposed" object clauses are generated in a licensing domain to the right of the verbal complex (cf. above, pp. 174ff), thus the (stylistically preferred) structures with "right-moved" clauses simply mirror those in (172).

(173) a) weil er aber [nicht [$_{VP}$ gezeigt hat [dass das stimmt]]]

     b) *weil er aber [$_{VP}$ [$_{V°}$ nicht [gezeigt hat]] [dass das stimmt]···]

     c) weil er aber [$_{VP}$ [$_{V°}$ nicht [gezeigt hat]] [ob das stimmt] ···]

     d) ?weil er aber [nicht [$_{VP}$ gezeigt hat [ob das stimmt]···]

Since the VP can be fronted, (171c) is a possible structure, but not (171b).

Structural licensing of *Q* can also be blocked by parenthesis, which presumably cannot intervene within the verbal complex.

(174) a) Er hat nicht – wie wir ja wissen – gezeigt dass/ ?ob das stimmt
          he – has– not – as – we – well – know – shown – that – this – is-right

     b) Er hat – wie wir ja wissen – nicht gezeigt dass/ ob das stimmt
          he – has – as – we – well – know – not – shown – that – this – is-right

A difference in interpretation between coherent and sentence negation is also found if DPs are embedded instead of CPs.

(175) a) wahrscheinlich hat er ein Verkehrsschild [nicht erkannt]
probably – has – he – a – traffic-sign – not – recognised

→ An event is documented, where the sign was not recognised.   (coherent)

b) Wahrscheinlich hat er kein Verkehrsschild erkannt.
probably – has – he – no – traffic-sign – recognised

→ An event of recognition has not taken place.   (sentence negation)

Similarly:

(176) a) NICHT erkannt hat er ein Verkehrsschild.
not – recognised – has – he –a – traffic-sign

→ An event is documented, where the sign was not recognised.   (coherent)

b) Ein Verkehrsschild erkannt hat er nicht.
a – traffic-sign – recognised – has – he – not

→ An event of recognition has not taken place.   (sentence negation)

The functional difference between the two kinds of negation is, in fact, that only sentence negation sets the truth-value of the proposition to 0, whereas the direct negation of V (which is logically equivalent to lexical negation or antonymy) always describes an event or a circumstance with a positive truth value of the proposition.

Our system can provide a direct explanation for that: The function *NEG* can be applied to the function PREDICATE at two degrees of saturation. If it is applied to a factive epistemic V before replacing the variable by a value (172c), it changes the subcategorisation frame. It produces a new function applicable only to a nonveridical proposition, which is generated as the sister node of $[NEG + V]$.

This selection of QP saturates the function $[[\, NEG + V]]$. Sentence negation is different. Here the mother node carries the F *NEG*. *NEG* inverts the polarity of the whole sentence through the inheritance of all nodes dominating them, giving the proposition a negative truth value – which concerns even the MC. The difference can be made explicit as follows:

(177) a) He did not show **that** this was right.

→ It is **not** true that he showed that this was right (*or not)

b) He did not show **if** this was right.

→ It is true that he did **not** show if this was right (or not)

In the following paragraph, we try to extend this analysis to a language which does not have coherent negation, i.e. English.

3.4.3. *Q-Operators: Binders of Polarity Features*

Since this is restricted to certain kinds of predicates, we assume that they only have a lexical F that can be operated on by nonveridical operators. This becomes evident through the Eng. equivalents of the Gm. examples discussed above. Although two different structural representations for the selection of either ***that-*** or ***if-*** clauses do not exist, the logical semantics compare to those of Gm .

(178) a) He did not say that he would come.   → There was no report of his plan.
      b) ⟦ He said he will come ⟧ = 0

(179) a) He did not say if he would come.   → He concealed his plan.
      b) ⟦ He was silent about his plans ⟧ = 1.

We assume that only in the second sentence above, *NEG* is directly operating on the factive epistemic predicate. The combination of *NEG* with the predicate forces the selection of a QP. The embedded nonveridical proposition is syntactically represented as a node [*Q*[...]] .

(180) [does'nt tell **if** ...] ≈ non-tell [$_{CP}$ *Q* [$_{IP}$ ...]] → . . .

The operator thus changes the properties of the selection frame and defines the modal Fs of the set of potential complement values as *Q*. Like in Gm., saturation neutralises *NEG* in the structure, thus it is not inherited by the higher nodes, and the whole proposition has the truth value 1, whereas sentence negation is a function that is not saturated before assignment of the truth value to *p*.

(181) $f(y) = ⟦ ¬\text{tell} (y) ⟧$

We want to propose that this way of licensing UEQs is always a process of selection and works in all languages as locally as made transparent by Gm. syntax. However, it may be obscured by PF.

As discussed in Ch.1 (pp.94ff), languages may differ in the transparency of local licensing, which is visible through quantified expressions with ambiguous scope. [144] We want to also propose that, for *NEG*, there are different sites where it

---

[144] Other operators that can be made transparent by local PF-interpretation are of course *Wh* and *Q*. *Wh*-operators are, in both languages, PF-interpreted by the fronting of the *Wh*-element to the left periphery, whereas in *Wh*-in-situ-languages they are not. Similarly, *Q*-operators in C of

can operate. In Gm., the *NEG* operator is always interpreted locally (cf. fn. 85on p. 175), whereas it has a specific position in NegP in Eng. and is therefore sometimes interpreted distantly in Eng.. Therefore, there are two possible interpretations for *NEG* operating in clauses with a factive epistemic V, only one of them licensing an ***if***-clause.

(182) a) Julie did not mention **that** the bartender was unhappy.

  „ It is not true that Julie said that it was true that the bartender was unhappy.“

   b) Julie did not mention **if** the bartender was unhappy.

  "It is true that Julie did not say whether the bartender was happy or not."[145]

Since negation in Eng. is bound to the specific functional projection NegP, the interpretation is not configurationally transparent. We assume that V like *mention* can lexically combine with a polarity F POL extending the lexical head V, licensing the selection of the non-evaluated *p* ([[the bartender was unhappy]] = 0 ∨ 1) . Whereas in Gm., the polarity F of V optionally selecting Q can be locally interpreted by *NEG*, it must be interpreted by the dependency [*NEG** − [POL+V]**] in Eng.. This dependency is licensed since *NEG°* is actually the head of a polarity phrase with the IF [*NEG*]. Thus, it can be in a dependency relation with a polar V. Both in Eng. and Gm., the logical interpretation will be ¬V.

   We assume structures like:

(183) a) Julie did [$_{Pol°}$ not]$_i$ [$_{VP}$ [$_{V°}$ *pol*$_i$ mention] **if** the bartender was unhappy]

   b) Maria hat [nicht erwähnt] ***ob*** der Kellner unzufrieden war.
   Mary – has – not – mentioned – if – the – barkeeper – unhappy – was

Since PF-interpretation is local only in Gm., intervening adverbials do not have the same effect in Eng.

(184) Julie did [$_{Pol°}$ not]$_i$ [$_{VP}$ **often** [$_{V°}$ *pol*$_i$ mention] **if** the bartender was unhappy]

(185) a) Maria hat [nicht [**oft** [$_{V°}$ erwähnt] ***dass/ *ob*** der Kellner unzufrieden war.[146]

  Y/N-Qs, which are also distant from the predicate, are PF interpreted in both languages by fronted INFL or a *Q*-CMP.

[145] (182b) can indeed also have the reading:

  (i) *It is not true that Julie said whether the bartender was happy or not .*

  However, it is as marked as that of the ***if***-clause embedded by non-negated *mention* (ADGER & QUER's 1995 "free-choice-reading").

[146] ! in contrast to 'Maria hat [$_{V°}$ [nicht oft] erwähnt] ob der Kellner unzufrieden war.';

b) Maria hat **oft** [ᵥ∘ nicht erwähnt] *ob* der Kellner unzufrieden war.

The adverbial *often* in Eng. only intervenes between two items that are distant anyway. In Gm. it cannot intervene inside the complex predicate.

If POL is not projected, *NEG* does not bind V and selection of *that*-clauses is licensed.

(186) Julie did [ₚₒₗ∘ not] [ᵥₚ **often** [ᵥₚ mention **that** the bartender was unhappy]

If the F is not bound or lexicalised, it must be pragmatically interpreted. This forces us to assume that an implicature can override the recoverability condition, however, at the cost of these clauses being interpreted as conversationally marked. Only if the blocking of the presupposition is generally possible (i.e. also by implicature), is it licensed by selection under a nonveridical operator however. It must be a function of operator binding and verbal semantics, represented by the polarity F. Other V that cannot be lexically extended by this F must be excluded by lexical semantical definitions of V.

(187) *Julie claimed if the bartender was unhappy
   *„ It is true that Julie claimed the open truth value of 'the bartender was unhappy' ."

(188) *weil er [[ob das stimmt] behauptet]
   *because – he – if – this – is-right – claims
   *'. . . because it is true that he claims the openness of 'it is true'.

Our assumptions are supported by the fact that antonymy yields the same alternation of s-selection only of this class of predicates with a POL feature, whereas antonyms of other V have the same subcategorisation frame as their antonyms. In this case, polarity is interpreted lexically.

(189) a) Er hat uns verheimlicht/ nicht verraten, **ob** Hugo unten vor der Tür stand.
   he- has – usDAT – kept-secret/ – not – told – if – H. – downstairs – before the – door – stood

   b) He kept secret/ did not tell, if H. was standing downstairs in front of the door.

   c) **Ob** das stimmt, ist **nicht** gewiß/ **un**gewiß.
   if- this – is-true – is – not – certain/ – uncertain

   d) If this is right, is **not** certain/ **un**certain.

(190) a) Er bezweifelt nicht/ glaubt, **dass**/ *****ob** Hugo unten vor der Tür steht.
   he – doubts-on – not/ – believes – that/ if – H. – downstairs – before the – door – stands

b) He does not doubt on/ believes that/ *if H. is standing downstairs in front of the door.

c) Es ist nicht wahrscheinlich/ unwahrscheinlich, **dass**/ *ob das stimmt.
   it – is – not – probable/ – improbable – if- this – is-true

d) It is not probable/ improbable that/ *if this is true.

Although it is very clearly a subgroup of the ***factive epistemic*** predicates which have the polarity F, we can only hypothesise as to why this is the case, and why it is true only for that group. It might be the semantic F yielding the factive presupposition in the positive case, but then we have to explain what characterises factive V that do not allow UEQs.

3.5.   Outlook: Towards a Generalised Dependency of Modal Features

In both Eng. and Gm., the lexical polarity feature can be bound by other nonveridical operators, in Gm. also by other nonveridical items in the complex predicate. In both Gm. and Eng. it can be bound distantly by C° carrying a *Q* feature. This is so since C and V form a chain, in this case characterised as a *Q*-dependency. It is made visible through V in C lexicalising *Q** in MCs.

(191) a) $[_{QP}$ *Q*-did$_i$ $[_{IP}$ he $[_{I'}$ e_i $[_{VP}$ *pol$_i$*-mention$_i$ $[_{QP}$ if$_i$ he met$_i$ Lizzy]···]

      b) *Q*-erwähnte$_i$ er $[_{v°}$ e_i], ob$_i$ er alles verstanden hat$_i$?
         mentioned – he – if – he – everything – understood – has

We assume that parallel to the *tense dependency*, the modal chain links modal Fs in C to V, which is carried out via I in Eng.; since PF interpretation of chains may parametrically take place as dislocated PF interpretation at the foot (which looks like movement of the lexical item, i.e. INFL or V to C), Eng. ***did*** and the Gm. V ***erwähnte*** 'mentioned' are spelt out in C. The LF interpretation of their (lexical) semantics applies to the base position however, thus the Gm. V still selects the complement clause.

C° thus becomes a co-member of the *Q*-dependency in the MC through its IF *Q*. Independent of the way of licensing, be it through binding of V through an operator or through direct lexicalisation of the IF changing the selectional frame, the embedded clause with its specific modal F is selected by V_{MC}. The modal dependency, which a V that has a polarity feature is co-member of, constrains this selection. This shows again that selection is a specific case of a *WFD* (cf. p. 68ff).

Even if we saw that there was a way to license Q pragmatically, like in CPs embedded by V like ***mention*** (the 'free-choice-reading' in terms of ADGER & QUER 1996, which yields a grammatically marked sentence), we think it holds that dependencies must, in general, be recoverable by a PF-interpretation. If they are not, they are grammatically marked. The interpretation always applies to the head of the dependency, i.e. the topmost IF which is phonologically identified.

(192) ***Recoverability of Dependencies***   (cf. ROBERTS & ROUSSOU, 2002, 132)

In a dependency Dep = (α_l ... α_n), where [$_{\alpha i}$ F*] asymmetrically c-commands all [$_{\alpha j>i}$ G*], Dep must be interpreted as an F-dependency.

Lower members of a head-dependency can PF-interpret (lexicalise) the F heading the dependency, if it is not lexically specified for autonomous PF-realisation. This is why languages without Q-PTCs front V in order to PF interpret the Q-dependency. Even if this seems not to be required in languages which have neither (cf. the Urdu data above in (12) on p. 223), we can still claim that IFs must be PF interpreted, if we allow specific intonation to be the PF interpretation of a semantic F Q.

IFs in CDom of the SubC must be licensed by selection. Selection, however, is nothing other than the binding of C° through root V and links the SubC dependency to the MC dependency. Thus there is no actual difference between the SDs of so called "UEQs" and selected interrogatives – their modal IFs are always licensed through co-membership in the Q-dependency.

(193) a)   [$_{CP}$ Ich [$_{C'}$ habe$_i$ [$_{VP}$ mich gefragt$_i$, [$_{CP}$ ob$_i$ [$_{VP}$ er kommen$_i$ wird$_i$]···]
    I – have – myself – asked – Q – he – come – will

    ⇒ *Q* of SubC selected by V$_{MC}$.

b)   [$_{CP}$ [$_{C'}$ hat$_i$ [$_{VP}$ er gesagt$_i$, [$_{CP}$ ob$_i$ [$_{VP}$ alle kommen$_i$ werden$_i$]···]
    has(Q) – he – said – if(Q) – all – come – will

    ⇒ *Q* dependency of MC licenses V$_{MC}$ to select *Q* of SubC .

Even doxastic predicates, which never select an ***if-***clause but have the very special property of selecting *Wh*-clauses only under a nonveridical operator, can be explained in this model in a similar way.

(194) a)   Sie glaubt nicht, **dass** ich Hugo vorhin getroffen habe.
        she – believes – not – that – I – H. – a-while-ago – met – have

b)   Sie glaubt ?(nicht), **wen** ich vorhin getroffen habe.
        she – believes – not – who – I – a-while-ago – met – have

    c) *Sie glaubt nicht, **ob** ich Hugo vorhin getroffen habe.
        she – believes – not – if – I – H. – a-while-ago – met – have

(195) a) Sie wird vermuten, **dass** ich dich gestern getroffen habe.
        she – will – assume – that – I – you – yesterday – met – have

    b) Sie wird vermuten, **wen** ich gestern getroffen habe.
        she – will – assume – who – I – yesterday – met – have

    c) *Sie wird vermuten, **ob** ich dich gestern getroffen habe.
        she – will – assume – if – I – you – yesterday – met – have

The same is true for complements of nouns:

(196) a) niemand wird die Annahme bestreiten, **wer** wen welche Steuern hinterziehen lassen hat

        nobody – will – the – assumption – dispute – who – whom – which – taxes – evade – let – has

    b) niemand wird die Annahme bestreiten, **dass** der intelligente Minister seinen Gläubiger Steuern hinterziehen lassen hat

        nobody – will – the – assumption – dispute – that – the – intelligent – minister – his – creditor – taxes – evade – let – has

    c) *niemand wird die Annahme bestreiten, **ob** der intelligente Minister seinen Gläubiger Steuern hinterziehen lassen hat

        nobody – will – the – assumption – dispute – if – the – intelligent – minister – his – creditor – taxes – evade – let – has

Like other V having the property of licensing a *Wh*-focus-position for operation on a variable, these V do not select just a proposition with an open truth value (i.e. the IF *Q*), but a veridical proposition with a *Wh*-focus. Thus, in this option of licensing *Q* depending on the co-membership in a *Q*-dependency, they compare to the factive epistemic predicates with a polarity F, but with the restriction that the SubC must contain the operator in SPEC/C.

3.5.1.   The Problem of the Formal and the Functional Type Revisited

Building on the theories of syntactic typing discussed above in (3.1), more recent generative work has tried to transfer properties of different clause moods to abstract features of syntactic representations, thus projecting the corresponding clause types by means of marking them by specific typal features. One of these accounts is by GROHMANN (1999) who assumes 4 kinds of typal Fs marking 4 possible clause types.

(197) *Typal Features*

[S]: syntactic declaratives	[M]: syntactic imperatives
[Q]: syntactic interrogatives	[E]: syntactic exclamatives

In the previous paragraphs we showed that 'interrogatives' should rather be classified according to their semantic property of being non-evaluable propositions due to a nonveridical operator in C° allowing specific interpretation as explorational act. Thus, the classification not only of a formal type but also of a semantic clause mood *interrogative* is suspected to follow from a functional generalisation.

Nonveridicality of an operator in C is not only the property of interrogatives. It is what must be present in all non-declarative 'clause moods' and thus also for the clause types that are meant to be their formal parallel, since they all lack a truth-value. Nonveridicality is a constitutive F of all non-declarative clauses and therefore seems to be a primitive. Therefore we think the existence of four clause types cannot follow from four primitive universal type features. In fact we question the existence of a universal number of clause types as a specific formal interpretation of a universal number of clause moods in natural language.

We concede that modal types are obviously interpreted language specifically as specific syntactic clause types by the interface of syntax and semantics, however, in a much more differentiated way than suggested by the abstraction over four types. Syntactic typing is in fact language specific and follows from idiosyncratic properties of the SD of LFs offering options for interpretation as illocutionary types. We think that these properties are nothing but the parameterised PF of representations of chains of semantic features.

This is not incompatible with the more common proposal that clause mood as a universal category is expressed through language specific clause types, as for example proposed by BRANDT & al (1992). However, it avoids overgeneralisations caused by restrictive assumptions about clause mood and allows a more specific account of the syntax and semantics of clause types serving different functions. The functions a specific semantic representation can optionally fulfil due to underspecification are pragmatically exhausted.

Of course, there are default intuitive interpretations of clauses with certain semantics. However, if one considers as an example the *imperative*, the mood most specifically defined for one of the *regulative acts*, one has to concede that it is – at least in languages like Eng. – mainly the *verbal mood* which encodes the semantics relevant for this specific reading (cf. LOHNSTEIN 2000, 117ff). Its use in a very prominent function, i.e. command as the most direct way of regulation, may have contributed to the generalisation of imperative clauses as a formal type, thereby identifying it with a functional type that is neglecting the other regulative acts, such that they are mostly subsumed under the secondary illocutions (cf. SÖKELAND 1980, S.117ff).

In the following section, we propose our alternative account of marking clause mood in natural language. Based on what we have found investigating modal dependencies in clauses interpreted as interrogatives, and since all non-declarative clauses share the property with Qs that they do not have a defined truth value, we make a basic assumption about general applications to modal chains in other modal types that they all have nonveridical operators in C which are in a chain relation with V. We will show that for the interpretation of the modal type, the markedness of the whole chain is criterial, such that clause mood is a function of verbal mood and the operator in C°.

To avoid confusion with the terminology of clause typing, we use the pragmatic terms *assertive, explorational*, *jussive* (expressing command) instead of *declarative*, *interrogative*, *imperative* whenever referring to the function of a clause. This is especially relevant since we will suggest a more specific distinction of clause moods that exempts *prohibitive* clauses from the imperatives and also allows a differentiated analysis of *optatives* (expressing wishes) and *speratives* (expressing hope). *Jussives, prohibitives, optatives* and *speratives* we subsume under the clauses expressing *volition*.

3.5.2.   *Clause Mood as an Operation on Referential Modality*

REHBOCK (1992a) builds a pragmatically motivated descriptive theory of clause mood on the speech act system as defined by AUSTIN (1962, 95). Before

illocution, the so called *rhetic act* takes place, defined as the use of the *pheme* (i.e. the linguistic sign "with a certain more or less definite sense and reference").

REHBOCK (1992a) distinguishes two *rhetic moods*, [+INDEP] and [–INDEP], where [–INDEP] is the marked case. Only in the marked case, a *rhetic act* serves for classing the *world* with the *word*, such that the potential reference to the world of the proposition *p* follows from the 'word' describing it. A good example is *constitutive* declarations.

(198) a) I baptise this ship 'MS Evelyne'. (*performative*, –INDEP)

     b) From now on, this ship is named 'MS Evelyne'. (*resultative*, –INDEP)

In these *constitutive* acts, the world that is referred to exists *only* through the *rhetic act* and <u>its truth</u>. Thus, the reference *depends* on the speech act. In the unmarked case, however, the *rhetic act* classes the *word* with the *world*. The simplest example is *constative* declaratives:

(199) I entered the ship 'MS Evelyne'. (*constative*, +INDEP)

We adopt the notion of independent rhetic mood with one modification. Since we regard [-INDEP] as a marked value, in our framework it is sufficient to assume the IF *DEP* marking *rhetic mood*, whereas there is no IF in the unmarked case.

Further, REHBOCK (1992a) only distinguishes two clause moods beside *rhetic mood*, *DCL* and *–DCL*. The negative feature is the marked case. *DCL* are all propositions that can be assigned a truth-value, the *–DCL* ones cannot. From this system the potential to distinguish four classes of *modal types* follows (cf. REHBOCK 1992a, 149). Again, in order to adapt this to our system, we do not assume an IF for the unmarked value and replace the marked one by our IF *Q*, since the common property of non-declarative clauses is the lacking truth value. This yields the following system:

(200)

moods	∅ (i.e. unmarked)	*DEP*
∅	constative	constitutive
Q	explorational	volitional

Of course, the non-declarative modal types are our special interest here. REHBOCK (1992a) argues that all non declarative clauses with *DEP* rhetic mood are

volitionals:[147] They express the *intentional mood* of classing the world with the word. We think that this model can be adapted to our theory of the syntax-semantics interface by relating REHBOCK's (1992a) two kinds of mood to the two functional domains of syntactic projection, i.e. the CDom and the IDom.

First, we extend our formalism to *DEP* mood. Classing the world with the word means that the index $\langle w,t \rangle_i$ of the proposition remaining after subtraction of the classing element exists only if the whole proposition is true. To illustrate this, we suggest first considering the phenomenon of *actions* classing the world, i.e. causative concepts.

(201) John gives Mary the book.

Above (p. 109), we suggested formalising the compositional semantics as:

(202) a) $f(x, p) = [\![\text{cause } (x, p)]\!];$ (John, $[\![\text{get}(y, z)]\!]$)

      b) $f(y, z) = [\![\text{get } (y, z)]\!];$ (Mary, the-book]

This means there is an index $i = \langle w,t \rangle$ where Mary gets the book only if the sentence 'John gives Mary the book' is true.

(203) $\exists i[\text{ get}(i,\text{Mary, the-book})]$ **iff** $[\![\text{John gives Mary the book }]\!]^i = 1$

Thus, we suggest that a causative act like GIVE can also be formalised as a biconditional where the causative action (i.e. the event where the AGENT is the argument) and the less complex predicate imply each other.

(204) GIVE: $\lambda z\lambda y\lambda e_2\lambda t\lambda x\lambda e_1[\text{AGENT}'(t,e_1,x) \leftrightarrow \text{get}'(t,e_2,y,z)]$

The same is the case if we do not act through actions but through words:

(205) I baptise the ship 'MS Mary'.

(206) a) $f(x, p) = [\![\text{cause } (x, p)]\!];$ ($[\![\text{have-as-name}' (y, z)]\!]$, x°)

      b) $f(y, z) = [\![\text{have-as-name}'(y, z)]\!];$ ($[\![\text{ MS Mary}]\!]$, $[\![\text{the-ship}]\!]$]

(207) a) $\exists i[\text{have-as-name}'(i,\text{the-ship,MS-Mary})] \leftrightarrow [\![\text{I baptise the ship 'MS Mary'}]\!]^{M,t\leq i,w^*,g} = 1$

      b) BAPTISE: $\lambda z\lambda y\lambda t\lambda i\lambda x\lambda e[\text{AGENT}'(t^*,e,x) \leftrightarrow t \leq i \ \& \ \text{have-as-name}'(i,y,z)]$

---

[147] Since we agree with ROSENGREN (1997) that *exclamations* cannot be explained within the same semantic model applying to modal types like the *explorational* and *volitional* ones, i.e. *iussives, speratives* and *optatives*, and should in fact not be treated as such, this model covers the relevant aspects of clause mood in principle.

The same applies to other performative predications,

(208) a) I am now opening the banquet.

   b) $\exists i$ [open'(i,the-banquet)] **iff** $[\![$ I am opening the banquet $]\!]^{M,t \leq i,w^*,g} = 1$

   c) OPEN: $\lambda z\lambda y\lambda t\lambda i\lambda x\lambda e[\text{AGENT}(t,e,x) \leftrightarrow t \leq i \ \& \ \text{open}'(i,y,z)]$

, but not to those describing independent rhetic acts:

(209) a) I enter the ship 'MS Mary'.

   b) $\exists i[\text{enter}(i, x°, \text{the-ship}) \ \& \ \text{MS-Mary}'(i,\text{the-ship})]$

The verbal lexical semantics of performative V thus indicates a factual manipulation of $i = \langle w,t\rangle$ classing it with the proposition modulo its SD. We now turn to discussing the application of this idea to *volitional* clauses.

As indicated above, we intend to explain non-declarative clause mood as an operation of a complex Q operator (resulting in the missing truth value of *p*). We think that all non-declarative clause types can be compositionally explained as the operation of such a Q-operator on different configurations of primitives in I°. If this is possible, we do not have to distinguish more than two levels of modal marking and, given our concept of expressing only marked IFs, just one type of IF in the CDom is relevant for interpreting the modal type, i.e. those which are subtypes of Q (nonveridical), i.e. representing (complex) Q-operators.

First of all we want to look into modality, which in standard predicate logic involves <u>quantification</u> over *possible worlds*. This is the case if *alethic, epistemic* or *deontic possibility* or *necessity* are expressed – which is always evaluated before a *nonfactual* background. A typical case of quantification over possible worlds is *epistemic possibility* expressed by the verbal mood *conjunctivus potentialis* that is used in intensional contexts of indirect speech in languages like Gm. What the embedded sentence in the following context expresses is:

(210) a) (Er sagte,) er **sei** ins Kino gegangen.
       *he – said – he – be*POT *– in-the – cinema – gone*

   b) $\exists w^*\exists t[t < t° \ \& \ \text{go}'(w^*,t,\text{he, to-cinema})]$ (very simplified)

   c) 'there is a potential world w^* and a time t where he went to the cinema.'

Epistemical *impossibility* can be expressed by *conditional mood* (= *future irrealis*) in Eng., which implies *alethic possibility* at the same time. The following sentence expresses that Paul *would* read Goethe (but for some reason he will *not*). This is a

little more complicated, since the possible world w^* where he will read Goethe cannot be the actual one $w°$.

(211) a) Paul **would** (even) read Goethe.   (conditional mood = *future irrealis*)

b) $\exists w^*[\ w^* \neq w° \& \lambda t[\ t° < t \& read(w^*,t,Paul',\ Goethe')]\ ]$

c) 'there is at least one possible world w^* that is not the actual world $w°$ and at a class of times t after t° Paul reads Goethe in w^*.'

Of course these are intensional contexts and therefore contain unsaturated time variables. So does an LF expressing *deontic* necessity expressed through the modal MUST.

(212) a) You **must** read this.

b) $\forall w^*[\ \lambda t\ [read'(w^*,t,you',this')\ ]$

c) 'In all possible worlds w^* you read this at a class of times t'

All those expressions are modally marked. They do not represent *DEP* rhetic mood, however, since they do not class the world with the word. Therefore their logic does not contain the biconditional ($\leftrightarrow$) relating w^* to $w°$. Now compare the imperative expressing deontic modality through verbal mood. The interpretation differs slightly from the MUST clause above however. An imperative does not express deontic necessity but the *intention* to class the world with the speech act. We want to argue that this is expressed by a specific relation between w^* and $w°$:

(213) a) Read this!

b) $\exists w^*[\ \lambda t\ [read'(w^*,t,you',this') \leftrightarrow read'(w°,t,you',this')]\ ]$

c) 'there is a possible world w^* where you read this at a class of times t exactly if you read it in $w°$ at t.'

Whereas independent acts are propositions whose truth conditions are immediately evaluated, dependent rhetic acts are constituted by introducing a condition for the evaluation of a *pheme* that is referring to a world w^* classed with the SD. Thus we identify non-lexical *DEP* as a complex quantificational operation over the possible worlds w^* of propositions, relating the actual world $w°$ to w^* through a biconditional. It has hopefully been noted that this is very similar to our account of interrogatives. Crucial for markedness as *DEP*, however, is that existential quantification means the possibility of a property φ of the possible world w^*.

(214) a) $\lambda\phi\lambda w^*[\,\phi(w^*)\leftrightarrow\phi(w^\circ)]$ (corresponds to quantification over $\mathbb{B}\rightarrow$ interrogativity)

    b) $\lambda\phi\exists w^*[\,\phi(w^*)\leftrightarrow\phi(w^\circ)]$ (existential quantification over $w^* \rightarrow$ deontic reading)

What we now have to achieve is the translation of this into clause types according to our account of *transparent logical form*. What we assume is that as there is a temporal instance in C operating on t in I as an IF representing the information

(215) $\lambda\phi\exists t^*\exists t[t^\circ,t,t^*\&\phi(t^*)]$

, which then is specified through verbal inflection yielding a part of the temporal interpretation together with t°, there is also a modal instance which is in a dependency relation with mood in I. Our two basic claims are:

1. Both verbal mood and clause mood can be reduced to logical operators represented by interpretable features in syntax. Both operations together yield the modal type that is interpreted as an illocutionary type by pragmatics. Clauses are not syntactically typed but semantically marked by modal features representing different instances of operations on $\langle w,t\rangle_i$.

2. Syntactically, this operation is represented as a modal dependency, i.e. a chain of IFs of semantically contentful heads. The interpretation of the clause mood applies not to one F in C, but to this chain. Therefore, a clause type is not a primitive and cannot follow from a primitive syntactic F.

To account for different classes of *explorational* and *volitional* types, we have to assume that both instances can be marked by additional IFs. The IFs have language specific PF representation. They can have autonomous lexical representation as PTCs, as verbal morphology, both or neither. V_{FIN} can interpret all of them in C or in I, even without morphology, as in languages like Gm. or Eng.. We give some cross-linguistic examples where Q is in a chain with V in indicative mood, which we regard as unmarked.

(216) a) **Aya** u zabanshenasi **mikhanad**?   (Prs., $[Q^* - [I^{148} - V^*]\,]$)
     Q – he – linguistics – studies

     'Does he study linguistics?'

---

[148] We ignore whether I in those languages is represented as a head or in syncresy with V. Either way it would be part of the dependency.

b) ku-ka   seoul-e   ka-ass-**nunya**.   (Kor., [Q – I – V*])
   he-Nom – *Seoul*-El – *go*-Past-*Q*

   "Did he go to Seoul?"   (cf SHIN 1993, 53f)

c) Fuistī-**ne** herī domī ?   (Lat., [Q* – I – V])
   be-PRF-1st*sg*-*Q* – *yesterday* – *at-home*

   'Were you at home yesterday?'   (cf. BAYER & LINDAUER 1990, 203)

d) **Studierst** du Linguistik?   (Gm., [Q* – I –V])
   study – you – linguistics

We propose that *DEP* rhetic mood is created through the operation of the *Q* operator on a modally marked I°. Thus we have to assume that explicit quantification over worlds already takes place on the I-level. Above we proposed that the inflectional information may contain information about the relationship between the time of a situation or an event *t** and speech time *t°* (maybe including a reference time *t* separate from *t**). According to our proposal above (p. 140), this looks like:

(217) a) I° = λφλt*λt[t°⊆t⊆t* & φ(t*)]   (PRS-PRG)

    b) 'speech time is a proper subset of reference time which is a proper subset of event time '

In the following, we will consistently notate ET as *t** and the *possible* world as *w**, mainly for the sake of parallelism. If we include worlds in our analysis, we have to relate possible worlds *w** and the actual world *w°*. We assume that *DEP* rhetic mood means explicit quantification over *w** <u>before</u> it is related to *w°*.

(218) a) I° = λφλtλt*λw*[w°⊆w*&t°⊆t⊆t*&φ(w*,t*)]   (PRS-PRG, unmarked; e.g. IS)

    b) I° = λφλt*λt∃w*[w°⊆w*&t°⊆t⊆t*&φ(w*,t*)]   (PRS-PRG, possibility; e.g. CAN)

    c) I° = λφλt*λt∀w*[w°⊆w*&t°⊆t⊆t*&φ(w*,t*)]   (PRS-PRG, necessity; e.g. MUST)

w°⊆w* indicates the containment of *w°* in *w**, which may appear redundant sometimes. We use it consistently for systematic reasons, however. The *accessibility* between *w** and *w°* through truth conditions, which is often symbolised as *w*Rw°* (cf. STECHOW 1993, 60), we presuppose. If C° is marked, binding of I° by C° generally yields a relation (*w**,*w°*), which can be: (*w** ≠ *w°*, i.e. IRREALIS), (*w**↔*w°*, i.e. *Q*), but not (*w**=*w°*, which is in our view implied by the unmarked case). As argued above, unmarked C° in MCs binds the remaining

open tense and event variables existentially. C° marked for Q does not, since it contains the bicondition implying the intensional reading of t^* in the first place.

(219) a) C° = $\lambda\varphi\lambda w^*\exists t\exists t^*[\ t°,t,t^*\ \&\ \varphi(w^*,t^*)]$ (unmarked)

    b) C° = $\lambda\varphi\lambda w^*\exists t\exists t^*[\ w^*\neq w°\ \&\ t°,t,t^*\ \&\ \varphi(w^*,t^*)]$ (marked for IRR)

    c) C° = $\lambda\varphi\lambda w^*\lambda t^*\lambda t[\varphi(w^*,t^*)\leftrightarrow t°,t,t^*\ \&\ \varphi(w°,t^*)]$ (marked for Q)

(218) and (219) together yield the following possible constellations.

(220) a) He is reading this.   (unmarked C and I)

    b) $\lambda w^*\exists t\exists t^*\exists e[t°\subseteq t\subseteq t^*\&read'(w^*,t^*,e,he',this')]$

Note that w^* remains unbound in the unmarked case, since S stands for a *proposition*, which means that its reading is *intensional*. It gets its extension through assignment of a truth value $\mathbb{B}$, which takes place external to the syntax.

    Deontic or epistemic *possibility* or *necessity* are encoded by quantification over w^* in I° *without* additional marking of C°.

(221) a) He can read this.   (unmarked C, marked I)

    b) $\exists w^*\exists t\exists t^*\exists e[w°\subseteq w^*\&t°\subseteq t\subseteq t^*\&read'(w^*,t^*,e,he',this')]$

(222) a) He must read this.   (unmarked C, marked I)

    b) $\forall w^*\exists t\exists t^*\exists e[w°\subseteq w^*\&t°\subseteq t\subseteq t^*\&read'(w^*,t^*,e,he',this')]$

For illustration we give a graph demonstrating necessity:

(223)

CP = $\forall w^*\exists t\exists t^*\exists e[w°\subseteq w^*\&t°\subseteq t\subseteq t^*\&read'(w^*,t^*,e,he',this')]$

C°

IP = $\lambda t^*\lambda t\lambda e\forall w^*[w°\subseteq w^*\&t°\subseteq t\subseteq t^*\&\ read'(w^*,t^*,e,he,this')]$

$\lambda\varphi\lambda w^*\exists t\exists t^*\exists e[t°,t,t^*\&\ \varphi(w^*,t^*)]$ DP

I' = $\lambda t^*\lambda t\lambda e\lambda x\forall w^*[w°\subseteq w^*\&t°\subseteq t\subseteq t^*\&\ read'(w^*,t^*,e,x,this')]$

he

I°

VP

must
= $\lambda\varphi\lambda t^*\lambda t\forall w^*[w°\subseteq w^*\&t°\subseteq t\subseteq t^*\&\varphi(w^*,t^*)]$

read this
= $\lambda w^*\lambda t^*\lambda e\lambda x[read'(w^*,t^*,e,x,this')]$
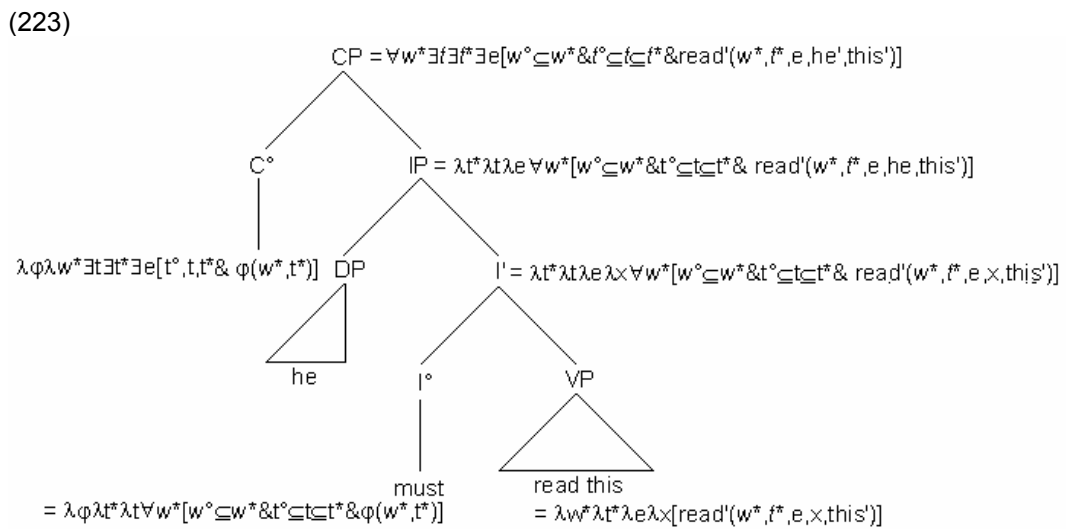
Now compare the combinations with the *Q*-operator in C°. Imperatives we assume to be derived by applying *Q* to I° marked as *possible*. [149]

(224) a) 'Read this!'   (marked C, marked I)

b) λt*λtλe∃w*[*w*°⊆*w**&read'(*w**,t*,e,he,this) ↔ t°⊆t⊆t*[150]&φ(*w*°,t*,e,he,this)]

c) 'the class of times t* and class of times t and a class of events e such that there is a world w* accessible to w° where he reads this in w* at t* exactly if t* is a proper superset of t that is a proper superset of t° and he reads this at t* in w°'

This logic yields the *functional potential* for volitional intentional mood, since it expresses that the speaker X regards it as *possible*[151] that a proposition *p* is true in *w**. The crucial factor for the truth of *p* in *w** is that it is true in *w*°− which is explicitly expressed by the biconditional. Thus, *w** is dependent on the truth conditions expressed in the proposition *p*, and this is exactly what we wanted to achieve. Again, this compositional semantics directly translates to sentence structure.

---

[149] In order to distinguish this from interrogatives containing modals, we think it suffices to introduce a notion of a (possible) *reference world*, which then parallels *reference time* (vs. *possible event world* and *actual world*). The formula would look like

(i)   λwλt*λtλe∃w*[w°⊆ w*⊆w&read'(w,t*,e,he,this) ↔ t°⊆t⊆t*&read'(w°,t*,e,he,this)]

(ii)   Can he read this?

This formula meets all conditions of direct compositionality. We concede, however, that this makes further assumptions about markedness of I° and C° necessary, which we will elaborate in later research.

[150] We do not agree with accounts assuming the inherent posteriority of imperative time reference. Simultanity reading is perfect, if the context allows it. An imperative

(i) Please, don't be insulted!

does not at all imply manipulation of a posterior state.

[151] Interestingly, application of *Q* to I° marked as *necessary* yields a formula that resembles the formula for interrogatives except that instead of the classificational quantifier, universal quantification is used.

(i)   λt*λtλe∀w*[w°⊆*w**&read'(*w**,t*,e,he,this) ↔ t°⊆t⊆t*&read'(*w*°,t*,e,he,this)]

If the speaker regards it as necessary that in a possible world φ exactly if φ in *w**, this seems logically equivalent with the modelling of a bipartition [[φ]]^{w*} = 1∨0 where ∃w*[φ(w*)] is presupposed. One could assume that this is the case e.g. in distributive *Wh*-questions like

(ii)   Which student did every professor examine?

(225)
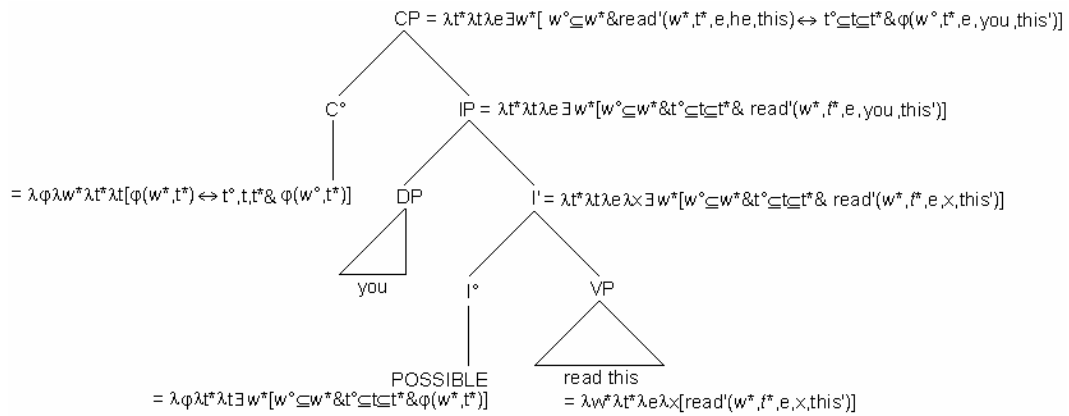
That the pronoun referring to the addressee is, as a rule, dropped if it is 2nd sg., we regard as conventional and irrelevant for the generation of both the logical and the syntactic structure. That it is in fact merged we regard as sufficiently attested by its optional presence in *prohibitives*.

(226) Don't (you) read this!

Parameterisation of the lexical representation of the chain as [C-I-V*] is the reason why imperatives in Eng. can be encoded by the simple configuration V-OBJ.

Q interacting with unmarked I° yields the formula derived for interrogatives above in 3.3.4 (now including the containment condition $w°\subseteq w*$).

(227) a) Does he read this?
b) $\lambda w*\lambda t*\lambda t\lambda e[w°\subseteq w*\&read'(w*,t*,e,he,this)\leftrightarrow t°\subseteq t\subseteq t*\&\varphi(w°,t*,e,he,this)]$

3.5.3. *Volitional Sentences*

Since there is more than one logical volitional type, the interaction of the two levels of modal marking must be more complex than it has been sketched so far. Therefore the different *volitional* types are our main interest in this section. They are sentences expressing *jussive, prohibitive, sperative* or *optative* kinds of modality by means of specific syntactic, morphological and prosodic marking. Examples from English are:

(228) a) Study linguistics!   *(jussive)*
b) Don't you study linguistics!   *(prohibitive)*
c) If only he studies linguistics!   *(sperative)*

     d) If only he studied linguistics!   *(optative)*

Whereas (a) and (b) are traditionally subsumed under the *imperatives*, (c) and (d) are termed as *optatives*. If the analysis sketched above is right, all of them should have *DEP* rhetic mood and a *Q* operator in C°. This prediction is to be discussed and argued for in the following paragraphs.

    −*DCL* utterances with dependent reference lack, in contrast to the *DCL* ones, a truth-value. All nondeclarative clauses have a property which presumably corresponds to the concept of *nonveridical* marking we presented above. This strongly indicates that they also have operators in CDom, the functional domain interfacing with pragmatics, which mark the sentence with an IF *Q* (nonveridical) by operating on $\mathbb{B}$. We will start our discussion with a comparative analysis of *optative* sentences in the languages of our corpus.

    Many languages have *optatives* introduced by the conditional CMP (Eng. *if*), which has lead people to the assumption that they are in fact (unembedded) conditionals[152]. Although we agree that the PTC introducing optatives must have a similar semantic function, we tend to regard them as formally and functionally autonomous complex expressions with a complete LF. The fact that a lexical element can be used as a CMP does in our view not restrict it to introduction of SubCs. It is rather the case that a lexical element expressing specific semantics can be used as a CMP if it fulfills certain conditions. CMPs are expression of C_{SUB} (cf. 2.1.1) and a nominal F, such that it can be assigned case (cf. 2.3). It is lexically specified whether CMP is the exclusive function of a PTC.

    We assume that semantic PTCs like *if* (*CND*) have no other function than what they have in conditional clauses, namely expressing some kind of *nonfactuality* (as proposed by DIESSEL 2001) or, more specifically, *providedness*, which we regard as an operator of a subclass of *Q*. This can be easily tested because of the property of licensing negative polarity in Eng..

(229) If ***anything*** annoys you, just forget it.

---

[152] cf. ROSENGREN (1993, 38ff)

We do not think that the PTC *if* represents the operator causing the implicational relation between a *CND* and the matrix, but just serves to mark the modality of the *CND*. Intuitively, it expresses something like [provided(*p*)].

JESPERSEN (1940, 374) was the first to relate *CND*s to interrogatives, suggesting that "conditionals are questions with implied positive answers". Against this background, HAIMAN (1978) proposed that a *CND x* was "given" as precondition for the truth of a proposition *y*. This would mean the implicational relation might just follow from the "givenness" of the factual background of the "conditional question", like:

(230) a) He comes? I will go.

b) If he comes, I will go.

This has been argued against by AKATSUKA (1986) who compares *CND*s to interrogatives with respect to their openness and claims that their validity is discourse bound, as is the interpretation of the implication.

There has been a recent proposal made by DIESSEL (2001) who claims that the Gm. *CND*-marker **wenn** primitively expresses *nonfactuality*. This is in contrast to earlier typological studies in which is argued that

> the conjunction is hardly associated with any specific meaning or any usage (or constraint of usage) and that it does not appear to be interesting and worthwhile to characterise the meaning of **wenn** with a consistent and uniform semantic label. (from FABRICIUS-HANSEN 1983; cf. SEIBICKE 1964; METSCHKOVWA-ANASSOWA 1983).

Whereas the latter claim that the interpretation of **wenn**-clauses depends mainly on other factors, DIESSEL's (2001) study in cognitive semantics suggests that **wenn** compositionally contributes *nonfactuality* to the complex sentence.

(231) a) Wenn er kommen sollte, gehen wir ins Kino.
if – he – come – should – go – we – to – the – movies

'If he comes, we'll go to the movies.'   (hypothetical conditional)

b) Wenn er gekommen wäre, wären wir ins Kino gegangen.
if – he – come – had – would – we – to – the – movies – have – gone

'If he had come, we would have gone to the movies.'   (counterfactual)

Both hypothetical and counterfactual conditionals always express a contrast between two contradictory possibilities, which are, according to DIESSEL (2001), implied by the nonfactual markedness by **wenn**. Therefore sentences like

(232) If he comes, we'll go to the cinema.

can also imply

(233) If he does not come, we won't go to the cinema.

This would mean the *CND* bipartitions the set of nonfactual worlds into those, where both predicates are true, and those, where both are false. Thus the implicational relation between B and A would be indirectly encoded by nonfactuality. DIESSEL (2001) also shows for uses of **wenn** in other kinds of clauses that it expresses this bipartition of worlds.

(234) a) Selbst wenn er kommt, gehen wir ins Kino.
           even – if – he – comes – go – we – to – the – movies

           'Even if he comes, we will go to the movies.'   (conditional concessive)

       b) Wenn man zu lange in der Sonne sitzt, bekommt man Kopfschmerzen.
           if – one – too – long – in – the – sun – sits – gets – one – headache

           'If you sit too long in the sun, you get a headache.'   (general)

       c) Wenn er bloß bald käme!
           if – he – only – soon – comeIRR

           'If only he would come soon!'   (optative)

       d) Wenn er bloß gekommen wäre!
           if – he – only *– come – wasIRR*

           'If only he had come!'   (optative)

Conditional concessives presuppose that the content deviates from the normal case (KÖNIG 1986). **wenn** disjoins the normal case from the described one. A focus PTC like **selbst** ('even') fulfils the pragmatic function of *locating this case on a scale of probability* (DIESSEL 2001).

    In general **wenn**-clauses, the speaker abstracts away from a particular event, which means that he disjoins a concrete case from its generic properties. And last optatives also express a potential situation or a counterfactual case, depending on the inflection of V. Similarly to our proposal, DIESSEL (2001) also regards optatives as complete utterances with an illocution but with SubC order. **Wenn** has the task of disjoining the described world from the concrete one.

    Although we think that DIESSEL's intuitions about the data are correct, we have two main objections to his conclusions, since the generalisations are both too strong and too weak. First, negation of a *CND* does not necessarily imply the

falsity of the MC. Contrary to DIESSEL's proposal on p. 296, the following conclusion is of course not excluded:

(235) If he does not come, we will go to the cinema anyway.

In logic, his analysis of nonfactuality would have to be expressed as a biconditional, which also shows that this is much too strong a claim.

(236) $\lambda\pi\lambda\phi[\ \phi\leftrightarrow\pi]$

We think that the semantics of the conditional clause do <u>not</u> even imply the matrix universally. As pointed out to me by HANS KAMP (p.c.), genericity rather than universality is the base of a logical function like *if*. *Strict conditionals* with a universal reading are only a subtype of the *CND*s. Therefore

(237) If a farmer owns a donkey, he beats it.

can be true even if there might be some farmer not beating his donkey, whereas

(238) Every farmer who owns a donkey beats it.

will be 100% false (cf. KAMP 1988, 74f.). As we observed, this raises an ambiguity in the conditional construction, if an adverb like ***usually*** is employed which is not there in the universally quantificational sentence.

(239) a) If a Farmer owns a donkey, he usually beats it.

        1. The farmer usually beats the donkey.
        2. Usually, a Farmer beats his donkey.

    b) Every farmer who owns a donkey usually beats it.

       Only 1. The farmer usually beats the donkey.

Along these lines, KAMP & REYLE (1993, 645) suggest comparing the *if*-clause to a time quantificational clause like

(240) Mostly, a farmer who owns a donkey beats it.

Besides, if all conditionals were strictly implicational, two premises like

(241) If J. Edgar Hoover had been a communist he would have been a traitor.

and

(242) If J. Edgar Hoover had been born in Russia he would have been a communist.

would imply that

(243) If J. Edgar Hoover had been born in Russia he would have been a traitor.

, which is a counterintuitive conclusion (KAMP 1988, 77, after STALNAKER 1968). Conditional chains are not necessarily conclusive.

It is also intuitively arguable that the truth of the matrix is implied by the conditional in a sentence like

(244) If you watch the news, I will go to bed.

This clause does not mean that in a potential world where X watches the news Y necessarily goes to bed, but rather that a potential world where X watches TV coincides with one where Y goes to bed. Thus any generalised formula like

(245) $\lambda\pi\lambda\phi\ [\phi\rightarrow\pi]$

postulating that in *CND*s there is always a strict implicational relation between A and B must be too strong, especially if it is attributed to the interpretation of the semantics of **if**/**wenn**. Instead, we suggest an intensional reading building on λ-quantification over possible worlds.

(246) a) If all this is true, syntax is easy.

     b) $\lambda w^*[\text{true}'(w^*,\text{all-this}') \rightarrow \text{easy}'(w^*,\text{syntax}')]$

     c) 'In the class of worlds, where all this is true, syntax is easy.

     d) or: 'Provided all this is true, syntax is easy.'

This expresses exactly the coincidence of two possible worlds existing, combined with a unidirectional implication of some of their properties. The same operation applies to counterfactuals. *IRR* inflection we analysed above as $w^*\neq w^\circ$. Counterfactual conditionals are therefore to be notated as:

(247) a) If I were you, I would read this.

     b) $\lambda w^*[w^*\neq w^\circ\,\&\,\text{you}'(w^*,x^\circ)\rightarrow\text{read}(w^*,x^\circ,\text{this})]$

How can we account for the functional potential yielding *sperative* and *optative* intentional mood, however? Since they are, like conditionals, not evaluated against the factual background, we also suggest having a λ-operator bind the index $\langle w,t\rangle$. *DEP* reading should, according to our account, be given through Q binding w^* in I°.

(248) $\lambda\phi\lambda w^*[\phi(w^*)\leftrightarrow\phi(w^\circ)]$

How does this fit in with our analysis presented above? And why does this not yield interrogativity?

(249) a) Is all this true?

      b) $\lambda w^*[\text{true}'(w^*,\text{all-this}) \leftrightarrow \text{true}'(w^\circ,\text{all-this})$

The difference must be the relation between w^* and w° given by *providedness* inherent *to* speratives, which must be somehow included in the operation from C$^\circ$ on the *DEP* world. Above we claimed that *providedness* is a subtype of *Q*. The essential difference is that there is no biconditional relation, but a simple implicational relation between w^* and w°.

(250) Wenn das (bloss) alles stimmt!
      if – this – only – all – is-true

(251) $\lambda w^*[\text{true}'(w^*,\text{all-this}') \rightarrow \text{true}'(w^\circ,\text{all-this}')]$

It is important to note again that this is not the logic of a sperative, but of a relation that yields the functional potential of expressing it as an intentional mood. The same is true for *optatives*, which differ from speratives by reference to the *IRR* world. This world can be simultaneous or anterior.

(252) a) If only I was there!

      b) If only I had been there!

Since the notation $w^* \neq w^\circ$ does not work for *irrealis DEP* clauses, we suggest expressing this relation by negation of the consequent.

(253) a) $\lambda w^*[\text{ there}'(w^*,x^\circ) \rightarrow \neg\text{there}'(w^\circ,x^\circ)]$

      b) $\lambda w^*\lambda t^*[\ t^* < t^\circ \& \text{there}'(w^*,x^\circ) \rightarrow \neg\text{there}'(w^\circ,x^\circ,t^*)]$

Note that even if there is morphological distinction between *IRR* and *IND* e.g. in Gm. posterior conditionals, it is redundant, such that it may result from formal paradigmisation and not from actual representation of distinctive IFs.

(254) a) Wenn er das lesen wird, ist er selber schuld.
        if – he – that – read – will – is – he – self – guilty

        'If he will read this, it is his own fault'.

      b) Wenn er das lesen würde, wäre er selber schuld.
        if – he – that – read – willIRR – isIRR – he – self – guilty

        'If he read this, it would be his own fault.'

All kinds of *jussives* are very similar to *optatives* in expressing the wish for a proposition to come true by contrasting two worlds, with the criterial difference of nonfactuality vs. counterfactuality. LOHNSTEIN (2000, 11) explains that the fulfillment conditions on optatives and imperatives are analogous to requiring that there is an index *j* replacing the index *i* from which it differs exactly by the property X expressed by *p*. In our terms this is expressed by the (bi)conditional relation between *w** and *w°*.

(255) a) $\lambda\varphi\lambda w^*[\varphi(w^*)\rightarrow\varphi(w°)]$ (*sperative/optative*)

      b) $\lambda\varphi\exists w^*[\varphi(w^*)\leftrightarrow\varphi(w°)]$ (*jussive*)

Although there is this characteristic common to optatives and imperatives, there is also a crucial difference: The evaluation of the fulfillment condition of imperatives takes place against a factual background of the utterance (LOHNSTEIN 2000, 65). Fulfillment conditions can be evaluated against the factual or against the nonfactual background. This is exactly what is, in our terms, expressed by the different quantification in the LFs of the *optatives* and clauses with *jussive* interpretation. With some tolerance with respect to options of pragmatic interpretation one could paraphrase an imperative as follows:

(256) a) 'Go to the cinema tonight!'

      b) "There is a preferable potential world of tonight differing from another one by the event that you go to the cinema".

This view gives us an appropriate criterion to contrast *jussives* to prohibitives, for which this paraphrase is in no way possible. *Prohibitives* are not (as is implied by recent accounts of clause mood) just negated imperatives.

(257) a) 'Don't you go to the cinema tonight'.

      b) ≠ "There is a preferable potential world of tonight differing from another one by the event that you do not go to the cinema."

We rather suggest a paraphrase like

(258) a) "There is no index i = ⟨w,t⟩ of this evening where you go to the cinema."

      b) $\neg\exists i[\text{this-evening}(i)\&\text{go}(i, \text{you}, \text{to-cinema})]$ (simplified)

It roughly corresponds to a clause like

(259) You will never go to the cinema this evening.

which could also be interpreted as *prohibitive* by pragmatics. Thus we suggest that [*NEG*] as a subfeature of *Q* can also be represented in C° as the head of the modal chain. It does not negate the truth-value but the *index of the fulfillment condition* on potential worlds in terms of Lᴏʜɴsᴛᴇɪɴs (2000, 65) analysis. Thus we suggest that the semantics of *jussives* and *prohibitives* are distinct by the operators ∃*w** and ¬∃*w** in C, both binding a variable in IDom marked as *DEP*.

(260) a) ∃*w**[λt*[study'(*w**,t*,you, lx)↔study'(*w*°,t*,j,you, lx)]]

b) ¬∃*w**[λt*[study'(*w**,t*,you, lx)↔study'(*w*°,t*,j,you, lx)]]

(261) a) study linguistics = I want you to study lx in a potential world at some time

b) don't study lx = I want you study lx in no potential world at any time
≠ I want you to not study lx in a potential world/ time

Evidence that a differentiation *jussive/prohibitive/optative* exists in IE languages comes from Persian. Since V never moves, the order of a Prs. imperative sentence is OV, which means that the modal chains can be PF-interpreted in the foot position. Specific marking of the verb occurs as a prefixed PTC. The subject can as in most languages be elided. Like in ancient IE, there is morphological differentiation between *jussives* and *prohibitives* (cf. p. 315ff). However, the PTC specific for prohibitives does not introduce the clause but is prefixed to V, such that *jussives* and *prohibitives* constitute a minimal pair.

(262) a) (tou) zabanshenasi **be-**khan!
you - linguistics – JUSSstudy

'Study linguistics!'

b) (tou) zabanshenasi **na-**khan!
you - linguistics - PROHstudy

"Don't (you) study linguistics !"

Since **na** is also the regular negation in declaratives, one would expect a *prohibitive* to look like a negated *jussive,* under the assumption that they are just IMPs with positive or negative intention. However, this is not the case. **Na** is not only *NEG* operating on *p* but can also interpret an antiveridical operator in C.

(263) *zabanshenasi **na-be-**khan!

Persian optatives are marked by *IRR* inflection of V and a *CND* PTC, like in many languages.

(264) **Agar** faghat man anja bood**am**!
      if − only − I − there − be-IRR-1stsg

      'If only I was there!'

Thus in Prs. there are different lexical parameterisations for the PF interpretation of the IFs representing the existential and classifying operators in C and *DEP* references in I.

(265) a) LF: ∃w*[study(w*,you, Ix)↔study(w°,you, Ix)]

      b) PF-parametrisation: [C – I – V*]

      c) zabanshenasi **be**-khan!

(266) a) LF: ¬∃w*[study(w*,you, Ix)↔study(w°,you, Ix)]

      b) PF-parametrisation: [C – I – V*]

      c) zabanshenasi **na**-khan

(267) a) LF: λw*[there'(w*,x°)→¬there'(w°,x°)]

      b) PF-parametrisation: [C* – [I$_{IRR}$ – V*]]

      c) **Agar** faghat man anja bood**am**

Interestingly enough, evidence for differentiation of *jussives, prohibitives and optatives* comes also from Japanese. In Jps., all three modal types are PF-interpreted by V as the foot of the modal chain.

(268) [C – I – V*]

Jps. imperatives are constructed either by V inflected for subjunctive + the PTC *ro* (positive imperatives) or V (indicative/unmarked) + the PTC *na* (negative imperatives). Optatives have a so-called 'provisional' PTC attached to V and are followed by an exclamative PTC that can only be used in MCs to support the illocutionary force.

(269) a) gengogaku   o   benkyou – si-**ro**
          *linguistics – ACC – study – do*SJT-*IMP*

          'Study linguistics!'

      b) gengogaku o benkyu suru-**na**
          linguistics – ACC – study – do-NEG

          'Don't you study linguistics!'

      c) sokoni ire-**reba**   na
          *there − stay*PRV − EXC

          'If only I stayed there!'

Like in Prs., there is a specific *IMP* PTC marking jussives and a *NEG* PTC applied to a verbal form that is neutral with respect to mood to express a prohibitive. What is striking is the subjunctive inflection used together with the *IMP* PTC, whereas *NEG+IMP* calls for the neutral form. This again shows that a combination of IFs is typical for the interpretation of *imperatives* which is not there if they are negated.

3.5.4. *Intentional Mood and Modal Marking: Interpretation at the Pragmatic Interface*

In the following paragraphs we want to argue that providedness as analysed in *CND* constructions can in fact constitute the functional potential of *optatives* and *speratives*, which are intentional moods (cf. p.233) interpreted at the pragmatic interface. However, since all modally marked clauses are in fact underspecified for their intentional mood, there is some vagueness and fluctuation between the pragmatic categories. Therefore, clauses with the same functional potential can be assigned either *optative* or *jussive* intentional moods in different languages.

That pragmatics is an important factor for optative interpretation is indicated by the fact that optatives almost require modal PTCs like **only** to sound natural. Also data from other Gmc. languages and Romance show that a modal PTC like **only** is, as a rule, employed to trigger optative interpretation.

(270) a) **Wenn** ich **nur** dort wäre !
if – I – only – there – wasIRR

b) **Als** ik **toch** stil was geweest
if – I – but – silent – had – been

c) **Ef** ég hefði nú **bara** þagað
if – I – hadIRR – now – only – kept-silent

(271) a) **Si seulement** je pouvais être là-bas !
if – only – I – could – be – there

b) **Se solo** fossi rimasto zitto!
if – only – bePRF-SJT – stayed – silent

These PTCs have the function of specifying the illocutionary type of the utterance marked by the *Q* operator, i.e. of restricting the set of possible worlds to the relevant one referred to. It is the *pragmatic* function of emphasising this relevance that essentially contributes to the interpretation. Semantics alone does not have the potential to express a wish, the same way that clauses with two possible truth

values are not yet exploratives. Both need pragmatics for the interpretation of the intentional mood. It must be the interface with pragmatics that interprets the semantic IF *Q* in collocation with other modal Fs.

What the set of worlds is meant to be restricted to is expressed by the proposition which is marked as *DEP* through I. *if* + ***only*** are obviously not solely responsible for the interpretation as optative. That the verb is inflected for *irrealis* (*IRR*) is the crucial property. *IRR* marking of C may even suffice to express an optative. This is shown by data from several languages where optatives can also be constructed as V1-clauses with V inflected for *IRR* (*subjunctive* or *conditional,* which corresponds to *future irrealis*).

(272) a) **Wäre** ich **nur** dort!   (Gm.)
            wasIRR – I – only – there

       b) **Hefði** ég nú **bara** þagað   (Icl.)
            HadIRR – I – now – only – kept-silent

(273) a) **Puisse**-t-il être là-bas!   (Fr.)
            couldSJT – he – be - there

       b) **Pourrais** j'être là-bas !
            couldCND – I – be – there

(274) **Fossi** solo rimasto zitto!   (It.)
       bePRF-SJT – only – stayed – silent

This can be accounted for as parametrically optional [C* – I – V] vs. [C* – [I – V*]].

Interestingly enough, in Norwegian the PTC introducing optatives differs from that of conditionals. Instead, ***om*** is used, the CMP otherwise used to embed interrogatives. This PTC never introduces CNDs.

(275) **Om** jag **bara** kunde gå ut!   (Nw.)
       If – I– only – could – go – out

(276) a) Jeg lurer på **om** gutten studerer lingvistikk.
            I – wonder – on – if – boyDET – studies – linguistics

       b) **Hvis** han skulle komme, ville jeg ga.
            if – he – should – come – would – I – go

This is not too puzzling if one assumes that not the PTC in C° but its collocation with verbal mood yields the semantics which can be pragmatically interpreted as optative. Modal PTCs like ***only*** are pragmatic markers supporting the interpretation of the intentional mood. ***Om*** might merely express the feature *Q*

representing simple openness (*nonveridicality*) operating on the predicate. Its pragmatic interpretation as *optative* is neither more nor less reasonable than that of *providedness* specific for conditionals, given that *verbal mood* can contribute *DEP* reference yielding some deontic reading. The variation is idiosyncratic, reflecting the relevance of *pragmatic convention* for the interpretation of clause mood.

There is some evidence from Gm. that in the absence of *IRR*, clauses introduced by the same PTC can also get volitional interpretation, however, not as *optatives*, but as special kinds of *jussives* (with 2nd sg indicative inflection) and as *speratives* (with other agreements).

(277) a) Wenn Du (mir)[153] bloss kommst!
            *if – you – me*DAT *– only – come*2nd*sg*

       b) Wenn er bloss kommt!
            if – he – only – comes

How does this fit the image? Let us take a look at more contrastive data. Another language where the optative PTC differs from CNDs is Latvian.

(278) a) **Ja** es būtu tur, es būtu   laimīgs.
            *If – I – was*IRR *– there – I – was*IRR *– happy*

            'If I was there, I would be glad.'

       b) ***Ja** es tikai tur būtu!
            If – I – only – there – would-be

            'If only I was there!'

There are several possibilities to introduce optatives. The most interesting is the one introduced by the PTC **lai**. It can imply optative interpretation of MCs if used together with V inflected for *IRR* and both sperative and jussive interpretation with indicative V.

(279) **Lai** tu mācītos lingvistiku!
        PTC *– you – study*IRR *– linguistics*

        "If only you would study linguistics!"   (optative)

(280) **Lai** tu mācies lingvistiku!
        PTC *– you – study – linguistics*

---

153 The ethical dative supports this reading like a modal PTC. It is not at all obligatory. Therefore THURMAIER (1989, 39ff) in fact suggests analysing it as a PTC grammaticalised from the pronoun.

"If only you will study linguistics!"   (sperative)
"You shall study linguistics!"   (jussive)

Ltv. **lai** is also a CMP. It is used in all object clauses expressing desires, demands and wishes, in contrast to factual object clauses introduced by **ka**.

(281) a) Es vēlos **lai**   viņš nemācās lingvistiku
          I – want – CMP – he – NEGstudy3rdsg – linguistics

      b) Es nevelos **lai** vins macas lingvistiku.
          I – NEGwant – CMP – he – studies – linguistics

      'I do not want him to study linguistics.'

(282) a) Marija palūdza Jāni, **lai** viņš atnes viņai ziedus.
          Mary – asked - John – CMP – he – brings –her – flowers

      'Mary asked John to bring her some flowers.'

      b) Es prasu **lai** viņš   nemācās lingvistiku
          I – demand –   CMP   – he – NEGstudy3rdsg – linguistics

      'I demand that he do not study linguistics.'

(283) Es nozeloju to, **ka** vins macas lingvistiku.
        I – regret – that − CMP – he –studies – linguistics

Only if SubCs express wishes, **lai** is used together with *irrealis* inflection of the verb.

(284) a) Es gribētu   **lai** es bū**tu** tur.
          I – wished – CMP – I – beIRR – there

      'I wished I was there.'

      b) tāpēc es gribu **lai** tu tur brauk**tu**
          therefore – I – wish – CMP – you – there – goIRR

      'therefore, I want you to go there.'

Besides, **lai** is used in purpose clauses, which also express an intention. Note the use of future tense in the adverbial.

(285) Pauls runā ļoti klusu **lai** nemodinātu Jāni.
        Paul – speaks – very – softly – CMP – NEGawakeFUT – John

      'Paul speaks very softly in order to not wake up John.'

However, **lai** is not only used as a PTC in C, but also as a modal particle in the lower structure. In this case it causes reading of *p* as deontic, which indicates *DEP*

rhetic mood. We give as an example a quote from a novel by HAINS (1993, 98)[154] that is embedded in the following context:

A man is in debt and has been looking for a rich wife. *Countess Holti* rejected him. Right now he is asking the creditor to give him some more time to pay the debts back. The answer is:

(286) Tas jau butu loti jauki, ja baronese Holti butu teikusi ja.
this – PTC – would-be – very – nice – if – countess – Holti – would – have-said – yes

Un tagad es **lai** gaidu, kamer jus noraida vel kada cita?
and – now – I – PTC – wait – while – you – rejectPASS – yet – any – other

'It would have been nice if countess Holti had accepted you – but she rejected you. And now I should wait until you are rejected by the next one?

Thus we see three uses of *lai*:

1. an introducer of volitional clauses triggering *optative* reading with *IRR*, *sperative* or *jussive* with *IND*;

2. a CMP of embedded demands and wishes, whose interpretation also depends on verbal mood

3. a PTC in the IDom marking the rhetic mood;

A similar phenomenon can be observed in Rus., with the only exception being some evidence for compositionality in the CDom. There is an *IRR* PTC **by** that is used to mark *IRR* mood of I, but also together with the CMP ***čto,*** which is a factual CMP if it stands alone, to specifically mark complements of *volitional* V and regulative constructions. Note that the combination ***čto-by*** is regarded as one word in traditional Rus. grammar and therefore orthographically contracted. It also often occurs in the reduced shape ***čtob***. Thus it is regarded as a CMP specific for *nonfactual* embedded clauses (cf. ŠIMČUK & ŠČUR 1999).

(287) a) Ja xotela **by**,   **čto**-**by**   ja byla tam.
I – wished – IRR-ptc – *that – IRR*-ptc. *– I – was – there*

'I wished I was there.'

b) Ja trebuju, **čto**-**by**   ty izučal lingvistiku.
*I – demand – that – IRR*ptc *– you – study – linguistics*

'I demand that you study linguistics.'

---

[154] Thanks to *Kristine Užule* for thinking of this vivid example.

c) Daj   bog,   **čto-by** vsjo bylo xorošo.
   *Give*IMP. – *god – that – IRR*ptc *– all – was – good*.

   'Give God that all will be good.'

d) Smotri, **čtob** on lingvistiku izučal !
   *care*IMP- CMP/*IRR – he – linguistics – studied*

   "Take care that he studies linguistics!"

The same feature combination is also used in purpose clauses. The combination of the *IRR* PTC and CMP seems to impose the reading of intention to a subordinate proposition, as it also does in wishes and demands.

(288) Xans govorit očen' tixo, **čtob**/ **čto-by** ne razbudiť Franca.
      Hans – speaks – very – softly – CMP/IRR – NEG – wake – up – Franz

      'John speaks very softly in order to not wake up John.'

Interestingly, in Rus. counterfactual conditionals, *irrealis* is not interpreted by inflection of V, but also by the *IRR*-particle '**by'** following the conditional CMP *esli* ('if'). Besides, it is **also** employed in the matrix clause to mark *IRR* mood.

(289) a) Esli **by**   on prišöl,   ja **by**   ušla.
        if – IRR – he – came – I – IRR – went

        'If he came, I would go.'

    b) Esli **by**   ja byl(a) tam,   (to) ja byl(a) **by**   rad(a).
       if – IRR – I – was – there – then – I – was – IRR – glad

       'If I was there, I would be glad.'

It is very clearly the lexical realisation of an IRREALIS feature that can be generated either in C or the lower domain. Depending on whether it is used with *čto* or *esli*, the modal semantics of SD differ and trigger different options of pragmatic interpretation of types of volitional clauses. The combination with *čto* can be interpreted as *jussive* or *sperative*.

(290) a) Esli **by**   tol'ko ja byl(a) tam!   (*optative*)
        if – IRR – only – I – was – there

    b) **čtob**   ty lingvistiku izučal !   (*jussive/sperative*)
       PTC – *you – linguistics – studied*

What we want to suggest is that the *IRR* feature can operate on different levels and thus trigger different readings. Moreover, there seems to be a crucial difference whether it operates together with *čto* or the nonveridical operator *esli*.

Note that with *esli*, *nonveridicality* is even a lexically transparent F. Interestingly, *esli* is etymologically a contraction of an existential verb *est'* ('there

is') and the interrogative PTC *li* (< *est'li*; cf. SOROKIN & al, 1992, 81). Since, according to our account above, an interrogative PTC should have the lexically specified function of interpreting *Q* (nonveridicality), this means the complex CMP may be synthesised with the representation of an existential. The existential may have diachronically moved to the projection of *li* where the PTC was post-cliticised. Then the complex was reinterpreted and grammaticalised as representation of a bundle of Fs like:

(291) [C + Q]*: **esli**

Similar to the languages fronting *IRR* in form of V-inflection (see above), Rus. can express *IRR* in C through a PTC. In our terms of F-scattering this implies that *IRR* can be represented by a separate head that is in a chain relation with V_{FIN}. In non-scattering languages like Gm., there are two possible chains that interpret what is in Rus. expressed by the two adjacent heads [*CND-IRR*]* that are in a chain with V°. Either *CND** is in a chain with [*IRR*+V]*, where *IRR* is expressed morphologically as part of a head syncretised with V. Or even all three IFs can be syncretised in C° as [*CND*+V+*IRR*]* and PF interpreted by V_{IRR} in C, which explains why V-fronting can express the semantics of the conditional PTC.

What exactly could the combination of a CMP like *čto* and a PTC representing *IRR* like **by** contribute to the LF of a clause however? **by** certainly does not mark a clause as *IRR*, since it is able to express the same deontic modality Ltv. **lai** does if *not* used with *IRR* mood, which implies the possibility that deonticity is something that is expressed by a complex function of *čto* and *IRR*. This is supported by the fact that there is evidence for some tolerance with interpretation of *IRR* in C° with *čto* if they are not contracted. Those clauses may then even be interpreted as optative.

(292) Čto by sejčas vody poxolodnee!   ŠIMČUK & ŠČUR (1999:139)
      čto − by-IRR *− now − water*-GEN *− colder*

      'If we had some colder water, now!'

This means it does not even really depend on the initial PTC whether the clause can be interpreted as optative or not, as long as *IRR* is represented as an independent IF in C. **by** in lexical composition with *čto*, however, does not trigger *IRR* reading but expresses another operation with deontic implication.

lai and *čtob* are obviously not syntactic *IMP* or *OPT* particles (if such items should exist) but semantic markers expressing some deontic modality. They are in a chain relation with V_{FIN} such that verbal mood decisively takes part in semantic interpretation. Together with *IRR* (which presumably expresses counterfactuality on I level), *lai* expresses an *optative*. With the indicative it has volitional interpretation related to an event that is not marked as counterfactual but must be nonfactual due to the nonveridical property of non-declarative utterances. This is true for all imperatives, although they do not license negative polarity in Eng..[155]

(293) a) Study linguistics!   −/ → [the adressee studies linguistics] = 1
          b) Bring me some/ *any[156] books!

Depending on agreement (which can express reference to an *actor* as the addressee) this volitional interpretation can be *sperative* or even *jussive*, if *p* addresses a subject. Since there are neither *SPE*, *OPT* nor *IMP* as FFs lexicalised by *čtob* or *lai*, but all that is expressed is missing fulfillment of the background (in terms of LOHNSTEIN 2000, 65; cf. above, p. 300), these clauses can be interpreted as all of them, though dependent on what further modal marking is there in the dependency.

More evidence for this comes from Gm., where there are sentences that are in a way ambiguous between *sperative* and *jussive*, or in other terms, where they are actually the same.

(294) a) Gib Gott, dass alles gut werde.
             *give – God – that – all – good – become*SJT

             'Give God that all will be good.'

       b) Die Klausuren korrigiere diesmal bitte ein Fachmann.
             *the – exams – correct*SJT *– this-time – please – a – professional*

             'I wish/ hope/ want that this time a professional corrects the exams.'

       c) Gehen wir doch heute abend ins Kino.
             *go*SJT *– we –* PTC *– today – evening – in-the – cinema*

             'Let's go to the cinema this evening.'

---

[155] cf. fn. 141, p. 269.

[156] Any is possible here with *free choice reading*, which is not polar.

The reason for this ambiguity must be the same underspecification which is responsible for the ambiguity in Ltv. **lai** clauses and Rus. **čtob(y)** clauses without *IRR* in I.

Both in Ltv. and Rus. there are also regular morphologically marked imperatives, which are unambiguous. V is not fronted to the CDom, however, as the pronominal subject in the negated *IMP* shows, which can be used under contrastive interpretation.

(295) a) Izučaj   lingvistiku!
         *study*IMP – *linguistics*

   b) (Ty) izučaj   ne lingvistiku!
      *you – study*IMP – *NEG – linguistics*

      'Don't you study linguistics!'

(296) a) Mācies lingvistiku!
         study – linguistics

   b) Tu Nemācies lingvistiku!
      you – NEG*study – Linguistics*

      'Don't you study linguistics!'

Our proposal is at the moment: V inflected for *IMP* expresses as a lower co-member of a chain representing some information which is otherwise expressed by the combination of the PTCs **čto** and **by** in the Rus. CDom or by the single head **lai** in Ltv., and, crucially, some additional information in IDom that makes imperatives unambiguous and must be implied to fix the reading of **čtob/lai** – clauses as *jussive*.

We assume that in both IMPs and CPs embedded by *volitional* V like *demand*, a dependency of modal IFs is PF–interpreted by the chain between C° and verbal inflection in languages like Rus. and Ltv.. A little evidence for such a dependency is found even in Eng. and also in Fr., where certain predicates trigger subjunctive inflection in the SubC (at least in most varieties of American Eng., cf. Haegeman & Gueron 1999, 106f).

(297) I demand that he stud**y** linguistics.

(298) Je veux que tu y **ailles**.
      *I – want – that – you – there – go*SJT

      'I want you to go there.'

Without classifying them, HAEGEMAN & GUERON (1999, 328) state that the subjunctive is selected by certain kinds of predicates. They give as examples

(299) a) I demand/ urge/ insist/ *say/ *think/ *believe **that** he **be** there.

b) It is vital/ essential/ important/ *true/ *false/ *strange **that** he **be** invited.

All these predicates imply some deontic modality, giving the SubC a volitional reading. This is expressed through subjunctive inflection; however, we assume that like in Ltv. and Rus. the modal chain of the SubC is headed by CMP, such that its modal type is represented by the dependency between C and I.

Since in Eng. the modal Fs cannot be expressed by CMP, certain varieties PF-interpret the modal dependency through the inflection of V, thus it is interpreted by the chain between CMP and the embedded V inflected for *SJT*. In Rus. and Ltv. there are PTCs in C that can represent syncretised Fs of modality, which can also express C_{SUB} and be assigned case. Therefore they are used as specific CMPs in these contexts. Thus the modal Fs are interpreted in C. Since C, I and V are in a modal dependency, either of the heads can PF-interpret the modal Fs language specifically.

(300) a) [. . . demand – lai* – [I* – V] . . .]   (Ltv.)

b) [. . . demand – that – I – V+SJT*] . . .]   (Eng.)

That the head C° also contributes to the interpretation of modality in Eng. is independently supported by the fact that in SubCs selected by them, the CMP cannot be dropped for almost every speaker using it (cf. HAEGEMAN & GUERON 1999, 513).

(301) I demand %*(that) he not study linguistics.

We think this is the case since the head of this dependency must be identified within the SubC, according to the principles we specified in (2.1) of this dissertation.

We now want to try to find what constitutes a jussive modal type and thus what makes an imperative unambiguous, whereas the clauses with ***lai/čtob*** are not. As already mentioned, for the interpretation of an imperative the reference to an addressee seems criterial (cf. also LOHNSTEIN 2000, 64). Suggestions like *criterial SUBJECT-drop* are controversial, however (cf. DONHAUSER 1987, 63ff).

(302) a) Somebody give me the book!

     b) Sag keiner, er habe das nicht gewusst!
       *say – noone – he – has*SJT *– that – not – known*

     'None of you should say he did not know that!'

It seems that dropping of the subject applies only to the default addressee, which cannot be anything else, but a 2^{nd}p. sg or pl pronoun. In addition, it applies only if such a pronoun would be unstressed, however, and then it is obligatorily.

(303) a) Lies ihr *(DU) bitte das Märchen vor.
       *read – her – you*SG *– please – the – fairy-tale – to*

     b) Lies (*du) ihr bitte das Märchen vor.

     'Please, would YOU read the fairy tale to her!'

(304) a) Geht heute *(IHR) bitte einkaufen.
       *go – today – you*PL *– please – shopping*

     b) Geht (*ihr) heute bitte einkaufen.

     'Would YOU go shopping today, please.'

We do not have a real explanation for this phenomenon; however, it seems clear that a missing subject first must not lead to the loss of referential information and second does not have anything to do with the modal interpretation. On the other hand, it seems to have some pragmatic relevance. Note if the addressee is dropped in indicative clauses introduced by ***čtob*** or ***lai,*** they get unambiguously *jussive* interpretation, which normally is characteristic of imperatives:

(305) a) **čtob**   lingvistiku   izučal
       PTC *– linguistics – studied* (possible for all three pers. sg)

     b) **Lai** mācies lingvistiku!
       PTC *– study*2ndsg *– linguistics*

Of course this is again evidence for the criterial instance of pragmatic interface interpretation.

What seems to be clear is that in Gm. IMPs, V is always in C (like in all V1 clauses). The question is now whether one can take this as evidence for some 'deontic' modal F paralleling the one represented by ***lai*** or ***čtob***, which then would be interpreted by V the same way as in Y/N-Qs. We would claim yes, and that it is in a chain relation with V that interprets it in C, however, together with the IF expressed through inflection, which makes an *IMP* in contrast to the Rus. and Ltv. clauses unambiguous.

Some more evidence that an IF contributing to the interpretation of specific deontic modality is generated in the CDom and can also be PF-interpreted is found even in Eng.. The data is not very transparent and also partly very puzzling though. Normally V does not move in Eng., and there is never an AUX inserted in C of IMPs, such that clauses like

(306) Study Linguistics !

just seem to be subjectless IPs. In negated imperatives, however, *dummy do* and negation precede the subject. Thus, unless we assume that the subject remains in SPEC/V in imperatives, it seems clear that some F that is in a chain relation with V is positioned in C. But why is it realised by **do** only in *negated* imperatives that are interpreted as *prohibitive*? Why can't we just negate I?

(307) a) Don't (you) study linguistics!

     b) *(You) don't study linguistics!   (if not a reinterpreted declarative)

It seems necessary to look again at *prohibitives*. There is some evidence from ancient Indo-European that it morphologically differentiated the functionally close, but yet semantically slightly different modal types *optative, jussive, prohibitive* in all clauses and *potentialis* only in SubCs. IE had predominant SOV order, whilst specific morphology indicated modal functions (cf. BRUGMANN 1904, 647, 680)[157]. The *modus optativus* was originally used to express *volitional, hortative, prospective* clause mood only in optative MCs. The *subjunctive* was mainly used in SubCs with *volitional, deliberative* and *prospective* interpretation (BRUGMANN 1904, 580ff).

(308) a) [[there] go-(**opt**)-(3^{rd}sg)]   = If only he would go there!

     b) wished (CMP) [[there] go-(**sbj**)-(3^{rd}sg)]   = I wished he would go there!

The most specific property of the *subjunctive* was that it obviously was in a chain with C_{SUB}. Later, the verbal moods *optative* and *subjunctive* were syncretised in Gmc. and the *optative* was then also used in subordinate clauses. Besides, there was morphological distinction between *jussives* and *prohibitives*.

(309) a) there go-(**Imp**)   = Go there!

---

[157] Thanks to ERIC FUß for the references.

b) Neg-Ptc. there go-(**Inj**)   = Do not go there!

The clause initial *NEG*-PTCs (Skr. *ma*, AncGr. $\mu\eta$ (< IE *me*)) were negations exclusively used in sentences of *prohibition*, originally only together with the *injunctive* (BRUGMANN 1904, 612). *injunctive* inflection did not actually have a modal function but was neutral with respect to tense or mood (cf. BUSSMANN 1990, 551). IE *me did not express *negation* of the *command* but *prohibition*, the function *command* being reverted by immediate application of *NEG*.

As shown above (p. 301), this system has some remnants in Prs.. In the other younger IE languages, word order properties started to fulfill functions for clause typing resulting from the loss of specific modal morphology (cf. FUSS 2000, ÖHL forthcoming, a). Among others, modal differentiation between command (*imperative*) and prohibition (*injunctive aorist*) was lost. The *injunctive* was integrated into the paradigm of the *imperative* and the prohibitive PTC was used together with the moods *imperative, subjunctive, optative* in Sanskrit, Greek, Lat. and Gmc.. This means, the negative PTCs did not express the complex function of *prohibition* anymore, but were used for inverting the interpretation of the verbal mood. Thus, there could be negative *commands* and *optatives*, i.e. *prohibitions* and rejections.

Moreover, the *optative* used together with the negative PTC was often used to compensate for the missing negated *imperative*, as in Gothic (cf. BRUGMANN 1904, 582).

(310) ni   balwjais   mis
       NEG – torture2nd*sg-opt – me*
       "Do not torture me".

Obviously the semantics of the Fs expressed by the inflections of *optative, subjunctive, imperative* and by a *prohibition*-PTC are correlated – maybe distinguished by only one primitive IF modifying the type of deontic modality. We think that therefore the inflections could be replaced by each other when the PF-interpretations of the F combinations were diachronically reanalysed.

Indeed, what all of the modal types in the languages discussed in this last section have in common is that there is some evidence for either a *nonveridical* operator or an operation with nonveridical properties. Nonveridicality is therefore

characteristic of all sentences not belonging to the maximally unmarked class of declarative utterances. In the marked cases of reference, which are

(311) a) $\lambda\varphi(\neg)\exists w^*[\varphi(w^*)\leftrightarrow\varphi(w°)]$

      c) $\lambda\varphi\lambda w^*[\varphi(w^*)\rightarrow\varphi(w°)]$

, there is a fulfilment condition introduced as soon as *w** is operated on, restricting the valid proposition to either $\exists w^*$ or $\neg\exists w^*$, or, in the case of optatives and speratives, leaves it open. Even antiveridical operators can get to work on $\langle w,t\rangle$ in different ways if generated in C. A sentence with negative quantification of $\langle w,t\rangle$ can be interpreted as prohibitive, which can be regularly PF-interpreted in paradigms like those of ancient IE, Jps. and Prs.. The structural representation of the crucial kind of quantification marking clauses as *–DCL*, however, is possible through the IF *Q* represented in C° binding variables in I°, which results in the lack of the truth-value in all non-declaratives. Idiosyncratic and system-internal variation in interpretation of certain modal types follows from underspecification of the semantic markedness which offers pragmatic options to specify the illocutionary types.

3.6.   Summary of Chapter 3

In this Ch., we proposed a model of modal marking of both MCs and SubCs in natural language. It has been shown that a generalisation over formal clause types specifying clause mood must be both too weak and too strong. Interpretation of clause mood must apply to a more complex system of markedness at the interface of syntax with semantics on the one hand, and of pragmatics with semantics on the other hand.

       Semantic markedness is represented in syntax by dependencies, i.e. chains of conclusively interpreted heads consisting of IFs relevant for logical interpretation. There is a modal dependency in non-declarative clauses where nonveridicality represented in C heads a chain ending in V. Since it is a nonveridical dependency, the proposition is not assigned a truth-value. The modality of S can be further specified by more modal IFs in the dependency, represented in either CDom or IDom.

The CDom plays a prominent role for representation and PF interpretation of this dependency. The options for PF interpretation are:

- V (+ verbal Morphology)

- XPs with specific lexical Fs (*Wh*)

- Particles (including CMPs, which are PTCs that do not only represent a modal F but also C_{SUB} and maybe a nominal F that can be selected by V assigning case to it).

In the case of Qs, V_{FIN} in languages like Eng. and Gm. interprets the modal F Q in C through PF-realisation of the chain C − I in C°. We suggest that it is a nonveridical operation on the truth variable $\mathbb{B} = \{0,1\}$ (cf. PAFEL 1997, 310f), which we account for as formal representation of an IF *nonveridical* (*Q*) which can have various instances of realisation in HL. This IF is a lexical entry for a function over sets of possible worlds of P, yielding the specific operation on $\mathbb{B}$. Local interpretation of Q in other languages can take place through PTCs or their combination with verbs. In many languages, a *Wh*-operator can both focus an item with open reference (a *variable*) and interpret Q in C. In other languages, Q and *Wh* are separately represented.

The parameterisation of the structural representation and the interpretation of IFs applies to both the lexicon and phonology, yielding scattered or syncretised categories and PF interpretation of chains applying either locally isolated to single heads or coherently to one of the heads. In Eng. and Gm. SubCs Q is represented together with the F of dependent time reference C_{SUB} and PF interpreted either by the CMP *if* (or *ob* respectively), or by a fronted *Wh*-element. Asymmetries in the selection of *Wh*- or *if*-clauses are based on a lexical property of selection of a focus F where Q is represented on the lexical level, yielding open argument reference but not nonveridicality. Therefore, those *Wh*-clauses are, like declaratives, veridical, the extension of the selected proposition is a truth value.

If an *if*-clause is selected, Q must be licensed by selection, which means the set of values replacing the variables is defined as Q through the function implemented by the predicate. Unselected embedded questions can be explained through a polarity F that only a subtype of the ***factive epistemic*** predicates have. Such V license nonveridicality if bound by a nonveridical operator like *NEG* or *Q*.

In this case, *Q* (or its subtype *NEG*), the predicate and *Q* of the SubC form a dependency that is interpreted relative to the head of the chain, the highest *Q* in the modal dependency.

The asymmetry of interpretation and the syntax of *Wh*-Qs and Y/N-Qs has been explained as nonveridicality interacting with focus. This has been analysed as V fronting to FOC° to mark maximal sentence focus on the one hand, which can interact with topic fronting out of the focus marked by V, and specification of FOC° by a focussed constituent on the other hand, which inverts the sentence focus. If this constituent contains a quantifier of open argument reference, interrogativity applies to the restricted focus due to quantification.

In the last section of this chapter, we proposed a model generalising the nonveridical dependency over other modal types, which has been made plausible by the fact that all non-declarative moods (or clause types) lack a truth-value. Non-declarative moods are those suitable for performing explorational and volitional acts. All of them have specific nonveridical operators in CDom binding variables in some instance of CDom or VDom. This supports our view that we can dispense with syntactic type features, since clause mood is sufficiently encoded by the syntactic representation of the dependency of IFs that, of course, has its specific PF interpretation.

Exclamatives we do not treat in our framework of modal IFs, since we agree with ROSENGREN (1997) that performing an act of exclamation accesses kinds of semantic Fs that are different from those constituting the modal types discussed in this chapter.

4. Conclusion

4.1. Summary

What this thesis is meant to carry out is the approach to a linguistic model that is in two different regards suitable for explaining the phenomenon of structural description (SD) of the reference to properties and circumstances in the world in an optimised way.

First, the target is to design an apparatus of generation of syntactic structures operating economically in both methodological and technical respects. This is in the spirit of the economy principle of natural language, which the generativist model of the MP is based upon. CHOMSKY (1993-2000) argues the point that generative grammar (i.e. the mental apparatus which enables us humans to produce structural descriptions) is a system optimised for this target, such that an economic way of reaching this target must simultaneously also be the way in which it is actually achieved. Uneconomic (and thus not optimal) solutions of the problem of structure production in natural language that can be observed empirically, CHOMSKY calls *evolutionary imperfections*, which are to be restricted by economy principles.

One of those imperfections is *move α*, the fact that items may not be represented at their base position in syntax but moved to a specific position for certain reasons. The MP explains the motivation for this movement through the generation of the logical form LF by derivational movement of the lexical items inserted in base positions to specific functional positions. This movement is triggered by formal features that attract those lexical items to their specific syntactic position for checking the functional marking. A convergent LF consists of a structure where all formal features were extinguished by attracting the corresponding semantically contentful items to their positions and checking them. Language specific word order variation arises as a result of parameterising the strength of the formal features. Strong features are checked on the way of the derivation to LF before the point of '*Spellout*', weak features thereafter.

In the MP, different derivational and representational economy principles were abstracted, controlling the movement of the items to their positions. They

replace a larger number of more differentiated principles of the earlier GB model, which controlled the wellformedness of the SD. Methodologically, the reduction of the necessary assumptions of principles is meant to be in the spirit of economy.

In this thesis it is argued that by the reduction of principles a model was created that is uneconomical in technical respects. The plausibility of numerous assumptions of the MP about sentence generation both in technical and conceptual respect is discussed. The statement of the MP that derivational movement of items in syntax represents imperfection with respect to economy is developed further by the design of a representational model where *move α* and thus its restriction by economy principles does not play a role.

This assumption is based on work by HAIDER (1996a, 1997b), which states that economy must be an inherent property of an SD if it is generated representationally through projection of the lexical and formal properties of underlying items. A projection is always the minimal structure that converges with the linear order in a phonological string. In a representational model, this minimal convergence of structures is the measure of economy, such that phenomena contradictory for derivational models, like optional 'movement', are not problematic.

In this thesis we try to compile the technical finesses that a representational model requires. The starting point is a statement by BRODY (1995) that the derivation of two different representations LF and PF is implausible since they must fulfil the same convergence conditions. For him it follows theory consistently that LF and PF must be the same representation. Therefore, LF cannot be derived after '*Spellout*'. This means, however, that PF is nothing other than the phonological representation of LF. Thus, idiosyncratic word order differences can be explained by parameterisation of the phonological interpretation of LF.

Such a model has been designed by ROBERTS & ROUSSOU (1999, 2002). For them, the apparent imperfection *move α* is based on the parameterised phonological interpretation of head chains, which can take place in different positions of such a chain. Both BRODY and ROBERTS & ROUSSOU proceed from a

system of a universal syntactically represented hierarchy of functional heads, which predetermines the options of occupation by lexical items.

In this thesis it is argued that in an economic SD, there are only as many head positions available as are necessary for the representation of the items in the linear structure. If the representation of the informative features (IFs) relevant for the logical convergence can be carried out by a smaller syntactic extension of functional heads than implied by the number of functional features, a system parametrically specified for this possibility will use it. Technically this is accounted for by parametric scattering of functional features, such that language specific variations of syncretic functional heads can occur. This is based on an assumption by GIORGI & PIANESI (1997). Thus, not only the phonological interpretation of IFs is parameterised, but also the option to distribute them over several heads or generate them in bundles. Both can be explained as lexical parameterisation, however, such that the assumption of parameters like the strength of formal features or syntactic economy principles is necessary neither for the occupation of different SPEC positions by the same items in different languages, nor for the parametric distribution of heads.

Besides economic optimisation, this model raises the question of how a system that generates complex expressions is suitable for an SD at all. That the PF should not be anything but the idiosyncratic interpretation of an SD of the LF implies that it enables the interpretation of LF. The LF must thus be transparent in a specific way. We therefore suggest a model similar to that of STECHOW (1995), where each PF has as its basis a unique semantic representation whose generation exclusively involves IFs that are used for the interpretation of SD. They are inserted into syntax as heads representing functions whose complexity depends on the parametric head syncretism. By their application to individuals (i.e. their arguments), a phrase is projected. Both the number of projection levels and the restriction of the categorial and semantic argument features follow from lexically determined licensing conditions.

Our PLG model is thus a grammar of the syntax/semantics interface. It is developed on the basis of the theory of the projective grammar designed by HAIDER (1993). Projections are iterable; the iteration is limited by the number of

variables of a predicate. We assume that predicates are semantic functions whose variables are replaced by (recursive) projection according to lambda calculation. Projection thus produces the structure for the representation of intensional semantics of S (cf. HEIM & KRATZER 1998).

This concept requires a somewhat more tolerant version of the X'-principles which makes no restrictions with respect to the number of complement and specifier positions. Besides we need a phrase structure free of "labels" (like VP, TP, CP etc..) as for instance BPS proposed by CHOMSKY (1995). Since a lexically specified (sometimes complex) function determines the projection of the phrase alone through its lexical specification, this enables us to apply the principles of compositional semantics as formulated by FREGE (1891) to generative syntax.

(1)   ***Frege's Principle***   (adapted; cf. HEIM & KRATZER 1998)

    1. The semantics of a node is a product of the semantics of its daughters.

    2. Interpretation applies to the dominating nodes.

    3. Projection is either selection or unification of functions

    4. Selection is (sometimes recursive) application of a function (represented by X°) to a individuals (represented by YP, ZP).

Projection in our system is thus a replacement of the variables by individuals. The mother node represents a saturated function and is an individual that can again saturate a higher function.

(2)

$$\beta = f(\alpha)$$

$$\alpha \qquad\qquad f(x)$$
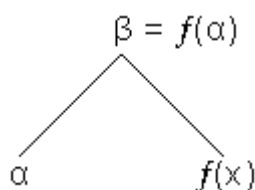
The fact that in an SD no conflicting functions are configured is ensured on the one hand by selectional restrictions, and on the other hand by the assumption of syntactic dependencies of related IFs which represent lexically licensed scope relations in a conceptual hierarchy represented by a chain of c-commanding heads.

In order to produce compositional SDs, we use functional application as proposed by MONTAGUE (1969, 1973) for our semantic representation LF. However, we want to avoid the crucial weakness of the kind of categorial

grammar he uses (as first proposed by AJDUKIEWICZ 1935) – i.e. the lack of autonomy of the syntactic module. In our model, the syntactic rules do not result from semantic functions. Instead, the representation of semantic formula is subject to numerous syntactic constraints and principles.

Thus, we develop a representational theory of syntax which meets the conditions of transparent LF interpretation by integration of the syntax/semantics interface to the computation of phrase structure. We apply this theory to explain different aspects of licensing elements in complex expressions. Since the model is representational, it does not only permit an inclusion of the interface of syntax and semantics into the study of structural descriptions. Under the assumption that pragmatics also forms an interface with both syntax and semantics and contributes to the generation of structure, it first follows that semantic features in a functional extension above the projection level representing the proposition are interpreted pragmatically. Secondly, there is also a peripheral functional extension of the clause, which produces a base structure offering options for pragmatic information structuring. A further important function of this peripheral projection level is hosting CMPs that introduce embedded propositions.

We assume that the domain relevant for the pragmatic interface interpretation is the CDom, much discussed by RIZZI (1997). However, in our terms, it is not a functional projection (perhaps split up into several more specific phrases), but only an abstract notion for the syntactic domain where phrases of a certain type can have their position. In contrast to the IDom which hosts phrases of propositionally relevant features, in CDom there are heads that are either illocutionary relevant or mark the clause as a dependent clause without illocutionary force. One can in fact claim that the IFs making a full clause of the proposition are those in the CDom. What according to CHOMSKY (1986) has been termed "complementiser phrase" might therefore be replaced by the more appropriate "*clause phrase*", which can still be notated as CP.

We argue that in the CDom there is a temporal feature that allows interpretation of verb tense relative to speech time. This means there is a syntactic representation of the threefold temporal logic based on REICHENBACH (1947) by a syntactic dependency of related IFs. It ensures conclusive tense interpretation,

because speech time, reference time and event time are syntactically related. This is based on a suggestion by ROBERTS & ROUSSOU (2002). The contrast between the structure of matrix clauses and argument clauses is then explained by the representation of different temporal features in C, since the latter do not have *speech time* or autonomous time reference. It is assumed that C° hosts a feature which is integrated into the superordinate tense dependency by binding.

This is not the only function of the category CMP however. It is assumed that beside the semantic IFs, which represent the basic interpretation of LF, formal IFs are also relevant for licensing heads and phrases in the SD. They are, besides the categorial Fs like V or N, case and agreement. They serve the formal identification of syntactic relations and are interpreted computationally during the projection. Since argument positions are licensed by case, only items of the category N can be there. N is the categorial feature of CMP, which enables clauses to be generated in argument position. German V2 complements are therefore not structural argument-clauses. Thus, they can be generated neither in an argument position, nor can they have a correlative in argument position.

The CDom also plays a central role in structuring information. In many languages, topics or focused constituents can be fronted to the left periphery. From V2-languages like German comes the crucial evidence that this dislocation fills one (or several) position(s) before a functional head, which can be identified by the verb. Descriptively this head serves to structure the clause into two utterance-relevant sections in those languages, which in traditional (functional) grammar is termed as *theme-rheme* arrangement or *topic-comment* structure.

In German the projection of clause focus proceeds from the verb. In the normal sequence of its arguments (and also adjuncts in accordance with the conceptual structure) and under normal stress on the most deeply embedded part of a sentence, a clause has always *maximal focus* (cf. HÖHLE 1982). Based on the observation that that a V1 declarative likewise always has maximal focus, a relationship between the two head positions is established. The head that is lexicalised by V1 defines the focus domain through its scope. Therefore we call this head FOC°. The projection of this head, which represents a feature of the interface of syntax and pragmatics, generates the base structure open for

information structuring through pragmatics. V2 clauses come to exist through the fact that the SPEC of this head is pragmatically filled by a constituent designated as topic. This can be either a thematic item which is extracted from the scope of the focus head, and thus from clause focus; or a rhematic one that is to be focused alone at the top of the clause, which yields focus inversion.

Additionally the CDom can host semantic features which serve the interpretation of the illocutionary type of a clause, which has, according to MEIBAUER (1987), been explained as the pragmatic interpretation of the clause mood. In (formal) Generative Grammar it is often assumed that clause types have corresponding formal type features, as for instance

(3)   **_Typal Features_**   (cf. GROHMANN 2000)

          [S]: syntactic declaratives   [M]: syntactic imperatives

          [Q]: syntactic interrogatives   [E]: syntactic exclamatives

, which have specific formal implementations checked by LF (GROHMANN 2000) or interpreted through pragmatic specification of the illocutionary type (BRANDT & al 1992). The fundamental weakness of such an assumption is, in our view, the neglected separation of the _formal type_ from the _functional type_, which is inherited from traditional grammar. Traditionally, researchers have been misguided by functional generalisations over types, which should be formally derived. We repeat here in short some of the problems that arise from this.

According to BRANDT & al (1992, 31) and BRANDNER (1996) V_{MC} selects C with a specific feature _Wh_.

(4)   a) I do not know if he saw him.

        b) I do not know whom he saw.

Suggestions like the following are usually uncritically accepted in GG: In _if_-clauses it is CMP which expresses _Wh_ by SPEC head agreement with an empty _Wh_ operator, in _Wh_-Cs the head agrees with the _Wh_-item that fills SPEC/C. However, the embedding of _if_ and _Wh_-clauses has different conditions, as for example shown by FORTMANN (1994). Not all V embedding _Wh_-Cs also embed _if_-Cs.

(5)   a) John understood that he should leave soon.   (FORTMANN 1994, 3)

        b) John understood who should leave soon.

c) *John understood if he should leave soon.

Thus, *Wh*-clauses and interrogatives have to be differentiated much more. That clause types and their features are selected verb-specifically is not clear anyway. ADGER & QUER (1996) discuss the phenomenon of the so-called "unselected embedded questions" (UEQs) in English, which are licensed only in contexts of negative polarity with certain verbs.

(6) a) Julie mentioned that/ *if the bartender was happy.

   b) **Did** Julie mention that/ if the bartender was happy?

   c) Julie did**n't** mention that/ if the bartender was happy.

Wherever a NPI is licensed, UEQs are, too.

(7) a) **Noone** mentioned **any**thing/ **if** the bartender was happy. (Negative Quantifiers)

   b) **Only** Julie mentioned **any**thing/ **if** the bartender was happy.   ('only'-focus)

   c) **If** Julie mentioned **any**thing/ **if** the bartender was happy, we could order another drink.   (Embedding Conditional)

   d) We **refused** to mention **any**thing/ **if** they had the keys. (Adversative Predicates)

   e) **Without** mentioning **any**thing/ **if** they had the keys, there's nothing we can do.

Something similar is found also in German, where, however, unlike English negative polarity contexts cannot be identified by appropriate items. UEQs can occur with e.g. the verb '*know*'.

(8) a) *?Er weiß, ob er mich gesehen hat.
       he – knows – if – he – me – seen – has

   b) *Jetzt wußte er, ob er mich schon einmal gesehen hatte.
       now – he – knew – if – he – me – already – once – seen – had

Without negation or the like, *wissen* does not permit an **ob**-clause as complement. Since syntactic selection cannot license **ob**/**if** here, we have to discuss which features actually constitute an interrogative sentence and under which conditions they are licensed in the subordinate clause. We try to resolve those contrasts by regarding the relevant feature not as a formal syntactic feature which alone and inevitably works as a type feature of specific clauses, but as a modal feature which causes specific interpretation in specific configurations and is licensed under specific conditions. We pursue, thus, the strategy of not abstracting from the clause type, but try to instead determine primitive modal features that are involved in the derivation of clauses with certain moods. We show that there are

combinations of modal features which are implemented by specific representations in syntax and which permit the interpretation of clause mood. Specific *syntactic* type features or primitive semantic features specific for one certain clause mood do not, in our view, constitute a part of the human knowledge of language

In her investigation into the licensing conditions of negative polarity, GIANNAKIDOU (1998, 106ff) suggested a tripartition of the operators triggering polarity.

(9) a) A propositional operator *Op* in a given context c is *veridical* iff it holds that:
 $[\![Op\ p]\!]_c = 1 \rightarrow [\![p]\!] = 1$

 b) A propositional operator Op in a given context c is **non**veridical iff it holds that:
 $[\![Op\ p]\!]_c = 1\ \text{-}/\!\!\rightarrow [\![p]\!] = 1$

 c) A nonveridical operator is **antiveridical**, iff it holds that
 $[\![Op\ p]\!]_c = 1 \rightarrow [\![p]\!] = 0$

Nonveridicality thus defines the characteristics of a proposition not to be evaluable for truth. Thus, we suggest that it is such an operation on the truth variable (cf. PAFEL 1997, 310f), which marks interrogative clauses (and also other non-declarative clauses). It is responsible for the impossibility of evaluating the truth of non-declarative clauses.

That this implies negative polarity is interesting with respect to the fact that exactly the contexts that license NPIs also license UEQs. A nonveridical operator thus licenses nonveridicality in the SubC, which we explain with our model of dependencies correlating related IFs. As there is a temporal dependency between matrix and complement, there is also a modal one, which is symbolized by co-indexation in the following examples.

(10) a) [$_{CP}$ Ich [$_{C'}$ habe$_i$ [$_{VP}$ mich gefragt$_i$, [$_{CP}$ ob$_i$ [$_{VP}$ er kommen$_i$ wird$_i$]···]
 I – have – myself – asked – if – he – come - will

 b) [$_{CP}$ [$_{C'}$ hast$_i$ [$_{VP}$ du gesehen$_i$, [$_{CP}$ ob$_i$ [$_{VP}$ alle gekommen$_i$ sind$_i$]···]
 have – you – seen – if – all – come – are

 c) [$_{CP}$ Wann$_i$ [$_{C'}$ hat$_i$ [$_{VP}$ er dir **x**$_i$ erzählt$_i$, [$_{CP}$ ob$_i$ [$_{VP}$ alle kommen$_i$ werden$_i$]···]
 when – has – he – you – told – if – all – come - will

Since licensing under dependency is not lexical selection, there is nevertheless the option to select clauses without nonveridical CMPs.

(11) Hast Du gesehen, dass alle gekommen sind?
 have – you – seen – that – all – come – are

We expand this analysis of modal dependencies by looking at other types of modal marking of clauses. Non-declarative clauses all have nonveridical operators in the CDom, which forms a modal dependency with the mood of the finite verb. This yields a functional potential which is interpreted pragmatically, such that different intensional moods are implemented by pragmatic interpretation of the modal dependency in the clause generated by the syntax-semantic interface.

This goes far beyond the possibilities predicted by the assumption of a small number of clause moods, which can perhaps be secondarily reinterpreted pragmatically. Since pragmatics always makes use of a range of options, there are both system-inherent and idiosyncratic asymmetries concerning the classification of these ' types ' or ' clause mood ' with the features.

4.2.   Grammar is a Car in the Race . . .

(. . . instead of another case for the pragmatic interface).

The separation of form and function of linguistic expressions and their features is a difficulty all linguistic theories have to meet, and all of them are condemned to fail at some point for a certain reason: We do not have access to grammar when it is not used in specific function, but only if applied in some kind of discourse.

Unlike a car whose technical organisation we could describe or explain when examining it standing in a garage, or even pushed up by a lifting ramp, the modules of grammar must be reconstructed by making generalisations about and abstractions from their behaviour in application. It has been the task of generative theory from the early days to find the principles and parameters of linguistic competence by reducing performance to its formal primitives, which in fact offers a means to achieve explanatory adequacy which formalist theories do not have, since they are not capable of distinguishing form and function through their theoretical disposition. They describe the car in the race, whereas GG tries to explain what gives it the ability to race.

Functional explanations would all agree that a car must have something like a *motion device*, an *acceleration device*, a *slowing down* device, a *turning device* etc.. These, one could formally reduce to the construction on wheels, the

engine, the brakes, and the steering. Judging the car to be an optimal solution for locomotion, one could state that the need for acceleration may be an imperfection (since the car does not go where it is supposed to without additional efforts, besides it causes noise and bad smells), which must be controlled through movement constraints; otherwise, it will go beyond the target.

Translating this metaphor to language, one could compare the components of the car to the modules of description, i.e. syntax, morphology, and phonology. The driver may be the speaker, the passengers (or the goods) can be compared to semantics and locomotion to performance directed by pragmatics. Of course, both how the transport takes place and how the driver is able to follow the aspired way is much restricted by the way the vehicle is organised.

Like the fact that an SD may be naturally costly in different respects in order to achieve the desired result of referring to the world in a specific way (leading to different options of representing and structuring information), acceleration itself is of course not an imperfection of locomotion. Only the means to achieve it may be optimised. The most optimal kind of acceleration would be the one making brakes superfluous, using minimal energy and causing minimal noise and dirt. Several factors have to be considered when looking for an optimal solution, like the proportions of the construction and the material used, its weight and that of what is transported, the energy driving the engine, but also the inertia of the mass and air friction, etc..

This can be compared to the need of *economy* and *expressivity* to compete while generating SDs, involving structural means of the different modules of description. Both diachronic and synchronic variation can be explained through this competition, leading to changes in one module if another one has improved or deteriorated with respect to one of the two competing entities. Like a car not needing brakes, however, an absolute notion of *optimal grammar* should be Utopian.

What is to be stated with respect to *functional notions* and *formal primitives* is, first, that a car does not go round the bend by means of a turning device, but because the driver is able to manipulate the flexible wheel construction by means of a tool interfacing with his preferences of directing the locomotion, the steering

wheel. This we would compare to information structuring. As the car does not restrict the steering to specifically defined directions, syntax does not provide specific positions for elements that are meant to be pragmatically focussed or topicalised. What has to be provided is a basic configuration to which pragmatic structuring can be applied, which is achieved through focus projection to a position c-commanding the propositionally relevant elements. The property restricting syntactic information structuring is the grade of flexibility of the structure, which can allow scrambling, multiple fronting through adjunction, or just specification of the focus head.

As it is in principle irrelevant on which side the steering wheel is fixed in a car, it should in principle not matter if such a functional element c-commanding the others (or any other head) precedes or follows them. If one buys a car in a country where people drive on the left, the acquired object will have the steering wheel on the right side. Only if taking one's car abroad does one have to meet the driving constraints in the different system with one's car that is steered from the right. Sometimes one will be caught driving on the wrong side, like speakers of OV languages will sometimes misplace the verb if speaking English.

To metaphorically account for the possible constellations of IFs in an SD we could go on imagining that there are constraints on the compatibility of passengers or goods in a car, but we do not want to make this end in ridiculousness. What is quite fitting with our ideas of representation of IFs in syntax, however, is that it may the car may restrict how much it can carry, but who gets out at one or the other destination the car has arrived at definitely does not depend on the properties of the seats in a car but on who has entered it. Much like it depends on two factors how e.g. clause mood of SDs are interpreted: on the semantic content *and* their pragmatic reading.

Thus the grammar of structural descriptions cannot be described in terms of syntax, semantics or pragmatics alone, but must be accounted for in terms of the interfaces. Grammar is a car that cannot exist in the garage. Grammar is a car in the race.

References

1. ABNEY, STEVEN PAUL (1987) The English Noun Phrase in its Sentential Aspect. Ph.D. Dissertation, MIT.
2. ABRAHAM, WERNER (1982) (ed.) Satzglieder des Deutschen. Tübingen: Narr.
3. ABRAHAM, WERNER (1983) (ed.) On the Formal Syntax of the Westgermania. Amsterdam: Benjamins.
4. ABRAHAM, WERNER (1993) Null subjects in the history of German: from IP to CP. *Lingua* 89, 117-42.
5. ABRAHAM, WERNER (1997) (ed.) German: syntactic problems - problematic syntax. Tübingen: Niemeyer.
6. ACKERMAN, FARRELL & GERT WEBELHUTH (1998) A Theory of Predicates. CSLI Publications.
7. ADGER, DAVID & JOSEPH QUER (1996) Subjunctives, Unselected embedded questions and clausal polarity items. *NELS* 27.
8. AJDUKIEWICZ, KAZIMIERZ (1935) Die Syntaktische Konnexität. *Studia Philosophica* I, 1-27.
9. AKATSUKA, NORIKO (1986) Conditionals are discourse bound. (283), 333-52.
10. ALTMANN, HANS (1987) Zur Problematik der Konstitution von Satzmodi als Formtypen. (193), 22-56.
11. ANITA STEUBE & GERHILD ZYBATOW (1994) (eds.) Zur Satzwertigkeit von Infinitiven und Small Clauses. Tübingen: Niemeyer.
12. AOUN, J. & A. LI (1994) *Wh*–in–situ: Syntax or LF? *Linguistic Inquiry* 24, 199 – 238.
13. AUSTIN, JOHN L. (1962) How to do Things with Words. London: Oxford Univ. Press.
14. BALTIN, MARK & CHRIS COLLINS (2001) (eds.) The Handbook of Contemporary Syntactic Theory. Oxford: Blackwell.
15. BATTYE, ADRAN & IAN ROBERTS (1995) (eds.) Clause Structure and Language Change. New York, Oxford: Oxford University Press.
16. BÄUERLE, RAINER & THOMAS EDE ZIMMERMANN (1991) Fragesätze. (142), 333-348.
17. BAYER, JOSEF (1995) On the origin of sentential arguments in German and Bengali. (104), 47 - 76.
18. BAYER, KARL & JOSEF LINDAUER (^{2,5}1990) Lateinische Grammatik. München, Bamberg: Oldenbourg, Lindauer, Buchners.
19. BECK, SIGRID (1996) *Wh*-constructions and Transparent Logical Form. PhD Dissertation, University of Tübingen.
(Available online: http://www2.sfs.nphil.uni-tuebingen.de/home/sfs/ Lehrstuhlseiten/ma_diss_hab_pap/beckdiss/BeckThesis.pdf)
20. BEERMAN, DOROTHEE ET AL. (1997) (eds.) Rightward Movement. Amsterdam: Benjamins.
21. BELETTI, ADRIANA & LUIGI RIZZI (1996) (eds.) Parameters and Functional Heads: Essays in Comparative Syntax. New York.
22. BELLETTI, ADRIANA (1990) Generalized Verb Movement: Aspects of Verb Syntax. Turin: Rosenberg and Sellier.

23. BERGMANE, A., GRABIS, R., LEIPIKA, M. & SOKOLS. E. (1959) (eds.) Mūsdienu Latviešu Literārās Valodas Gramatika. Vol.1 Fonētika and Morfoloģija. Rīga: LPSR Zinātņu Akadēmijas Izdevniecība .

24. BESTEN, HANS DEN (1983) On the interaction of root transformations and lexical deletive rules. (3), 47- 131.

25. BHATT, RAKESH & J. YOON (1991) On the composition of COMP and Parameters of V2. Ms., University of Illinois, Urbana-Champaign.

26. BIERWISCH, MANFRED (1990). Verb Cluster formation as a morphological process. Yearbook of Morphology 3, 173-99.

27. BORSLEY, ROBERT & IAN ROBERTS (1996) (eds.) The Syntax of the Celtic Languages. Cambridge: University Press.

28. BRANDNER, ELLEN (1994) Specifiers and Functional Projection. Ph.D. Diss., Univ. of Stuttgart/ Germany.

29. BRANDNER, ELLEN (1996) The *was-w*-construction and clausal typing. (185), 85-106.

30. BRANDT, MARGARETA, I. ROSENGEREN & I. ZIMMERMANN (1989) Satzmodus, Modalität und Performativität. *Sprache & Pragmatik* 13. 1-42.

31. BRANDT, MARGARETA, M. REIS, I. ROSENGEREN & I. ZIMMERMANN (1992) Satztyp, Satzmodus und Illokution. (248), 1-90.

32. BRODY, MICHAEL (1995) Lexico-Logical Form. A Radically Minimalist Theory. Cambridge, London: MIT Press.

33. BRODY, MICHAEL (1998a) Mirror theory – a brief sketch. http://mitpress.mit.edu/chomskydisc/brody.html

34. BRODY, MICHAEL (1998b) Phrase structure and projection. *Linguistic Inquiry* 29.3.

35. BRUGMANN, KARL (1904). Kurze vergleichende Grammatik der indogermanischen Sprachen. Straßburg: Trübner.

36. BURY, DIRK (2001) A re-interpretation of the loss of verb-second in Welsh. Ms., University College London.

37. BUSSMANN, HADUMOD (²1990) Lexikon der Sprachwissenschaft. Stuttgart: Kröner.

38. CANN, RONNIE (1993) Formal semantics: An introduction. Cambridge: Cambridge Univ. Press.

39. CARDINALETTI, ANNA & al. (1989)(eds.) Constituent structure: Papers from the 1987 GLOW Conference. Dordrecht : Foris Publ.

40. CHENG, LISA LAI-SHEN (1991) On the Typology of *Wh*-Questions. PhD Dissertation, MIT, Cambridge, Massachusetts.

41. CHENG, LISA LAI-SHEN (1997) On the Typology of *Wh*-Questions. Garland Publishing, New York & London.

42. CHOMSKY, NOAM & H. LASNIK (1995) Principles and Parameters in Syntactic Theory. (142) I, 506-569.

43. CHOMSKY, NOAM (1957) Syntactic structures. The Hague: Mouton.

44. CHOMSKY, NOAM (1965) Aspects of the Theory of Syntax . Cambridge (MA). MIT Press.

45. CHOMSKY, NOAM (1981) Lectures on Government and Binding: The pisa Lectures. Dordrecht: Foris.

46. CHOMSKY, NOAM (1986a) Knowledge of Language. It's Nature, Origine and Use. New York: Praeger.

47. CHOMSKY, NOAM (1986b) Barriers. Cambridge (MA): MIT Press.

48. CHOMSKY, NOAM (1989) Some notes on economy of derivation and representation. IN (171).

49. CHOMSKY, NOAM (1993) A minimalist program for linguistic theory. IN (121) 1-52.

50. CHOMSKY, NOAM (1995a) Bare Phrase Structure. IN (287).

51. CHOMSKY, NOAM (1995b) The Minimalist Program. Cambridge (MA): MIT Press.

52. CHOMSKY, NOAM (1998) Minimalist inquiries: The framework. Draft.

53. CHOMSKY, NOAM (1999) Derivation by Phase. MIT Occ. WP 18.

54. CHOMSKY, NOAM (2000) New Horizons in the study of language and mind. Cambridge University Press.

55. CHU, CHANNCEY CHENG-HSI (1998) A Discourse Grammar of Mandarin Chinese. New York: Lang.

56. CINQUE, GUGLIELMO (1993) A null Theory of phrase and compound stress. LI 24/2, 239-298.

57. CINQUE, GUGLIELMO (1999) Adverbs and functional heads : a cross-linguistic perspective. New York: Oxford University Press.

58. COCCHI & POLETTO (2001) CD-deletion in Florentine: The Interaction between Merge and Move. Handout. XXVII Incontro di Grammatica Generativa (or XXVII Generative Grammar Meeting), Universita' degli studi di Trieste February 28th-March 3rd 2001.

59. COLE, PETER & JERRY L. MORGAN (1975) (eds.) Speech acts. New York : Academic Press.

60. COMOROVSKI, ILEANA (1996) Interrogative Phrases and the syntax-semantics interface. Dordrecht: Kluwer.

61. COTTEL, S. (1995) The Representation of Tense in Modern Irish. GenGenP 3, 105-124.

62. CULICOVER, PETER (1997) Principles and Parameters. An Introduction to Syntactic Theory. Oxford etc.: Oxford University Press.

63. DARWIN, CHARLES (1859) On the origin of species by means of natural selection, or The preservation of favoured races in the struggle for life. London: Murray.

64. DAVIDSON, DONALD (1967) The Logical Analysis of Action Sentences. IN: Nicolas Rescher (ed.), The Logic of Decision and Action. University of Pittsburgh Press. 81-95.

65. D'AVIS, FRANZ JOSEF & ULI LUTZ (1997) (eds.) Zur Satzstruktur im Deutschen. 90.Arbeitspapier des SFB 340.

66. DIESSEL, HOLGER (2001) German 'wenn': A study in cognitive semantics. Ms., Max-Planck-institute, Leipzig.

67. DOHERTY, CHARLES (1996) Clause Structure and the Modern Irish Copula. *NLLT* 14. 1-46.

68. DONHAUSER, KARIN (1987) Verbaler Modus oder Satztyp. Zur grammatischen Einordnung des Deutschen Imperativs. (193), 57-74.

69. DÜRSCHEID, CHRISTA & al. (1997) Sprache im Fokus: Festschrift für Heinz Vater zum 65. Geburtstag. Tübingen: Niemeyer.

70. EGLI, URS & al. (1995) (eds.) Lexical knowledge in the organization of language. Amsterdam: Benjamins.

71. EIFRING, HALVOR (1995) Clause combination in Chinese. Leiden,New York, Köln: Brill.

72. EMONDS, JOSEPH E. (1976) A Transformational Approach to English Syntax. New York: Academic Press.

73. FABRICIUS-HANSEN, CATHRINE & JOHAN SÆBØ (1983) Über das Chamäleon 'wenn' und seine Umwelt. *Linguistische Berichte 83.*1-35.

74. FANSELOW, GISBERT (1993) (ed.) The Parametrization of Universal Grammar. Amsterdam: Benjamins.

75. FIENGO, ROBERT (1980) Surface structure: The interface of autonomous components. Cambridge, Mass.: Harvard Univ. Press.

76. FODOR, JANET DEAN (2001) Setting Syntactic Parameters. (14), 730-67.

77. FORTMANN, CHRISTIAN (1994) Zur *w*-Syntax im Deutschen. Arbeitspapier #63 des SFB 340, Universitäten Stuttgart & Tübingen.

78. FREGE, GOTTLOB (1891) Function & Begriff. Jena: Pohle.

79. FREGE, GOTTLOB (1923-6) Logische Untersuchungen. Dritter Teil: Gedankengefüge. Beiträge zur Philosophie des Deutschen Idealismus 3, 36-51.

80. FREY, WERNER (2000). A Medial Topic Position for German.Vortrag bei der GGS-Tagung in Potsdam (Juni 2000).

81. FRIES, NORBERT (1988) Ist Pragmatik schwer! Über sogenannte 'Exklamativsätze' im Deutschen. *Sprache & Pragmatik* 3. 1-18.

82. FUKUI, NAOKI & MARGARET SPEAS (1986) Specifiers and Projection. (83), 128-72.

83. FUKUI, NAOKI & al. (1986) (eds.) Papers in Theoretical Linguistics. MIT Working Papers 8.

84. FUKUI, NAOKI (1995) Theory of Projection in Syntax. Stanford (CA): CSLI.

85. GELDEREN, ELLY VAN (1996) The Rise of Functional Categories. Amsterdam: Benjamins.

86. GIACALONE RAMAT, ANNA et. al. (1987) Papers from the 7th International Conference on Historical Linguistics. Amsterdam: Benjamins.

87. GIANNAKIDOU, ANASTASIA (1998) Polarity sensitivity as (non)veridical dependency. Amsterdam, Philadelphia (PA): Benjamins.

88. GIORGI, ALESSANDRA & FABIO PIANESI (1997) Tense and Aspect. From Semantics to Morphosyntax. NY: Oxford University Press.

89. GIORGI, ALESSANDRA & FABIO PIANESI (1999) Double Access Reading and Complementiser Deletion in Italian. Proceedings WCCFL XVII, CSLI, Stanford.

90. GIORGI, ALESSANDRA & FABIO PIANESI (2001) Complementiser Deletion in Italian. Handout, XXVII Incontro di Grammatica Generativa (or XXVII Generative Grammar Meeting), Universita' degli studi di Trieste February 28th-March 3rd 2001 .

91. GREWENDORF, GÜNTHER & DIETMAR ZAEFFERER (1991) Theorien der Satzmodi. (270), 270-86.

92. GREWENDORF, GÜNTHER & WOLFGANG STERNEFELD (1990) Scrambling and Barriers. Amsterdam: Benjamins.

93. GREWENDORF, GÜNTHER (1979) (ed.) Sprechakttheorie und Semantik. Frankdfurt am Main: Lang.

94. GREWENDORF, GÜNTHER (1988) Aspekte der Deutschen Syntax. Tübingen: Narr.

95. GRICE, HERBERT P. (1975) Logic and Conversation. IN (59), 41-58.

96. GROENENDIJK, JEROEN A. G. & MARTIN J. B. STOKHOF (1984) Studies on the semantics of questions and the pragmatics of answers. Amsterdam, Univ., Diss..

97. GROHMANN, KLEANTHES (1999) Infinitival Exclamatives. In Sachiko Aoshima, John Drury & Tuomo Neuvonen, eds. University of Maryland Working Papers in Linguistics 8, 213-238.

98. GUERON, JAQUELINE & TEUN HOEKSTRA (1988) T-chains and the constituent structure of auxiliaries. (39), 35-99.

99. GUNDEL, J.K. (1977). The Role of Topic and Comment in Linguistic Theory. New York: Bloomington.

100. HAEGEMAN, LILIANE & HENK VAN RIEMSDIJK (1986) Verb projection raising, scope and the typology of verb movement rules. *Linguistic Inquiry* 17, 417-466.

101. HAEGEMAN, LILIANE & JACQUELINE GUÉRON (1999) English Grammar: A Generative Perspective. Oxford: Blackwell.

102. HAEGEMAN, LILIANE (1991, [2]1994) Introduction to Government & Binding Theory. Oxford, Cambridge (MA): Blackwell.

103. HAEGEMAN, LILIANE (1997) (ed.) Elements of Grammar. Dordrecht : Kluwer.

104. HAIDER, HUBERT & SUSAN OLSEN & STEN VIKNER (1995) (eds.) Studies in Comparative Germanic Syntax. Dordrecht: Kluwer.

105. HAIDER, HUBERT & ROSITTA RINDLER-SCHJERVE (1987) The parameter of auxiliary selection. Italian-German contrasts. *Linguistics* 25. 1029-1055.

106. HAIDER, HUBERT (1989) Matching Projections. (39), 101-122.

107. HAIDER, HUBERT (1990) Topicalization and other Puzzles of German Syntax. IN (92), 93-112.

108. HAIDER, HUBERT (1992) Branching and discharge. Arbeitspapiere des SFB 340, #23. Universität Stuttgart.

109. HAIDER, HUBERT (1993) Deutsche Syntax Generativ. Tübingen: Narr.

110. HAIDER, HUBERT (1994) Fakultativ kohärente Infinitifkonstruktionen im Deutschen. IN (11), (75-106).

111. HAIDER, HUBERT (1996) Economy in syntax is projective economy. (288), 205 - 226.

112. HAIDER, HUBERT (1996) Wenn die Semantik arbeitet – und die Syntax sie gewähren läßt. (124), 7-27.

113. HAIDER, HUBERT (1997a) Extraposition. IN (20), 115-153.

114. HAIDER, HUBERT (1997b) Projective economy. (5), 83-103.

115. HAIDER, HUBERT (2000a) Towards a superior account of superiority. (184) 231-248.

116. HAIDER, HUBERT (2000b) Scrambling - What's the State of the Art? In: S.M.Powers & C.Harman eds. The Acquisition of Scrambling and Cliticization. Dordrecht: Kluwer. 19-40.

117. HAIDER, HUBERT (2000c) Branching and Discharge. In: Peter Coopmans & al. (eds.). Lexical Specification and Insertion. Amsterdam: Benjamins (Current Issues in Linguistic Theory #197). 135-164.

118. HAIDER, HUBERT (2000e) OV is more basic than VO. IN (278). 45-67.

119. HAIMAN, JOHN (1978) Conditionals are Topics. Language 54, 564-89.

120. HAINS, PAULS (1993) Raudi, mana vijole! (Cry, my violine). Rīga: Avots.

121. HALE, KENNETH & SAMUEL JAY KEYSER (1993) (eds.) The view from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger. Cambridge MA: MIT Press.

122. HALLE, MORRIS & alEC MARANTZ (1993). Distributed Morphology. (121), 111-176.

123. HAMBLIN, C.L. (1976) Questions in Montague English. IN Partee, Barbara (ed.) Montague Grammar. New York: Academic Press, 247-259.

124. HARRAS, GISELA & MANFRED BIERWISCH (1996) Wenn die Semantik arbeitet: Klaus Baumgärtner zum 65. Geburtstag. Tübingen: Niemeyer,.

125. HEIM, IRENE & ANGELIKA KRATZER (1998) Semantics in Generative Grammar. Oxford: Blackwell.

126. HELLAN, L. & K. K. CHRISTENSEN (1986) (eds.) Topics in Scandinavian Syntax. Dordr.: Reidel.

127. HENDRICK, RANDALL (1991) The morphosyntax of aspect. Lingua 85, 171-210.

128. HENRY, ALISON (1995). Belfast English and Standard English. Oxford: University Press.

129. HIGGINBOTHAM, JAMES (1993) Interrogatives. (121), 195-227.

130. HINTIKKA, J. & al. (1973) (eds.) Approaches to Natural Language. Dordrecht: Reidel.

131. HOEPELMAN, JAKOB PH. (1988) (ed.) Representation and Reasoning. Proceedings of the Stuttgart Conference Workshop on Discourse Representation, Dialogue Tableaux and Log. Programming. Tübingen: Niemeyer.

132. HÖHLE, TILMAN (1982) Explikation für 'Normale Betonung' und 'Normale Wortstellung'. (2), 75-153.

133. HOLMBERG, ANDERS & CHRISTER PLATZACK (1995) The role of inflection in Scandinavian syntax. New York: Oxford Univ. Press.

134. HORIE, KAORU (2000) Complementation. Amsterdam: Benjamins.

135. HORNSTEIN, NORBERT & DAVID LIGHTFOOT (1981) Explanation in Linguistics. London: Longman.

136. HORNSTEIN, NORBERT (1995) Logical form: from GB to Minimalism. Oxford: Blackwell.

137. HRÓARSDÓTTIR, THORBJÖRG (2000) Word order change in Icelandic: from OV to VO. Amsterdam ; Philadelphia: Benjamins.

138. HUANG, C.T. JAMES & Y.H. AUDREY LI (1996) (eds.) New Horizons in Chinese Linguistics. Dordrecht: Kluwer.

139. HUANG, C.T. JAMES & Y.H. AUDREY LI (1996) Recent Generative Studies in Chinese Syntax. IN (138), 49-96.

140. HUANG, C.T. JAMES (1982) Logical Relations in Chinese and the Theory of Grammar. MIT Dissertation.

141. HUANG, C.T. JAMES (1998) Logical Realations in Chinese and the Theory of Grammar. London: Garland.

142. JACOBS, J./STECHOW, A.V./STERNEFELD, W./VENNEMANN, T. (1993) (eds.) Syntax: An International Handbook of Contemporary Research. Vl. I. Berlin, de Gruyter.

143. JACKENDOFF, RAY (1987) The Status of Thematic Relations in Grammatical Theory. *Linguistic Inquiry* 18. 369-411.

144. JARAD, NAJIB ISMAIL (1997) The Origin and Development of *For*-Infinitives. PhD-Dissertation, University of Wales, Bangor.

145. JEFFERS, ROBERT J. (1987) On Methodology in syntactic reconstruction. Reconstructing inter-clause syntax in prehistoric Indo-European. (86), 305-23.

146. JESPERSEN, OTTO (1940) A Modern English Grammar on Historical Principles. London: Allen and Kuwin.

147. JOHNSON, KYLE (1990) 'Object Positions'. *NLLT* 9, 577-636.

148. JONES, M. & A. R. THOMAS (1977) The Welsh language: Studies in its syntax and semantics. Cardiff: University of Wales Press.

149. JOSEPHS, LEWIS (1976) Complementation. IN (258), 307-65.

150. JUSTUS, CAROL F. (1980a) Implications of Pre-complementizers with Hittite shak-/shek- 'Know'. (284), 97-106.

151. JUSTUS, CAROL F. (1980b) Typological symmetries and asymmetries in Hittite and IE complementation. (223), 183-206.

152. KAISER, STEFAN & al. (2001) Japanese: A Comprehensive Grammar. New York: Routledge.

153. KAMP, HANS & UWE REYLE (1993). From Discourse to Logic (2 Vol.'s). Dordrecht: Kluwer.

154. KAMP, HANS (1988) Conditionals in DR Theory. IN (131), 66-125.

155. KARTTUNEN, LAURI (1977) Syntax and Semantics of Questions. Linguistics and Philosophy 1. 3-44.

156. KATZ, JERROLD J. & PAUL M. POSTAL (1964) An integrated theory of linguistic descriptions. Cambridge, Mass.: MIT Pr. .

157. KAYNE, RICHARD S. (1981) Unambiguous paths. Koster, Jan & Robert May (eds.) (1981) Levels of Syntactic Representation. Dordrecht: Foris. 143-183.

158. KAYNE, RICHARD S. (1984) Connectedness. *Linguistic Inquiry* 14. 223-49.

159. KAYNE, RICHARD S. (1984) Connectedness and Binary Branching. Dordrecht: Foris.

160. KAYNE, RICHARD S. (1994) The Antisymmetry of Syntax. Linguistic Monographs 25. Cambridge (MA),London: MIT Press.

161. KEMENADE, ANS VAN & NIGEL VINCENT (1997) (eds.) Parameters of morphosyntactic change. Cambridge: Cambridge Univ. Press.

162. KEMENADE, ANS VAN (1999) Functional properties of morphosyntactic change. Berlin: Mouton de Gruyter.

163. KEYSER, SAMUEL J. (1978) (ed.) Recent transformational studies in European languages. Cambridge: MIT Pr. .

164. KIPARSKY, C. & PAUL (1970) Fact. IN Bierwisch & Heidolph (eds.), Progress in Linguistics. The Hague. 143-73.

165. KIPARSKY, PAUL (1995) Indo-European origins of Proto Germanic syntax. IN (15), 140-169.

166. KIPARSKY, PAUL (1997) The rise of positional licensing. (161), 460-94.

167. KITAGAWA, YOSHIHISA (1994) Subjects in Japanese and English. New York, London: Garland.

168. KÖNIG, EKKEHARD (1986) Conditionals, concessive conditionals and concessives: areas of contrast, overlap and neutralization. IN (283) , 228-246.

169. KRATZER (1984) On deriving Syntactic Differences between German and English. Ms., Universität Berlin.

170. KRATZER, ANGELIKA (1991) Conditionals. (270), 651-657.

171. LAKA, ITZIAR & ANOOP MAHAJAN (1989) (eds.) Functional Heads and Clause Structure. (MIT Working Papers in Linguistics, vol. 10), Cambridge, Mass.: MIT.

172. LANG, EWALD (1988, 1989) Studien zum Satzmodus. 3 Bände. Akademie der Wissenschaften der DDR, Zentralinstitut für Sprachwissenschaft.

173. LAPPIN, SHALOM (1996) The Handbook of Contemporary Semantic Theory. Oxford: Blackwell.

174. LASNIK, HOWARD (1981) Restricting the Theory of Transformations. (135).

175. LEHMANN, CHRISTIAN (1995) Relativsätze. (142), 1199-1216.

176. LEHMANN, WINFRIED P. (1980) The reconstruction of non-simple sentences in Proto-Indo-European. (223), 113 – 144.

177. LENERZ, JÜRGEN (1998) Rezension zu 'Chomsky, N. (1995): The Minimalist Program. Cambridge, Mass: The MIT Press. In: Beiträge zur Geschichte der Deutschen Sprache und Kultur. 120,1. 103-111.

178. LIEBER, ROCHELLE (1983) Argument Linking and Compounds in English. *Linguistic Inquiry* 14, 251-285.

179. LOHNSTEIN, HORST (1996) Formale Semantik und natürliche Sprache: Einführendes Lehrbuch. Opladen : Westdeutscher Verlag.

180. LOHNSTEIN, HORST (2000) Satzmodus – kompositionell. Zur Parametrisierung der Modusphrase im Deutschen. Berlin: Akademie Verlag.

181. LOTFI, AHMAD R. (1997) Word Order and Accusative Case Assignment in Modern Persian. Proceedings of the 4th Conference of Linguistics, Allameh Tabataba'i University, Tehran.

182. LOTFI, AHMAD R. (1999) Chomsky's Strength to Trigger Movement. Ms., University of Esfahan/ Iran.

183. LOTFI, AHMAD R. (2001) Semantico-Phonetic Form: A Unitarianist Grammar. Ms., University of Esfahan. Available online: http://www.minimalism. linguistics.arizona.edu/AMSA/PDF/AMSA-186-1200.txt

184. LUTZ, ULI & al (2000) (eds.) *Wh*-scope marking. Amsterdam: Benjamins.

185. LUTZ, ULI & GEREON MÜLLER (1996) Papers on *Wh*-Scope Marking. Arbeitspapiere des SFB 340 #76, University of Stuttgart.

186. LUUKKO-VINCENCZO, LAILA (1987) Entscheidungsfragen im Finnischen. Mit einem Exkurs in das Deutsche. (193), 125-39.

187. MALING, JOAN & ANNIE ZAENEN (1990) (eds.) Modern Icelandic Syntax. *Syntax and Semantics* 24. San Diego: Academic Press.
188. MASCARÓ, JOAN & M. NESPOR (1990) Grammar in progress : Glow essays for Henk van Riemsdijk. Dordrecht : Foris.
189. MAY, ROBERT (1985) Logical Form. Cambridge, MA: MIT Press.
190. MCCAWLEY, JAMES (1973) Boy! Is syntax easy! CLS 9, 369-377.
191. MCCLOSKEY, JIM (1992) Adjunction, selection and embedded verb second. Ms., University of California at Santa Cruz.
192. MCCLOSKEY, JIM (1996) The Scope of Verb Movement in Irish. NLLT.
193. MEIBAUER, JÖRG (1987) Satzmodus zwischen Grammatik und Pragmatik. Tübingen: Niemeyer.
194. MERKULOVA, M.V. (1998) Čto li. In: Kiseljova, K. & Paillard, Denis [russ. translit. Pajar, Deni] (eds.) (1998): *Diskursivnyje slova russkogo jazyka: opyt kontekstno-semantičeskogo opisanija*. Metatekst. Moskva.
195. METSCHKOWA-ATANASSOWA, SDRAWKA (1983) Temporale und konditionale 'wenn' Sätze.Untersuchungen ihrer Abgrenzung und Typologie. Düsseldorf: Schwann.
196. MONTAGUE, RICHARD & DONALD KALISH (1959) 'that'. *Philosophical Studies* 10. 54-61.
197. MONTAGUE, RICHARD (1970) Universal Grammar. *Theoria* 36: 373-98.
198. MONTAGUE, RICHARD (1973) The Proper Treatment of Quantification in Ordinary English. (130), .
199. MÜLLER, GEREON & WOLFGANG STERNEFELD (1990) Improper Movement. Universität Konstanz Working Papers in Linguistics # 28.
200. MÜLLER, GEREON & WOLFGANG STERNEFELD (1993) Improper Movement and Unambiguous Binding. *Linguistic Inquiry* 24, 461-507.
201. ÖHL, PETER (1997) Die Syntax des Deutschen Perfekts im Synchron/ Diachronen Vergleich. Magisterarbeit, Universität Stuttgart.
202. ÖHL, PETER (2000) Type Features, C and Subordination in Indo-European. In: Mattheoudakis/ Nicolaidis (eds.). Proceedings of the 13th International Symposium on Theoretical and Applied Linguistics, Aristotle University, Thessaloniki, Greece.
203. ÖHL, PETER (2001) Zur Einbettung Nicht-Deklarativer Satztypen. Ms., University of Stuttgart, Germany.
204. ÖHL, PETER (2002) Volitional Utterances in Different Systems of Modal Marking. Paper presented at the 11th annual conference of the Gesellschaft für Sprache und Sprachen (GESUS), Bratislava, Slovakian Republic.
205. ÖHL, PETER (2002) Definiteness, Subjecthood and Topicalisation: Predicate Linking and the EPP. Paper presented at the GGS conference, Frankfurt, Germany.
206. ÖHL, PETER (*to appear*, a) Towards a Theory of functional Features in the C-Domain. Proceedings of the 10th annual conference of the Gesellschaft für Sprache und Sprachen (GESUS), University of Bochum/ Germany, March 2001.
207. ÖHL, PETER (*to appear*, b) Satztypen und Hypotaxe im Typologischen Vergleich. *Zeitschrift für Sprache und Sprachen*.

208. ÖHL, PETER (*to appear*, c) Die Logik von Aspekt, Aktionsart und Argumentstruktur. Proceedings of the 12th annual conference of the Gesellschaft für Sprache und Sprachen (GESUS), University of Hradec Kralove.

209. ÖHL, PETER (*forthcoming*, a) Parameterised Lexicalisation and Feature Syncretism: Evidence from Indo-European Complementisers. Ms., University of Stuttgart, Germany.

210. ÖHL, PETER (*forthcoming*, b) Satztypen in einer Projektiven Lizenzierungs-grammatik. Ms., University of Stuttgart, Germany.

211. ÖNNERFORS, OLAF (1997) On narrative declarative V1 sentences in German. (280), 293-319.

212. PAFEL, JÜRGEN (1997) Skopus und Logische Struktur. Studien zum Quantorenskopus im Deutschen. Habilitationsschrift, Universität Tübingen.

213. PAFEL, JÜRGEN (1999) Interrogative Quantifiers within Scope. Linguistics and Philosophy 22. 255-310.

214. PASCH, RENATE (1989) Überlegungen zum Begriff des Satzmodus. IN (172) III, 1-88.

215. PESETSKY, DAVID & ESTHER TORREGO (*to appear*). T-to-C Movement: Causes and Consequences. IN Ken Hale. Life and Language. MIT Press.

216. PESETSKY, DAVID (1982) Paths and categories. Cambridge: MIT Working Papers in Linguistics.

217. PESETSKY, DAVID (1987). *Wh*-in-situ: Movement and unselective binding. IN Reuland & ter Meulen (eds.), The Representation of Indefiniteness. Cambridge: MIT Press. 98-129.

218. PITTNER, KARIN (1999) Adverbiale im Deutschen: Untersuchungen zu ihrer Stellung und Interpretation. Tübingen: Stauffenburg.

219. PLATZACK, CHRISTER (1986) Comp, Infl and Germanic word order. (126), 185 – 234.

220. PLATZACK, CHRISTER (2000a) A Feature Based Approach to Cross-Linguistic Variation. Ms., Lund University.

221. PLATZACK, CHRISTER (2000b) The Vulnerable C-Domain. To be puplished in Brain & Language.

222. POLLOCK, JEAN YVES (1989) Verb Movement, Universal Grammar and the Structure of IP. LI 20. 365-424.

223. RAMAT, PAOLO (1980) (ed.) Linguistic Reconstruction and Indo-European Syntax. Amsterdam: Benjamins.

224. REHBOCK, HELMUT (1992a): Deklarativsatzmodus, rhetische Modi und Illokutionen.(248), Vol. I, 91-17

225. REHBOCK, HELMUT (1992b) Fragen stellen – zur Interpretation des Interrogativsatzmodus. (248),

226. REICHENBACH, HANS (1947) Elements of Symbolic Logic. New York: Dover. (Reprint 1980)

227. REINHART, TANYA & ERIC REULAND (1993) Reflexivity. *Linguistic Inquiry* 24.4, 657-720.

228. REIS, MARGA & INGER ROSENGREN (1991) What do *Wh*-imperatives tell us about *Wh*-movement? (229), 1-34.

229. REIS, MARGA & JÜRGEN PAFEL (1991) Weitere Aspekte von W-Fragesätzen. SFB 340 Arbeitspapier #6, Uni Stuttgart.

230. REIS, MARGA (1992) Zur Grammatik und Pragmatik von Echo-*w*-Fragen. (248) Vol. I, 213-261.

231. REIS, MARGA (1997) Zum syntaktischen Status unselbständiger verbzweit-Sätze. IN (69), 121 -147.

232. REIS, MARGA (1992) What do *Wh*-imperatives tell us about *Wh*-movement? NLLT 10, 79-118.

233. RESCHER, N. (1968) (ed.) Studies in Logical Theory. American Philosophical Quaterly Series, #2, Oxford University Press.

234. REULAND, ERIC& WIM KOSMEIJER (1993) Projecting Inflected Verbs. (74), 37-71.

235. RIZZI, LUIGI (1990a) Relativized Minimality. Cambridge, Mass.: MIT Press.

236. RIZZI, LUIGI (1990b) Speculations on Verb Second. (188), 375 – 86.

237. RIZZI, LUIGI (1997) The Fine Structure of the Left Periphery. (103), 282-337.

238. RIZZI, LUIGI (2001) Relativized Minimality Effects. (14), 89-109.

239. ROBERTS, IAN & ANNA ROUSSOU (1999) A Formal Approach to Grammaticalisation. (162).

240. ROBERTS, IAN & ANNA ROUSSOU (2002) The EPP as a Condition on Tense Dependencies. (279), 123-154.

241. ROBERTS, IAN & UR SHLONSKY (1996) Pronominal Enclisis in VSO Languages. (27), 171-99.

242. ROBERTS, IAN (1993) A Formal Account of Grammaticalisation in the History of Romance Futures. Folia Linguistica Historica XIII/1-2: 219 - 258.

243. ROBERTS, IAN (1997) Comparative syntax . London : Arnold.

244. ROBERTS, IAN (1998) Have/Be raising, move F and procrastinate. LI 29, 113-25.

245. ROBERTS, IAN (2001) Head Movement. (14), 113-47.

246. ROBERTS, IAN (*to appear*) Principles and Parameters in a VSO Language. A Case Study in Welsh. Ms., University of Cambridge.

247. RÖGNVALDSSON, EIRIKUR & HÖSKULDUR THRÁINSSON (1990) On Icelandic Word Order once More. (187), 3-40.

248. ROSENGREN, INGER (1992 (B1) & 1993 (B2)) (ed.) Satz und Illokution. Tübingen: Niemeyer.

249. ROSENGREN, INGER (1992) Zur Grammatik und Pragmatik der Exklamation. (248) Vol. I, 263-306.

250. ROSENGREN, INGER (1993) Imperativsatz und "Wunschsatz" – zu ihrer Grammatik und Pragmatik. (248) Vol. II, 263-306.

251. ROSENGREN, INGER (1997) Expressive Sentence Types - A Contradiction in Terms. The Case of Exclamation. (280), 153-84.

252. ROTHSTEIN, SUSAN D. (1985) The Syntactic Forms of Predication. Indiana University Lingistic Club.

253. RUDNITSKAYA, ELENA (2000) The Derivation of Yes-No *Li* Questions in Russian: Syntax and/or Phonology? Ms., CUNY Graduate Center.

254. SCHWARTZ, BONNIE & STEN VIKNER (1996) The Verb Always Leaves IP in V2 Clauses. (21), 11-62.

255. SEARLE, JOHN R. & DANIEL VANDERVEKEN (1985) Foundations of illocutionary logic. Cambridge: Cambridge Univ. Pr..

256. SEARLE, JOHN R. (1975) Indirect Speech Acts. (59), 59–82.

257. SEIBICKE, WILFRIED (1964) Wenn Sätze. *Muttersprache* 74: 260-271.

258. SHIBATANI, MASAYOSHI (1976) (ed.) Japanese Generative Grammar. Syntax and Semantics 5. New York etc., Academic Press

259. SHIBATANI, MASAYOSHI (1992) The languages of Japan. Cambridge: Cambr. Univ. Pr.

260. SHIN, Hyo-Shik (1993) Kasus als funktionale Kategorie. Tübingen: Niemeyer.

261. SHLONSKY, UR (1994) Agreement in COMP. *The Linguistik Review* 11, 351-375.

262. SIGURÐSSON, HALLDOR ÁRMANN (1989) Verbal Syntax and Case in Icelandic. Ph.D. Thesis, University of Lund.

263. ŠIMČUK, EMMA & MARINA ŠČUR (1999) *Slovar' russkich častic*. Hrsg. von Wolfgang Gladrow (*Berliner Slawistische Arberiten*, Bd. 9). Frankfurt am M.: Lang.

264. SÖKELAND, WERNER (1980) Indirektheit von Sprechhandlungen. Eine linguistische Untersuchung. Tübingen: Niemeyer (= *Germanistische Linguistik* 26).

265. SOROKIN, JU.S. & al (1992) (eds.) Slovar' russkogo jazyka XVIII veka. Bd. 7. Sankt Petersburg: Nauka.

266. SPEAS, MARGARET (1990) Phrase Structure in Natural Language. Dordrecht: Kluwer.

267. SPORTICHE, DOMINIQUE (1988) A theory of floating quantifiers and its corollaries for constituent structure. LI 19. 425-449.

268. STALNAKER, R.C. (1968) A theory of conditionals. (233), 68-112.

269. STECHOW, ARNIM V. & WOLFGANG STERNEFELD (1988) Bausteine Syntaktischen Wissens.Ein Lehrbuch der Modernen Generativen Grammatik. Opladen: Westdeutscher Verlag.

270. STECHOW, ARNIM V. & DIETER WUNDERLICH (1991). Semantik: Ein internationales Handbuch der zeitgenössischen Forschung. Berlin: de Gruyter.

271. STECHOW, ARNIM V. (1992). Intensionale Semantik, eingeführt anhand der Temporalität. *Arbeitspapier der Fachgruppe Sprachwissenschaft* 40, Univ. Konstanz.

272. STECHOW, ARNIM V. (1993) Die Aufgaben der Syntax. (142), 1-88.

273. STECHOW, ARNIM V. (1995) Lexical Decomposition in Syntax. (70), 81-117.

274. STECHOW, ARNIM V. (1996) Against LF Pied-Piping. *Natural Language Semantics* 4, 57-110.

275. STECHOW, ARNIM V. (1997) Funktionale Köpfe des Satzes aus semantischer Perspektive. (65) , 263-290.

276. STOWELL, TIM (1981) Origins of Phrase Structure. Ph.D. Dissertation, MIT.

277. SUZUKI, SATOKO (2000) *De dicto* complementation in Japanese. (134), 33-58.

278. SVENONIUS, PETER (2000) (ed.) The derivation of VO and OV. Amsterdam: Benjamins.

279. SVENONIUS, PETER (2002) (ed.) Subjects, Expletives and the EPP. Oxford: University Press.

280. SWAN, TORIL & OLAF WESTVIK (1997) (eds.) Modality in Germanic Languages. Berlin ; New York: Mouton de Gruyter.

281. THOMASON, RICHMOND (1976) *Montague Grammar*chap. Some Extensions of Montague Grammar. New York: Academic Press.

282. THURMAIR, MARIA (1989) Modalpartikeln und ihre Kombinationen. Tübingen.

283. TRAUGOTT, ELISABETH et. al. (eds.) On conditionals. Cambridge: Cambridge University Press.

284. TRAUGOTT, ELIZABETH C. (1980) (ed.) Papers from the Fourth International Conference on Historical Linguistics. Amsterdam: John Benjamins.

285. VIKNER, STEN (1985) Parameters of binder and of binding category in Danish. Working Papers on Scandinavian Syntax, University of Geneva.

286. VIKNER, STEN (1995) Verb movement and expletive subjects in the Germanic languages. New York, NY : Oxford .

287. WEBELHUTH, GERD (1996) (ed.) Government and Binding Theory and the Minimalist Program. Oxford: Blackwell.

288. WILDER, CHRIS ET AL. (1996) The Role of Economy Principles in Linguistic Theory. *Studia Grammatica* 40.

289. WILLIS, D. (1998) Syntactic change in Welsh: A study of the loss of verb-second. Oxford: Clarendon/Oxford University Press.

290. WRATIL, MELANIE (2000) Sprechakttypen in einer Montague- Die Syntax des Imperativs. *Linguistische Berichte* 18, 71-118.

291. ZAEFFERER, DIETMAR (1979) Sprechakttypen in einer Montague-Grammatik. (93), 386-417.

292. ZWART, C. JAN-WOUTER (1994) Dutch is head-initial. *The Linguistic Review* 11. 377-406.

293. ZWART, CORNELIUS JAN-WOUTER (1997) Morphosyntax of verb movement: A minimalist approach to the syntax of Dutch. Dordrecht: Kluwer.

294. ZWICKY, ARNOLD M. & JERROLD M. SADOCK (1975) Ambiguity Tests and How to Fail them. Syntax and Semantics 4. New York etc.: Academic Press.