



Universität Stuttgart

Regine Brandtner:

**Deverbal nominals in context:  
Meaning variation and copredication**

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# **Deverbal nominals in context**

## **Meaning variation and copredication**

Von der philosophisch-historischen Fakultät der Universität Stuttgart  
zur Erlangung der Würde eines Doktors  
der Philosophie (Dr. phil.) genehmigte Abhandlung

vorgelegt von

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---

## Abbreviations and Marking Conventions

NP	Noun Phrase
DP	Determiner Phrase
VP	Verb Phrase
Adj	Adjective
Det	Determiner
RC	Relative clause

GL	Generative Lexicon
DRT	Discourse Representation Theory
Lcp	Lexical conceptual paradigm
DM	Distributed Morphology

EV	Event
RS	Result state
AR	Abstract result
RO	Result object

?/??	Question marks in front of sentences mark their (semantic) unacceptability or awkwardness;
#	A hash mark indicates incoherence between sentences;
*	An asterisk marks forms that are not attested;
(--)	Parentheses in example sentences include optional material;
{ }	Curly brackets are used for transferred predicates;
[ ]	Square brackets are used for reading indicators.

Note: English glosses for German example sentences are only given (in the footnotes) if the English version deviates considerably from the German structure.



## Deutsche Zusammenfassung

In dieser Dissertation wird die Bedeutungsvielfalt von deverbalen Nominalisierungen von einem semantisch–pragmatischen Standpunkt aus behandelt. Der Schwerpunkt liegt dabei auf von Verben abgeleiteten Nomen mit dem Suffix *-ung* im Deutschen (z.B. *Messung*, *Absperrung*, *Lüftung*), welche nicht nur auf Ereignisse referieren können, sondern oft auch auf deren abstrakte oder materielle Resultate und, wenn auch weniger häufig, auf belebte und nicht belebte Verursacher des Ereignisses und Orte des Geschehens. Es wird gezeigt, dass diese Nominalisierungen nicht nur in Kontexten auftreten, in welchen ihnen eine dieser Lesarten direkt und eindeutig zugeordnet werden kann, sondern ebenso in so genannten Koprädikationsstrukturen, in welchen Modifikatoren und Prädikate unterschiedliche inkompatible Lesarten für die Nominalisierung indizieren, vgl. (i).

- (i) Die fünfminütige Messung ist auf zwei Stellen genau.

Koprädikation wird in dieser Arbeit demnach so definiert, dass sich für das Nomen in einem bestimmten Kontext (mindestens) zwei Lesarten entgegenstehen, da z.B. das modifizierende Adjektiv eine Ereignislesart fordert, während diese mit den Selektionsrestriktionen des folgenden Prädikats nicht vereinbar ist. Die sprachlichen Mittel zur Festlegung der Lesart können demnach Prädikate und Modifikatoren, aber z.B. auch Sinnrelationen sein und werden im Folgenden als (Lesarten-)Indikatoren bezeichnet. Als Beispiele dienen neben konstruierten Sätzen auch Belege aus dem deutschen Zeitungskorpus *cosmas* (Institut für deutsche Sprache), welches ebenso zur Indikatorenbestimmung durch Kollokationen herangezogen wird.

Um eine sortale Unverträglichkeit, z.B. zwischen einem Ereignis- und einem Resultatsindikatoren wie in (i), aufzulösen wird eine Methode der Bedeutungsverschiebung vorgeschlagen, welche nicht die Bedeutung der Nominalisierung betrifft, sondern eines ihrer Prädikate: demnach legt der erste Indikator (hier innerhalb der DP) die Lesart der Nominalisierung im Satz fest, während der nachfolgende durch Anreicherung an diese Lesart angepasst wird (im Sinne von Prädikatstransfer, vgl. Nunberg 1995, 2004). Neben der Analyse solcher Beispiele liegt der Schwerpunkt auf der Bestimmung von bisher kaum erforschten Beschränkungen für diese Bedeutungsverschiebungen, welche diejenigen Fälle erklären können, in welchen Koprädikation zu inakzeptablen Beispielen führt. Diese Beschränkungen erlauben es unter anderem, Rückschlüsse auf die Distribution der Lesarten von Nominalisierungen zu ziehen, und beschreiben den Aufbau von kohärenten Kontexten.

In Kapitel 2 werden die verschiedenen Lesarten von deverbalen *-ung* Nominalisierungen im Deutschen vorgestellt, unter besonderer Berücksichtigung der nicht

ereignishaften Fälle, welche in vielen Nominalisierungstheorien ausgeklammert oder nur am Rande behandelt werden. Diese Lesarten sind in Tabelle 1 zusammengefasst.

EREIGNIS	<i>Messung</i>
RESULTATZUSTAND	<i>Verschmutzung</i>
ABSTRAKTES RESULTAT	<i>Übersetzung</i>
RESULTATSOBJEKT	<i>Erfindung</i>
MITTEL	<i>Lüftung</i>
AGENS	<i>Bedienung</i>
KOLLEKTIV	<i>Verwaltung</i>
ORT	<i>Reinigung</i>

Tabelle 1. Kategorien von *-ung* Lesarten

Die Gruppe der Resultate wird dabei noch feiner unterteilt, da für diese ein Kontinuum an Resultativität angenommen wird, so dass der Grad die Resultatstypen unterscheidet: so entstehen einige Resultate tatsächlich erst durch das Ereignis (z.B. *Bebauung*), während andere in unterschiedlicher Form bereits vorhanden waren (z.B. *Lieferung*, *Übersetzung*). Später wird gezeigt, dass diese Untergruppen grammatische Effekte haben. Die Auswahl von *-ung* Nominalisierungen wird dahingehend begründet, dass sie eine sehr große Bedeutungsvielfalt aufweisen und im Gegensatz zu anderen Derivationsformen wie *-er* und *-erei* Nominalisierungen prinzipiell in Koprädikationen erscheinen können. In Kapitel 3 werden verschiedene Arten von Modifikatoren und Prädikaten vorgestellt, welche durch ihre Selektionsrestriktionen als Lesartenindikatoren auf verschiedenen Ebenen des Kontexts dienen. Exemplarisch werden diese anhand von Kollokationsanalysen im *cosmas*-Korpus als solche verifiziert. Es wird ergänzt, dass auch andere, z.B. nominale Formen als Indikatoren dienen können, wie z.B. Bedeutungsbeziehungen und NP Koordinationen.

In Kapitel 4 werden Internet- und Korpusbeispiele herangezogen, um zu zeigen, wie deverbale Nominalisierungen im Diskurs verwendet und wieder aufgegriffen werden. Es wird deutlich gemacht, dass sie ihre Lesart oft im Laufe des Diskurses ändern und im Falle von Koprädikationen sogar inkompatible Lesartenindikatoren für eine Nominalisierung im gleichen Satz auftauchen, was nicht immer akzeptabel ist. Diese Beispiele dienen als Grundlage für die Evaluation von existierenden Theorien zur Bedeutungsvariation in Kapitel 5. Dort wird zunächst gezeigt, dass Theorien die verschiedenen Beschränkungen für Koprädikationen nicht voraussagen können, wenn sie sich allein auf die Flexibilität der Nominalisierung konzentrieren, wie z.B. die Zwei-Ebenen Semantik (Bierwisch 1989) und das Generative Lexikon (Pustejovsky 1995). Weiter wird in Kapitel 6 eine alternative Theorie erläutert, nach welcher die Möglichkeit besteht, stattdessen den Kontext zu verändern um sortale Unverträglichkeiten zu vermeiden (Prädikatstransfer, Nunberg 2004). In Kapitel 7 wird gezeigt, dass diese Analyse auf Koprädikation mit deverbale Nominalisierungen

angewendet werden kann, aber um zusätzliche Beschränkungen speziell für dieses Phänomen ergänzt werden muss.

In Kapitel 8 werden schließlich verschiedene Koprädikationsbeispiele dahingehend untersucht, was ihre Akzeptabilität beeinflusst — eine Frage, die bis jetzt nicht hinreichend behandelt wurde, da Koprädikation eher als eine generell mögliche Konstruktion für bestimmte Nomen galt. Es wird hier angenommen, dass unterschiedliche Faktoren eine Rolle für die Lizenzierung von Koprädikation spielen: zum einen die Kombination von Lesartenindikatoren, da nur Ereignisse und/oder Resultate zusammen auftreten können, zum anderen ihre Positionierung im Satz, da die strukturelle und in einigen Fällen auch temporale Getrenntheit der Indikatoren bevorzugt wird, und außerdem die Relation zwischen den inhaltlichen Aspekten der Indikatoren. Letzteres wird als Prädikatskohärenz eingeführt, da davon ausgegangen wird, dass Diskurskohärenzrelationen zwischen Sätzen in angepasster Form auch für die Koprädikation ausschlaggebend sind. Es wird angenommen, dass die Akzeptabilität solcher Sätze ein Kontinuum darstellt und die verschiedenen Beschränkungen dabei zusammenspielen, was schließlich in der Gewichtung der einzelnen Faktoren verankert wird. Diese Gewichtung legt den Grundstein für empirische Überprüfungen dieses Problems.

In der Schlussbetrachtung wird abschließend auf die sprachübergreifende Stabilität dieses Phänomens und seiner Beschränkungen aufmerksam gemacht und auf mögliche sprachspezifische Unterschiede hingewiesen. Außerdem wird gezeigt, dass ein auf Koprädikation basierender Ambiguitätstest durch diese Beschränkungen verbessert werden kann und durch sie auch Rückschlüsse auf die Relationen zwischen den Lesarten ermöglicht werden, welche in die genannten Theorien einfließen und diese ergänzen können.



## Synopsis

This dissertation examines the meaning variation of deverbal nominalizations from a semantic-pragmatic point of view. The main focus is on nouns derived from verbs by means of the suffix *-ung* in German (e.g. *Messung* ‘measurement’, *Absperrung* ‘obstruction’, *Lüftung* ‘air-conditioning’), which cannot only refer to events but often also to the abstract and material results of these events, and less frequently to animate and inanimate causers and locations of these events. It is shown that these nominalizations do not only appear in contexts in which they can be directly and unambiguously assigned one of those readings, but also in so-called copredication structures wherein modifiers and predicates indicate incompatible readings for the nominalization as, for example, in (i).

- (i) Die fünfminütige Messung ist auf zwei Stellen genau.  
‘The five-minute measurement is accurate to two decimal places.’

Copredication is defined in this work such that there are (at least) two readings that conflict for the noun, since the modifying adjective for example requires an event reading while this reading is not compatible with the selectional restrictions of the following predicate. The linguistic means to determine the reading can thus be predicates and modifiers, but also sense relations for example. They will be termed (reading-)indicators in the following. In addition to construed examples, findings from the German newspaper corpus *cosmas* (Institute for German language) will be used and collocation analyses therein will also help to determine indicators.

To solve sortal mismatches, e.g. between an event (*fünfminütig* ‘five-minute’) and a result indicator (*auf zwei Stellen genau* ‘accurate to two decimal places’) as in (i), a specific kind of meaning shift is suggested, which does not affect the meaning of the nominalization, but rather applies to the context. According to this approach, the first indicator (here within the DP) determines the reading of the nominalization in the sentence, whereas the second indicator is adjusted to match this reading as well in terms of predicate transfer (cf. Nunberg 1995, 2004). The focus of this thesis is not only on the analysis of copredication examples, but more specifically on the identification of yet little-studied constraints for the kind of meaning shift involved there: these constraints allow explaining those cases neglected in the literature where copredication leads to unacceptable examples and they give, for example, new insights into the distribution of deverbal nominal readings and the construction of coherent contexts.

Chapter 2 introduces the different reading categories available for deverbal *-ung* nominals in German. As shown in Table 1, special consideration is given to non-eventive cases that are marginalized by many nominalization theories.

EVENT	<i>Messung</i> ‘measurement’
RESULT STATE	<i>Verschmutzung</i> ‘pollution’
ABSTRACT RESULT	<i>Übersetzung</i> ‘translation’
RESULT OBJECT	<i>Erfindung</i> ‘invention’
MEANS	<i>Lüftung</i> ‘air conditioning’
AGENT	<i>Bedienung</i> ‘waiter/waitress’
COLLECTIVE	<i>Verwaltung</i> ‘administration’
LOCATION	<i>Reinigung</i> ‘dry-cleaning’

Table 1. Categories of *-ung* readings

The category of results is further subdivided, because they were found to differ according to the amount of resultativity they involve: some results are, for example, actually created through the event (e.g. *Bebauung* ‘construction’), while others have already existed in different form (e.g. *Lieferung* ‘delivery’, *Übersetzung* ‘translation’). Accordingly, it will be shown that these subgroups have grammatical effects. The focus on *-ung* nominalizations is accordingly motivated by their high semantic flexibility and by the fact that compared to other derivations like *-er* and *-erei* nominals, they can appear in copredication. Chapter 3 introduces different kinds of modifiers and predicates that, through their selectional restrictions, serve as reading indicators on different contextual levels. They are exemplarily verified as such through collocation analyses within the *cosmas*-corpus and are then complemented by other (e.g. nominal) forms, which can serve as indicators as well, like for example sense relations and NP coordination.

Chapter 4 draws upon web and corpus examples to show how deverbal nominalizations are used in context and how they are picked up again in discourse. It is shown that their reading can change throughout the discourse — in case of copredication we even find incompatible reading indicators within the same sentence and modifying one nominal form, which is not always acceptable. These examples serve as the foundation for the evaluation of existing theories regarding meaning variation in Chapter 5. It is argued that theories cannot predict the different constraints for copredication, if they only focus on the flexibility of nominalizations, such as, for example the Two-layer Semantics (Bierwisch 1989) and the Generative Lexicon (Pustejovsky 1995). Furthermore, it is assumed that in order to prevent sortal mismatches the context can be enriched in terms of predicate transfer (Nunberg 2004), which is explained in detail in Chapter 6. In Chapter 7 it is shown that this analysis can be transferred to copredication with deverbal nominals, but that it has to be amended with additional constraints specifically for this phenomenon.

Finally, different copredication examples are examined in Chapter 8 as to what affects their acceptability — a question not addressed in detail yet, since copredication has rather been considered a generally possible construction for some nouns. It is assumed

here that a variety of factors play a role for licensing copredication: for one the combination of reading indicators, because only events and/or results can be combined; but also their positioning within the sentence, as the structural and in some cases temporal disjunction of the indicators is decisive for licensing copredication. Moreover, the relation between the properties assigned by the indicators is shown to be crucial for copredication. The latter factor is termed predicate coherence, because it is assumed that discourse coherence relations are not only established between sentences, but also crucial for copredication. The acceptability of such sentences is shown to form a continuum and the interplay of different constraints is finally codified in the weighing of these individual factors. This creates a basis for further empirical studies of this matter.

The conclusion then points out the cross-linguistic stability of said phenomenon and its constraints and hints at possible language specific differences. Also it is shown therein that an ambiguity test based on copredication can be improved through these constraints and that they allow to draw conclusions concerning the relation between readings, which may function as a complement to the discussed theories on meaning variation.



# 1. Introduction

In this thesis, I will deal with the meaning variation of deverbal nominals in context. This chapter will introduce the reader to the unsolved questions concerning this phenomenon I am going to address. Deverbal nominals derived by the suffixes *-er*, *-erei* and *-ung* in German, can refer to the events expressed by the verbal base and nominalise them. Moreover, they serve to refer to a variety of other entities related to the event such as objects, locations, collectives etc., as exemplified in the small text in (1).

- (1) Paul hatte genug von der **Abkassiererei** im Hotel: er beschwerte sich bei der **Bedienung** und frühstückte dann lieber in einer **Bäckerei**. Dann ging Paul noch in eine **Buchhandlung** und kaufte sich einen **Reiseführer** und die **Übersetzung** eines japanischen Romans. Seine **Bewunderung** für dieses Land war wirklich groß und er fragte sich, wie die **Bebauung** seines Grundstücks dort voran ging. Paul stieg ins Auto zu seinem **Fahrer**, welcher die Hand vom **Lenker** nahm, um die **Zündung** zu betätigen. Ob die **Absperrung** der Straße wohl bereits aufgehoben war?

‘Paul had enough of the **cashing in** (event) at the hotel: he complained to the **waiter** (agent) and then had breakfast in a **bakery** (location). Then Paul went to a **bookshop** (location) and bought a **travel guide** (object) and the **translation** (object) of a Japanese novel. His **admiration** (state) for this country was really huge and he wondered how the **development** (event) of his lot was proceeding. Paul got into the car, and his driver took his hand off the **steering wheel** (object) to start the **ignition** (object): He wondered whether the **obstruction** (state) of the street had already been suspended.’

Although the suffix *-ung* might be outstanding in this respect, the semantic flexibility of deverbal nominals is not a peculiarity of German: The above suffixes have counterparts in English and French (for example *-er/-eur*, *-ery/-erie*, *-ment*, *-ion/-ment*, *-age* etc.), whose derivatives follow very similar reading patterns (events, agents, locations etc.). Although I will focus on German in this work, I expect the observations made here to apply to other languages in similar ways.

How to account for this variety of readings and how the semantics of the base verb, the contribution of the suffix, patterns in the conceptual system and contextual mechanisms collude here remains an unanswered question. Some issues concern the classification of this kind of ambiguity, that is, whether and how these readings are related and how these relations can be represented. In addition, which of these readings are stored in the lexical entry or structure and which ones come about by independent mechanisms such as meaning shift is not a trivial matter. I will deal with these issues in an indirect way, namely by considering the behaviour of deverbal nominals within specific contexts that

suggest two different readings for one nominal form (copredication) — an area neglected with respect to nominalization to date. These specific considerations at the semantics-pragmatics interface might then give new impulses for the more general classification aspects of deverbal nominals. Before I describe my approach in this thesis and the specific issues I will deal with in more detail, I will locate my considerations in the general research area of deverbal nominalization. Nominalizations have raised questions in many different linguistic disciplines: They are interesting for syntax, since they can express the meaning of a whole sentence; and are intertwined with the argument structure of their verbal bases. In addition, they are a subject matter for morphology, since they are derived from verbs by suffixation and are obviously interesting for semantics, since they display many different readings.

There are different strategies to explain the meaning variation of deverbal nominals: Syntactic or structural approaches, such as Grimshaw (1990) and Alexiadou & Grimshaw (2008), have claimed that the ambiguity of these nominals is systematic and hence not stored in the lexicon as they see it. They assume that a single underspecified structure is inserted into different positions of the nominal's structure, so that different readings have different structures. The height of the suffix insertion is hence decisive for the kind of nominal and, due to the fact that some suffixes are ambiguous between the two insertion positions or even homonymous (Grimshaw 1990), we get different readings. The contribution of the suffix is hence not semantic but structural according to these theories.

In contrast, recent lexicalist approaches, such as Lieber (2004), Melloni (2007, following Lieber) and Plag (1998), have emphasized the similarity between polysemy in the simplex and the complex lexicon: Accordingly, affixes also have (polysemous) meanings that are stored in lexical entries (in Lieber's case in the form of bipolar features) and combine with the semantics of the base. In contrast to the structural approaches, affixes are considered to make a semantic contribution and are not only structural devices. Hence the syntactic properties of derived nominals are seen as dependent on these semantic features.

The question where idiosyncratic and systematic phenomena in general and word formation in particular are located in the language system goes back to the seventies: The debate started out between Chomsky's (1970) transformationalist/syntactic hypothesis, on the one hand, and the lexicalist hypothesis (e.g. Aronoff 1976, Jackendoff 1975, Motsch 1977) on the other, and continues today. The main question concerns the aspect whether phenomena operating within the word and outside of it differ considerably (lexicalist view) or not (transformationalist view). Consequently, the concept of the lexicon and the syntax is spelled out in totally different ways as is the division of labour between them as far as word formation is concerned: on the one hand, the lexicon basically lists irregularities while extended transformations from a complex word's deep structure explain its characteristics, on the other hand, more explanatory force lies on the lexicon.

The focus and aim of the different theories on word formation depends on these basic viewpoints. Syntactic approaches rather deal with the eventive readings of deverbal nominals and with their argument structure or linking mechanisms, while semantic ones focus on the lexical structure of base verbs, suffixes and/or derivatives. The latter consider a wider range of readings and, for example, the interpretation of postnominal NPs and contextual clues for disambiguation (Ehrich & Rapp 2000). More general semantic theories on meaning variation (with simple nouns and nominalizations, cf. also Chapter 5) differ in the semantic representations they assume, for example whether they share an underspecified least common denominator cooperating with the conceptual system (e.g. Bierwisch 1983, 1989, von Heusinger 2009, von Heusinger & Schwarze 2006) or have a rich lexical structure where all the readings are somehow represented (e.g. Pustejovsky 1995, Asher & Pustejovsky 2000).

I see my thesis in a lexicalist tradition. Nevertheless, I want to propose a complementary approach to nominalization without having to solve the question regarding how the reading variety comes about and how it should be represented: I will look at deverbal nominals from a semantic-pragmatic point of view, which means I will focus on post lexical processes concerning their interpretation and mismatch solving in context. My aim is hence to bring together the two research fields of nominalization and the semantics-pragmatics interface by concentrating on the characteristics of the readings available for deverbal nominals and their interpretation on different levels of context, namely, the phrase, the sentence and, in part, the wider discourse. Nominalizations are especially interesting in this field because they are, on the one hand, verbal and situative and, on the other hand, nominal and entity-like and hence allow for very different environments in context.

To be able to discuss the issue of deverbal nominals in context and to address problematic cases, I need to provide a detailed description of three areas: the reading categories available for deverbal nominals in German, the contextual clues that determine these readings, and different contexts that exemplify their behaviour therein. I will not only construe my own sentences to illustrate these issues, but will also use real examples from a corpus and the web to show, how we really use and interpret deverbal nominals in context and discourse.

Questions arising in the first area include: Which reading categories should we assume? Can this choice be motivated by grammatical effects? And, how are the readings related to each other? The most researched readings are events and states due to the syntactic interest of most theories and the fact that these nominals have verbal bases. However, what is then left is a semantically heterogeneous class of abstract and material results, objects, locations and collectives, as exemplified in (2)–(6). This group is still widely neglected in the literature (apart from some exceptions as e.g. Bierwisch 1989 for German), but crucial for a semantic-pragmatic theory under the assumption that these

forms are not just stored in the lexicon as such, but come about by a productive process.<sup>1</sup>

- (2) Die Erhöhung beträgt 50 Euro.  
‘The increase amounts to 50 Euro.’  
⇒ **abstract result (value)**
- (3) Die Übersetzung liegt auf dem Tisch.  
‘The translation is on the table.’  
⇒ **result object**
- (4) Die Lüftung funktioniert nicht.  
‘The air-conditioning is out of order.’  
⇒ **means (object)**
- (5) Die Verwaltung hat angerufen/ist im Urlaub.  
‘The administration has called/is on holiday.’  
⇒ **agent/collective**
- (6) Paul arbeitet in der Niederlassung in Stuttgart.  
‘Paul works in the branch office<sup>2</sup> in Stuttgart.’  
⇒ **location**

Intuitively, not all of them should be treated on a par, since they seem to differ very much: We have abstract and material objects, results etc., which all stand in different relations to the result. Hence, the distribution of deverbal nominal readings will be reconsidered for my purposes, since semantic theories often deal with results only as a homogeneous group (e.g. Ehrich & Rapp 2000) or represent all these readings in a similar way (e.g. Bierwisch 1989).

The second area concerns the question regarding what can give rise to the interpretation of a nominal as event, result etc. in context. For German, Ehrich & Rapp (2000) have hinted at default means to indicate a specific reading in context, namely modifiers like English *tedious* (for events) and *red* (for objects) or verbs like *finish* (for events) and *destroy* (for objects). I will call these contextual clues “indicators”, since their selectional restrictions indicate one of the readings for the nominal in context, and I will exemplify the indication process in context.

With these considerations on readings and their indicators as a basis, I will be able to show that the process of interpreting a nominal in context is not always straightforward,

<sup>1</sup> Melloni (2007) brought to my attention the general neglect of this group in literature, not only for German. She calls this group “referential nominals” and covers a vast amount of readings in her work on Italian.

<sup>2</sup> Literally: establishment, settlement

which means, there is not always one clear adjacent indicator matching only one reading of the nominal: these issues are also important for corpus linguistics and the automatic annotation of nominals therein. Since some of the indicators can select for different readings in isolation, I will consider whether the context they appear in can disambiguate them. Moreover, I will show that there are also indicators that operate in wider discourse, like, for example, bridging and sense relations, which have not been dealt with in the literature up to now. Such means of indication hint at the fact that it is worth looking at nominalizations in (wider) context and not just with respect to their architecture or their behaviour within a phrase.

The main phenomenon I will deal with in this work also hints at the idea that a compositional view, where we just have to interpret the indicator nominal combination, is too simplistic: In many cases we get a mismatch, since it is possible to have two or more competing reading indicators that apply their selectional restrictions to one and the same nominal. An example for this is provided in (7), where *fünfminütig* ‘five-minute’ refers to the event of measuring, while *auf zwei Stellen genau* ‘accurate to two decimal places’ selects for the value reading of the nominal *Messung* ‘measurement’.

- (7) Die fünfminütige Messung ist auf zwei Stellen genau.  
 ‘The five-minute measurement is accurate to two decimal places.’

Following Pustejovsky (1995), I will call this phenomenon copredication. This term describes the fact that modifiers and predicates ranging over different semantic domains (events, states, objects, locations etc.) can be simultaneously predicated of the same noun, although they indicate different readings for it. Thus, the term copredication does not cover cases, where we have two (or more) predications for one noun in general, but only if two different readings are indicated by them. The question to be answered is: How can we interpret a nominal if there are two different indicators that impose their competing selectional restrictions on it? An answer to this question would also address a challenge for the annotation of corpora, in which deverbal nominals appear (cf. Heid et al. 2007). Intuitively, one of the predications must fail if we have two such indicators for one token of a deverbal nominal. How, then, can compositionality be preserved?

Copredication has often been used as an ambiguity test to show how autonomous two readings of a word are, as in example (8) by Cruse (2002), where the two readings of *expire* (‘cease to be valid’ and ‘die’) do not allow this structure, since they are antagonistic, i. e. one excludes the other.

- (8) ??John and his driving license expired last Thursday.

Like many ambiguity tests as e.g. the identity test or the truth-functional test (cf. the discussion in Geeraerts 1993 and Zwicky & Saddock 1975), this one leads to inconsistencies as shown in example (9) by Bierwisch (1983), where we have the same combination of readings for a. and b., but a difference in acceptability.

- (9) a. Die Schule, die neben dem Sportplatz liegt, hat einen größeren Betrag gestiftet.  
 ‘The school that lies next to the sport’s field has donated a major amount.’
- b. ?Die Schule liegt neben dem Sportplatz und (sie) hat einen größeren Betrag gestiftet.  
 ‘The school lies next to the sport’s field and (it) has donated a major amount.’

We also find unacceptable copredications for deverbal nominals: Although we have an event and a result indicator for the same nominal as in (7), (10) is not acceptable. Consequently, there must be more to the licensing of copredication than just the two readings involved.

- (10) ?Die fünfminütige Messung liegt im Müll.  
 ‘The five-minute measurement lies in the trash.’

Hence, one of the most important questions in this work will concern constraints on copredication — a question that is widely neglected in the literature up to now and is not only important for the improvement of Cruse’s test, but also for a general theory and analysis of copredication with implications for the representation of deverbal nominals. I will show that the few theories dealing with copredication might have an explanation for copredication, but that they cannot account for the unacceptable cases and must therefore be complemented — a task, I am going to address in this thesis. There are, for example, underspecification accounts for copredication (e.g. Pustejovsky 1995, Hamm & Solstad 2009), which propose a solution in terms of local disambiguation (in the phrase and outside of it), but without posing constraints on this phenomenon: They cannot explain or predict unacceptable combinations of readings, since underspecification would potentially allow for all combinations.

My aim is hence to propose an analysis of copredication examples, especially with deverbal *-ung* nominals in German, which only predicts acceptable examples. Existing theories focus on the flexibility of the nominal, here; I will base my assumptions on a pragmatic approach to meaning shift in general, which focuses on the question which part of a sentence has to be shifted if we have a mismatch like, for example, in (11) and (12) (Nunberg 1995, 2004).

- (11) The ham sandwich is at table 7.

- (12) I am parked out back.

It is clearly not the speaker that is parked out back, because he is in front of the hearer, and a ham sandwich is not able to pay. Intuitively, we would want to use the metonymic

relations between cars and drivers or food and customers to shift the nominal to a matching reading by shifting the reference. Nunberg instead uses a pragmatic principle based on the same metonymy to accomplish this task, so-called “predicate transfer”: He enriches the predicate instead of the nominal to avoid a mismatch. For (9) this would look like (13), where the predicate *parked out back* referring to cars is enriched to a property of human beings.

(13) I am {the owner of a car that is [parked out back]}.

By applying predicate transfer to examples like this, Nunberg does not have to act on the assumption that the nominal is shifted, because then, he claims, one should be able to coordinate a second modifier applying to cars, as in (14).

(14) ?I am parked out back and **may not start**.

I will consider in this thesis, whether such a principle can also account for other mismatches as in copredication with deverbal nominals, where we have a conflict between two reading indicators. Other theories focus on shifts applying to the nominal, whereas Nunberg uses predicate transfer to explain copredication structures with simple nouns, e.g. for authors and their books as well, as in (15).

(15) a. Roth is Jewish and widely read.  
b. Roth is Jewish and {a person whose books are [widely read]}.

Here, the first indicator determines the nominal’s reading for the whole sentence and hence the second has to be enriched to match the requirements of this indicated reading, as shown in the b. example. I will show that we can use this mechanism to explain examples of copredication with derived nominals as well. The question then pertains to what we can learn about predicate transfer by applying it to deverbal nominals (and vice versa). Nunberg’s mechanism was designed to avoid shifts from objects to objects, but as I will show in this thesis, it can also be used to explain shifts between event and result indicators in copredication: in this case, an indicator that creates a mismatch with the nominal’s first indicated reading can be adjusted to resolve the mismatch without shifting the corresponding nominal. Accordingly, I will establish new domains for this mechanism in this thesis.

However, as predicate transfer is a very general pragmatic mechanism, we also need constraints to make sure that it does not overgenerate like other theories, that is, that it avoids arbitrary shifts, no matter in which context. Nunberg uses two necessary concepts: i) salience, a more general principle that relates two domains, e.g. cars and drivers, and ii) a context-dependent constraint that allows predicate transfer if the new predicate is noteworthy in the utterance context; that means it is helpful for the classification and identification of the bearer (e.g. for the driver, that his car is parked somewhere). I will show that we can modify this principle to constrain copredication,

especially with deverbal nominals, and that we need additional constraints, which will give new insights into the reading distribution of deverbal *-ung* nominals and their use in context in general.

These constraints will show that the acceptability of copredication depends on the combination of reading indicators involved (the assumed readings in this work and their relations hence have grammatical effects), on the location of these reading indicators in the sentence structure, and on a special kind of coherence, which does not exist between two sentences, but between the properties assigned to the nominal. I will hence predict the possibilities and limits of predicate transfer application for deverbal nominals and derive characteristics from their behaviour in these structures. The related four main issues I will deal with in this work are hence 1) the reading inventory and distribution of deverbal *-ung* nominals, 2) the different means and processes to determine these readings in context (indicators), 3) copredication cases with a conflict between two different indicators, and 4) the constraints for this structure.

In Chapter 2, the first chapter of the body of this thesis, I will introduce the semantics of deverbal *-ung* nominals in German. Since I focus on their characteristics and their use in context, I will give an overview on theories dealing with restrictions on their formation before I describe and exemplify the different reading categories I assume and compare their characteristics. I will pay special attention to the non-eventive readings, which are only insufficiently researched for a semantic-pragmatic approach up to now. Based on these properties, I will motivate why I focus on *-ung* nominals in comparison to other deverbal forms on *-er* and *-erei* and I will show what their readings have in common with similar meaning variations of simple nouns as *school*, *book* etc. and how they differ from them.

In Chapter 3, I deal with different reading indicators by introducing the characteristics or selectional restrictions that make them indicate a certain reading and the composition of phrases and sentences with them. For some cases, these intuitive assumptions will be verified with cooccurrence analyses from a corpus. These will also show that there are ambiguous indicators and I will propose ways we can use to determine a reading in the context in which they occur. Moreover, I will complement the inventory of indicators with contextual clues different from modifiers and predicates, such as sense relations and bridging structures, which have not yet been discussed in the corresponding literature.

In Chapter 4, I will use the reading labels and indicators introduced in the preceding chapters to label corpus examples for deverbal nominals in discourse. These examples will provide an overview of the use of deverbal nominals: Namely, we can have different occurrences of a nominal or an anaphoric pronoun referring to it where the reading is preserved throughout, and others where the pronoun is modified by a new, mismatching indicator. This latter kind will lead us to the special case of copredication, where the reading change appears to occur in one and the same nominal form. I will

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illustrate copredication in detail with more (attested) examples displaying different structures and, finally, I will give examples for unacceptable copredications. This collection will serve as a list of issues for the theories I will discuss in Chapter 5 and for my own approach.

In Chapter 5, I will discuss two theories that deal with the meaning variation of deverbal nominals in general, but classify nominalizations in different ways: one based on the concept of a generative lexicon (Pustejovsky 1995) and another one assuming a two-layer semantics (Bierwisch 1983, 1989). Both focus on the nominal's flexibility to explain why we can have copredication examples. I will show where they would have to be complemented in order to be able to account for the examples from Chapter 4, especially for the unacceptable ones. Then, I will provide a detailed orientation of different meaning shifts based on Nunberg's theory of predicate transfer and the phenomena he attempts to explain in Chapter 6.

In Chapter 7, I will then extend the scope of application of Nunberg's theory: I will show how predicate transfer can serve as an alternative analysis for deverbal nominals in contexts such as copredication, where shifts are assumed to apply to avoid mismatches. I will modify and complement Nunberg's concepts for this specific area to establish an analysis of copredication with deverbal nominals that does not affect the nominal and therefore paves the way for a systematic prediction of constraints on this mechanism, which I am going to provide in this thesis. Thereby, I will establish the licensing of copredication as a research topic in its own right in contrast to its treatment as a general characteristic of certain nominals in the literature.

In Chapter 8, I will finally focus on the constraints for copredication, a domain that has not been taken into account in detail up to now. I will systematically compare different acceptable and unacceptable copredications and derive preferences and constraints from them: These will concern, firstly, the reading categories indicated, secondly, the structure of the sentence, i.e. the impact the forms of indicators involved, their positioning and the temporal structure have on its coherence, and, thirdly, the semantics of the indicators, i.e. the properties they assign to the nominal and the relation between these properties. Then, I will show how these different constraints interact and will weigh them according to their presumed effect on acceptability judgements as a basis for empirical studies.

In the conclusion, I propose some implications for the design of semantic nominalization theories and ambiguity tests with copredications. Moreover, I will give an overview on similarities and possible differences in other languages and propose some connecting factors for empirical studies within this area of research.



## 2. Deverbal *-ung* nominals in German

Out of the vast field of ambiguity phenomena in language and in particular in derivational morphology, I have chosen nominals derived from verbal bases by means of suffixation with *-ung* for this work. In order to explain my motivation behind this choice and to provide the information necessary to discuss special issues concerning the disambiguation of these deverbal nominals, this chapter introduces the semantics of *-ung* nominals: I will first give an overview on their formation and interpretation potential and then explain the labels I use and the overall distribution of readings before I compare them to other nouns with respect to their meaning variation in context. These readings enter the composition process of phrases (Chapter 3) and sentences (Chapters 3 and 4), where they can be indicated according to contextual clues.

### 2.1 Conditions for the formation of deverbal *-ung* nominals

German *-ung* formations are very productive and seem to be very flexible as far as their bases are concerned, but they are not unconstrained. Since the focus of this thesis is on the interpretation of deverbal *-ung* nominals in context rather than their internal structure and derivation, I will only give an overview of the conditions and restrictions for their formation observed in the literature, before I describe the reading categories available for *-ung* nominals in 2.2.

The clearest constraint concerning the verbal bases might be that *-ung* does not apply to modal and auxiliary verbs as in (16) (cf. Esau 1973), with some exceptions for *Werdung* ‘becoming’.<sup>3</sup>

- (16) \**Seinung* ‘being’, \**Wollung* ‘wanting’, \**Könnung* ‘can-ing’, \**Müssung* ‘must-ing’

In the morphological literature since e.g. Esau (1973) (cf. also the overview in Osswald 2005 and Scheffler 2005) it is recognized that *-ung* has a tendency to take transitive base verbs, which are often event denoting, non-durative and prefixed (e.g. in *Absperrung* ‘obstruction’, *Übersetzung* ‘translation’, *Bepflanzung* ‘planting’). If we, for example, search for occurrences of *-ung* nominals in the *cosmas* corpus<sup>4</sup> (I list the first 15 occurrences of a subcorpus here), we find examples as in (17).

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<sup>3</sup> Scheffler (2005) notes that *Werdung* exists in *Menschwerdung* ‘becoming human’, *Bewusstwerdung* ‘realization’, literally “becoming aware”, *Fleischwerdung* ‘incarnation’, literally “becoming flesh”.

<sup>4</sup> [www.https://cosmas2.ids-mannheim.de](http://www.https://cosmas2.ids-mannheim.de) (IdS Mannheim)

- (17) *Ausstellung* ‘exhibition’  
*Berücksichtigung* ‘consideration’  
*Berechnung* ‘calculation’  
*Betreuung* ‘supervision’  
*Meinung* ‘opinion’  
*Flexibilisierung* ‘flexibilisation’  
*Forderung* ‘request’  
*Unterstützung* ‘assistance / support’  
*Zahlung* ‘payment’  
*Schaffung* ‘creation’  
*Verkürzung* ‘abbreviation’  
*Förderung* ‘advancement / aid’  
*Meldung* ‘announcement’  
*Beschwörung* ‘invocation’  
*Inszenierung* ‘orchestration, staging’

Although many of these examples fit into the named pattern, we find exceptions, as e.g. non-prefixed forms such as *Schaffung* ‘creation’ and *Förderung* ‘payment’, lexicalized forms such as *Meinung* ‘opinion’ that do not have an event reading (at least not anymore), but also transparent forms with non-transitive bases such as *Zahlung* ‘payment’ for example.

Such exceptions suggest, that the semantics of *-ung* might be more complex so that generalisations made according to more general verb class distinctions (e.g. transitivity, but also telicity, creation etc.) fail to some extent. Therefore I see an advantage in a more recent approach by Roßdeutscher & Kamp (2010) given their consideration of a more detailed internal structure of the base verb, which allows them to model more subtle differences. They claim that there are few exceptions for the transitive tendency on the intransitive side (still allowing *-ung* such as *Ergrauung* ‘greying’ and *Ermüdung* ‘tiring’), but many on the transitive side (cf. (18)), which is rather surprising.

- (18) \**Schießung* ‘shooting’, \**Kochung* ‘cooking’, \**Wischung*<sup>5</sup> ‘wiping’

Hence, it cannot be transitivity alone that allows *-ung* to apply. They observe that, out of the group of intransitive base verbs, the unergative ones fail in taking *-ung* (\**Arbeitung* ‘working’, \**Reisung* ‘travelling’), while state-changing verbs as *ermüden* ‘tire out’ allow it.

However, even if there seems to be a change of state involved in a certain event, more subtle factors can prevent the formation of an *-ung* nominal: we often find verbs with very similar meaning, where only one can form an *-ung* nominal as, for example, *wischen* ‘to wipe’ and *säubern* ‘to clean’, suggesting that general semantic verb classes are not decisive here. However, such verbs may have more subtle differences: according

<sup>5</sup> In fact, we find *Wischung* ‘wiping’ in German, but only in specific vocabulary, e.g. concerning leather.

to Roßdeutscher & Kamp (2010), we can form *Säuberung* ‘cleaning’, since the event causes a state of being clean, but not \**Wischung* ‘wiping’ even though both nominals describe similar actions and both share the inference that the affected theme is clean after the event. The idea is that *Wischung* has a manner root and therefore the changed state element is not accessible for -ung in the structure although the verb has telic semantics. In (19) I list more of their examples for nominals derived from what they call bi-eventive verbs.

- (19) *Benotung*<sup>6</sup> ‘grading’, *Bildung* ‘education’/‘formation’, *Sammlung* ‘collection’, *Trocknung* ‘drying’

Independently of a framework as specific as this (using ideas from DRT and DM) and the actual representations therein, I hope to have shown, that clear conditions for the formation of deverbal -ung nominals might be more complex than the obvious tendencies on base verb semantics suggest.

I will now consider whether there are restrictions on their interpretation, i.e. on what can serve as referential argument of the possible formations before I describe these readings in more detail in section 2.3. Except for some lexicalised forms (as e.g. *Wohnung* ‘apartment’), the event reading, i.e. the referential argument of the base verb, is always available. In the following, I will show that the availability of other referential arguments depends on the specific nominal and that there are restrictions which are not trivial.

As shown in (20), the nominal *Absperrung* ‘obstruction’ can refer to the referential argument of the verb (a.), to the resulting state of being blocked (b.), to the object constructed during the event (c.) and to the agent in very specific situations<sup>7</sup>, but not to the theme, which could e.g. be a street.

- (20) Die Absperrung  
 a. dauerte zwei Stunden.  
 b. wurde zwei Tage aufrechterhalten.  
 c. war aus Metall.  
 ‘The obstruction  
 a. lasted two hours.  
 b. was maintained for two days.  
 c. was made of metal.’

<sup>6</sup> For the impact of the prefix *be-* on the acceptability of forming an -ung nominal, see also Roßdeutscher & Kamp (2010), who show that *be-* has different impacts, depending on the verbal structure: cf. \**Bereisung* ‘be-travelling’ vs. *Bearbeitung* ‘be-working’

<sup>7</sup> Imagine, for example, a situation, in which someone has illegally blocked a street. We could refer to the person having done this by: *Schau mal da drüben, die Absperrung wird verhaftet* ‘Look over there, the obstruction is being arrested.’ However, this use is dependent on a very specific situation compared to more conventionalized agentive readings as *Verwaltung* ‘administration’ or *Leitung* ‘management’ (cf. section 2.3).

However, the theme argument of the verb is not generally excluded for *-ung* nominals, as the example *Lieferung* ‘delivery’ shows: A delivery can refer to the event, but also to an object, e.g. to the parcel, which corresponds to the theme argument of the base verb.

According to the bi-eventiveness condition stated here, all *-ung* base verbs involve states caused by them, but that does not imply that *-ung* nominals can refer to them: *Lieferung* ‘delivery’, for example, does not have a state reading. In contrast to atelic verbs, telic events with a result state would be intuitively predicted to have a nominalization with a result state reading, as e.g. (*etwas*) *leeren* ‘to empty (something)’. In contrast, the corresponding nominal *Leerung*<sup>8</sup> ‘clearance/emptying’ does not have a result state reading (the state of being emptied) in German, as shown in (21).

- (21) ?Die Leerung der Mülltonnen [hielt nur einen Tag an]<sub>RESULT STATE</sub>.  
 ‘The clearance of the waste containers persisted only for one day.’

Hence, there is no argument position of the verb that is principally excluded as a referential argument<sup>9</sup> for *-ung* nominals in general. Apart from that, it remains unclear why and when some readings are excluded for specific forms as for example in (21): some *-ung* nominals can only refer to the referential argument of the base verb, i.e. they only have an event reading (*Leerung* ‘clearance’), some also to the resulting state (*Vergiftung* ‘poisoning’) and others have an object reading in addition (*Absperrung* ‘obstruction’) or instead (*Übersetzung* ‘translation’) for example as we will see in more detail in the following section.

Many people (e.g. Ehrich & Rapp 2000, Demske 2002, Shin 2001, Knobloch 2002, Bierwisch 1989, 2009) have tried to predict the readings specific *-ung* forms refer to according to the (mostly decompositional) meaning of their base verbs lately, but an approach with less exceptions would be preferable (cf. also the evaluation in Osswald 2005 and Scheffler 2005).<sup>10</sup> Roßdeutscher & Kamp (2010) again attribute the restrictions on referents to the type of root (based on a Distributed Morphology framework), i.e. it is decisive whether the nominal has a sortal (*Bestuhlung* ‘seating/installation of seats’: event, state and object reading) or a property root (*Schwächung* ‘weakening’: event and state reading). However, as they admit, this distinction is not enough to cover the data, e.g. to explain, why sortal root-based *Mischung* ‘mixture’ does not have the predicted state reading in contrast to sortal root-based *Bestuhlung* ‘seating/installation of seats’.

As far as ambiguous base verbs are concerned, the existence of another derivational form for the base verb blocks a certain reading in some cases, for example in doublets

<sup>8</sup> This example is taken from Scheffler (2005: 7). Note that the prefixed *Entleerung* ‘disposal’, literally ‘ent-emptying’, does also not have a result state reading (both have transitive base verbs in German).

<sup>9</sup> *-ung* nominals can also refer to means or locations as we will see in section 2.2.

<sup>10</sup> One reason for this might be the overlap of the active forms and the vast amount of fossilized forms here, which add exceptions.

such as *Beziehung* ‘relation(ship)’ and *Bezug* ‘reference, (seat-)cover’, where the two forms refer to different senses of the base verb.

Although it is obvious that clear conditions on the formation and interpretation of deverbal nominals are a very important issue, for the purpose of this thesis it should suffice to state the above tendencies and to mention that the complex semantics of the base verbs seems to be decisive here. I will rather concentrate on the fixing of these nominals’ readings in context, that means on how we choose from the available readings of a specific deverbal nominal. Therefore, I will leave the systematic prediction of -ung nominal readings open for further research<sup>11</sup> and I will concentrate on the description of these readings in the following section rather than on a thematic role grid.

## 2.2 The readings of deverbal -ung nominals

The nominalization *Nominalisierung* ‘nominalization’ itself shows that -ung nominals often have more than one reading. In (22), the nominal refers to the event of nominalising and in (23) to its outcome, namely the already nominalised form.

- (22) Die Nominalisierung des Verbs fiel dem Deutschschüler schwer.  
‘The nominalization of the verb was hard for the learner of German.’
- (23) In dieser Arbeit werden Nominalisierungen wie *Absperrung* untersucht.  
‘In this thesis, nominalizations like *obstruction* are examined.’

Although the situative (event and state) readings exemplified in (22), (24) and (25) might be the most manifest readings of the verb-based -ung nominals, deverbal nominals with -ung can also be interpreted as several kinds of entities that have to do with the event (in these cases results) as in (23) and (26).

- (24) Die Lieferung des Pakets [dauert 3 Tage]<sub>EVENT</sub>.  
‘The delivery of the package takes three days.’
- (25) Die Verschmutzung der Meere [ist besorgniserregend]<sub>RESULT STATE</sub>.  
‘The pollution of the oceans is alarming.’
- (26) Die Lieferung [liegt bereits auf deinem Schreibtisch]<sub>RESULT OBJECT</sub>.  
‘The delivery is already on your desk.’

<sup>11</sup> This issue concerns the linking of verbal and nominal argument structure in general, i.e. also the interpretation of postnominal genitive NPs. Ehrich & Rapp (2000) assume that if the lexical semantic structure of a verb involves a change of state predicate, only the highest ranked effected argument will be part of the nominal’s argument structure, while if it does not, all arguments will be part of the argument structure. However, this theory does not cover the whole range of data; cf. Scheffler (2005) and Osswald (2005).

In (24), *Lieferung* ‘delivery’ can be interpreted as an event since it has certain duration and a theme that the event applies to (I will come to contextual clues for the interpretation of these nominals in Chapter 3). This sentence can be seen as the nominal counterpart to the sentence: *Es dauerte 3 Tage das Paket zu liefern* ‘It took 3 days to deliver the package’. In (25), the deverbal nominal refers to a state that is accomplished by the event of *verschmutzen* ‘to pollute’, hence the ocean is in the state of being polluted, and in (26) we refer to a package, i.e. a physical object, since an event cannot lie somewhere. Moreover, there can be other results and participants in the event, which the *-ung* nominals can refer to. I will give a list of the reading categories I deal with in this work in Table 1, each accompanied by a nominal that can display, but is not necessarily limited to this reading.

EVENT	<i>Messung</i> ‘measurement’
RESULT STATE	<i>Verschmutzung</i> ‘pollution’
ABSTRACT RESULT	<i>Übersetzung</i> ‘translation’
RESULT OBJECT	<i>Erfindung</i> ‘invention’
MEANS	<i>Lüftung</i> ‘air conditioning’
AGENT	<i>Bedienung</i> ‘waiter/waitress’
COLLECTIVE	<i>Verwaltung</i> ‘administration’
LOCATION	<i>Reinigung</i> ‘dry-cleaning’

Table 1. Categories of *-ung* readings

We find these readings in phrases such as [*die durchgeführte Messung*] ‘the conducted measurement’, [*die besorgniserregende Verschmutzung*] ‘the alarming pollution’, [*die fehlerfreie Übersetzung*] ‘the flawless translation’, [*die robuste Erfindung*] ‘the robust invention’, [*die kaputte Lüftung*] ‘the broken air-condition’, [*die hübsche Bedienung*] ‘the beautiful waitress/service’, [*die gestresste Verwaltung*] ‘the stressed administration’, [*die zentral gelegene Reinigung*] ‘the well-located dry-cleaning’. The categories in Table 1 might not constitute a comprehensive list<sup>12</sup>, although this list includes more readings than other accounts to *-ung* do (e.g. Ehrich & Rapp 2000, Roßdeutscher & Kamp 2010, Bierwisch 1989), basically because in contrast to them my thesis focuses on their meaning variation in context and not specifically on their coming about in derivation.

As we can see, all of the readings are somehow related to the event: We can refer to the means to conduct the event (*Lüftung* is a device for air conditioning), the location where it takes place, the agent or collective who usually carries it out and to results brought

<sup>12</sup> To my knowledge, there are no additional categories in the literature on *-ung*, but Melloni (2007) adds some for similar Italian suffixes as e.g. *-mento* and *-aggio*, e.g. PATH for examples analogous to English *the extension has exceeded x* (*Ausweitung* in German), which I will count as abstract result (value), or MANNER and TEMPORAL readings as in *his irresponsible administration (of the firm)* and in *the feeding occurs 2 times a day*, which are special kinds of events in my opinion (*Verwaltung* and *Fütterung* in German). Moreover, I will not deal with FACTIVES as in *John informed me of the suspension of the celebrations* (*Verschiebung*), since they underlie more general principles (cf. Melloni 2007 and 8.1).

about by the event, namely states, abstract<sup>13</sup>, and material entities (*Erfindung* ‘invention’ can refer to the invented object itself). Many of these labels are familiar from literature on the subject, but I added or divided some of them, since we can e.g. have abstract and material results of an event, which will be crucial for the interpretation in context. These are not theta role labels, at least not all of them, but they rather constitute ontological categories, to which *-ung* nominals can refer. I will describe my assumptions about them in more detail and distinguish or compare them to other labels, starting with the event and participants in the event like e.g. means and agents.

The category event corresponds to the referential argument of the base verb and is a hypernym for all eventive readings. I will hence not distinguish events (as opposed to processes), processes, accomplishments, achievements or activities (cf. Vendler 1957), since for my purposes, the difference between eventive and non-eventive readings will be crucial.

Apart from the event itself, *-ung* nominals can also refer to participants in that event. Instead of the common theta role label “instrument”, I use the more general “means” (cf. Bierwisch 1989) to refer to physical or material objects that do not result from the event, but are used to carry it out such as, for example, *Lüftung* ‘air-conditioning’ or *Heizung* ‘heating’. This reading category is generally neglected in literature, although it is a frequent reading for deverbal nominals (not only in German, but also in French and Italian for example, cf. Fradin 2008, Melloni 2007). *-ung* nominals can also refer to human agents (individuals or collectives<sup>14</sup>) of the event and to locations, where this event is usually carried out (if there is a corresponding event reading, cf. *Reinigung* ‘dry-cleaning’ and *\*Schneiderung* ‘tailoring’). These readings are labelled in analogy to simple noun readings as stated by Bierwisch (1983) for nouns like *Schule* ‘school’.

Apart from participants in the event, *-ung* nominals can also refer to states, abstract, and material entities coming about by the event. All of them are results, but they can be of very different natures and hence I subdivide this category for my purposes (in contrast to Ehrich & Rapp 2000 and Roßdeutscher & Kamp 2010, who only deal with result states and material results). Result states<sup>15</sup> should be available for all *-ung* base verbs, but as mentioned in section 2.1 this does not mean that the *-ung* nominal must have a result state reading, which will be crucial in the following. Accordingly, if I claim that certain *-ung* nominals do not have a result, I mean that they cannot refer to a result in language, even though they might have one in the world. As far as their characteristic features are concerned, states are abstract and temporal like events, but in contrast they

<sup>13</sup> In this work, I use *abstract* in the sense of immaterial (in contrast to material entities as physical objects).

<sup>14</sup> These individuals and collectives have an institutional aspect in some cases, e.g. when we say that the administration has called or has been criticized rather in its function than as a single person or collective.

<sup>15</sup> I use the label result state to distinguish it from Kratzer’s (2000) “resultant state”, which describes a state that is not reversible, as e.g. *getrocknet* ‘dried’. The result states I describe here can be reversible (her “target” states).

are not dynamic. Examples for this include *Verschmutzung* ‘pollution’ or *Verletzung* ‘injury’ as the state of being polluted or injured.

Events can also lead to results other than states that can be referents for *-ung* nominals, e.g. when we translate a text or measure something. The first differentiation within this group of result entities is that they can be abstract, e.g. like a state, or material<sup>16</sup>: In the following, the first category will be called abstract result and the second result object. In this regard, one nominal form can have both of these types, as the case is with *Übersetzung* ‘translation’ in (27) and (28).

(27) Die Übersetzung [ist fehlerhaft]<sub>ABSTRACT RESULT</sub>.  
‘The translation is faulty.’

(28) Die Übersetzung [liegt auf dem Tisch]<sub>RESULT OBJECT</sub>.  
‘The translation lies on the table.’

In (27), *fehlerhaft* ‘faulty’ describes the abstract content of the physical object, as long as we do not speak of the wrong paper or the like, which is rather uncommon. The translation can still have a physical manifestation that someone can read or an oral translation that he can hear, but in this sentence, the nominal refers to the abstract result. In (28), it can only be the material result object (which includes the abstract result), because it is accompanied by the predicate *liegt auf dem Tisch* ‘lies on the table’ that selects for material entities. However, there are also *-ung* nominals that only allow for one of these readings: I can, for example, say *Er teilte mir seine Entscheidung mit* ‘He informed me about his decision’ or *Die Ordnung der Bücher darf nicht geändert werden* ‘the ordering of the books must not be changed’, but these abstract results do not have a physical manifestation. In contrast, an obstruction can be material, but does not have an abstract result reading. Accordingly, we have three general types of nominals as far as their result entity readings are concerned, exemplified in Table 2.

<sup>16</sup> The equipollent feature “material” is inspired by Lieber (2004), and will not only be used to describe her substances/things/essences later on, but also events and states that are immaterial (cf. section 8.1).

ABSTRACT RESULT	RESULT OBJECT
<i>(penible) Ordnung</i> '(penible) ordering'	<i>(hölzerne) Absperrung</i> '(wooden) obstruction'
<i>(schlüssige) Formatierung</i> '(coherent) formatting'	<i>(abblätternde) Bemalung</i> 'flaky painting'
<i>(gute) Entscheidung</i> '(good) decision'	<i>(stabile) Verpackung</i> 'solid wrapping'
ABSTRACT RESULT & RESULT OBJECT	
<i>(fehlerlose, zerfledderte) Übersetzung</i> '(flawless, tattered) translation'	
<i>(klare, zerknitterte) Beschreibung</i> '(intelligible, wrinkled) description'	
<i>(nachvollziehbare, 2-seitige) Gliederung</i> '(comprehensible, two-page) outline'	

Table 2. Result nominal types

The latter category exemplified in Table 2, namely, nominals with two types of result entities, does often hold for Melloni's (2007) "creation by representation" verbs like *übersetzen* 'to translate', which have entities as their results that are based on an already existing entity (in this case, the source text). In the *cosmas* corpus<sup>17</sup>, we also find slightly different instances with two types of result entities, as exemplified in (29)–(31).

- (29) a. Die Bepflanzung im Neubaugebiet wurde lange diskutiert.  
'The planting in the development area was discussed for a long time.'
- b. Wie die Polizei feststellte, wurden Blumenkübel und sonstige Bepflanzung zerstört.  
'The police noticed that flower pots and other planting were destroyed.'
- (30) a. Die visionäre Bebauung zieht viele an Architekturinteressierte an.  
'The visionary construction attracts many people interested in architecture.'
- b. „Chez Bob" liegt fernab jeder Bebauung nahe am Vaccarès–See.  
'"Chez Bob" is located near the Vaccarès lake remote from any construction.'

<sup>17</sup> Examples (29), (30) and (31) are taken from the *cosmas* corpus of the IdS Mannheim: <http://www.ids-mannheim.de/cosmas2/>

- (31) a. Das spiegelt sich auch in der Einrichtung seines Büros (...) wider. Kahle Wände, nur auf dem Regal hinter seinem Stuhl steht ein Rahmen mit einer Bleistiftzeichnung darin.  
 ‘That is mirrored in the furnishing of his office. Bare walls, only a frame with a pencil drawing on the shelf behind his chair.’
- b. Orth hat den Speicherboden unrenoviert übernommen, zwei Monate in Eigenleistung Fenster, Boden, Wände und Einrichtung eingebaut.  
 ‘Orth took over the attic unrenovated; it took two months of his own work to install windows, floor, walls and furniture.’

In (29)–(31), the a. example includes an abstract result reading, whereas the b. example displays a material object. The abstract ones resemble a pattern or relationship between things, e.g. in (31) the whole design of the room is described, not only the furniture itself, and in (29) the design of the whole planting area is discussed (not only distinct plants as in (29)). Here, we are dealing with the arrangement of the things involved. Another abstract type is a value that is available for nominals like *Messung* ‘measurement’ (indicated e.g. by *auf zwei Stellen genau* ‘accurate to two decimal places’) or *Erhöhung* ‘increase’ (indicated e.g. by *beträgt* ‘amounts to’) and comes into existence by the event. Hence, we have three slightly different types of abstract results: the information type (cf. Pustejovsky’s 1995 “info\_object”), a value, and a relation or pattern. All of them will get the label “abstract result”, while the result states are in fact also immaterial, but get their own label (result state).

As far as the material results, which I term result objects<sup>18</sup>, are concerned, I will assume four subgroups, which share the qualities of being material and resultative, but differ in whether their referents existed before the event occurred. The “purest” result object is something that came into existence by the event — these readings are often available for nominals derived from creation verbs, such as *Bebauung* ‘construction’, where the building(s) did not exist before the event, or (*Spezial-*) *Anfertigung* ‘custom product’ (literally: ‘special fabrication’). However, there are also objects that are pre-existent (just like means to carry out the event), but are still conceived as coming into being by the event, because the event considerably changes the original object so that it appears (almost) as a new entity.<sup>19</sup> An example for this group is the material representation of a translated text: A translation<sup>20</sup> (*Übersetzung*) event modifies the source text so that it appears in another language, but this new entity is based on an existing one, i.e. the

<sup>18</sup> The label “result object” is in principle analogous to *physical object* (e.g. Pustejovsky 1995), *entity* (Roßdeutscher & Kamp 2010), *product* (Melloni 2007), but emphasizes the resultative nature of these readings and I make more distinctions within this group, also in comparison to own preparatory work, e.g. in Brandtner & von Heusinger (2010).

<sup>19</sup> Roßdeutscher & Kamp (2010) also note that the entity referent of nominals like *Bestuhlung* ‘seating’ is “created”: although the seats already exist, they appear as a new entity through their installation/function.

<sup>20</sup> *Übersetzung* ‘translation’ could also refer to the pre-existent source text, but in this case it is a template for the translation event, not a result object.

source text (cf. also Melloni 2007, who uses base verb types to predict the product readings for Italian deverbal nominals<sup>21</sup>).

I assume that the same holds for result objects that correspond to the pre-existent theme argument of the base verb, such as *Lieferung* ‘delivery’: The delivery is the thing that is delivered, but it already existed before the event, however, without actually being a delivery. However, it is resultative in that it cannot be a delivery before the event has started, i.e. we cannot say something like (32) in a context where no one orders anything.

- (32) ?Wir haben das ganze Lager voller Lieferungen (die niemand haben will).  
 ‘We have the whole store-house filled with deliveries (that no one wants to have).’

The theme hence appears as a new entity as soon as it starts to be delivered, but the event does not have to be finished, as we can say *Die Lieferung ist verloren gegangen* ‘the delivery has been gone astray’. Other examples, based on verbs that make something available (Ehrich & Rapp’s (2000) “Verfügbarkeitsverben”), would be *Ausgrabung* ‘excavation’ or *Entdeckung* ‘discovery’, where we make something available that already exists, but was hidden in one way or another before the event.

The last subgroup of result objects that I assume is very similar to the resultative theme cases, but the object is a means, which is dependent on the event, but simultaneously used to carry it out. One example for this group is *Absperrung* ‘obstruction’: The means already exists before the event begins, but it is conceived as an obstruction only if it is used as one. We would hence not denote some pieces of wood that lie in the street as *Absperrung* ‘obstruction’ if they are not constructed as such, even though they could also function as a means to block the street.<sup>22</sup> The same holds for other resultative means, such as *Abdeckung* ‘coverage’, *Verhüllung/Verpackung* ‘wrapping’ and *(Zahn-)Füllung* ‘(tooth-) filling’. How we can distinguish this group from pure means as *Lüftung* ‘air-conditioning (device)’ and *Heizung* ‘heating’ above may not be clear at first sight, but I am of the opinion that the latter differ from resultative means at least in two main points: A heating, for example, is also a heating even if it has never worked and does not heat. Whereas if it is in the process of heating, it does not need an agent to do that, it only has to be switched on and is then actively doing something. In contrast, a

<sup>21</sup> Melloni (2007: 162) lists a) Creation (/Result Object) verbs: e.g. *costruire* ‘build’, b) “Creation by representation” verbs: e.g. *tradurre* ‘translate’ c) “Creation by modification” verbs: “tangible/concrete modification, which is conceived again as a new entity, on/in an existing object/entity” (e.g. *correggere* ‘correct’). I subsume representations under modification, since in my view a translation also modifies the source text for example, even if it is only transferred into another language.

<sup>22</sup> It is, however, more difficult to judge whether *Absperrung* ‘obstruction’ can denote the pieces of an obstruction that are really designed just for this purpose, but are not yet constructed as such and stand in the corner. A small survey I did among some native speakers has suggested that they would rather use *die Teile der Absperrung* ‘the pieces of the obstruction’ or a specification as *Absperrgitter* ‘barrier grate’ in this case.

filling or a wrapping really have to be brought into a new form to fulfil their function otherwise they do not actively fill or wrap something.

Judging from the different subgroups of result objects, I assume that there is a continuum of resultativity concerning these objects (assuming that creation is the most resultative action).<sup>23</sup> Nevertheless, the crucial point is that I will count all of them as resultative. Based on the assumptions made in this section, we get the picture in Figure 1 for result readings of events, where the arrow beyond marks the dimension of actual resultativity, decreasing from something like ‘appears to come into existence/to be created’ on the left to ‘comes into existence/is created’ on the right. Remember that the means category displayed here refers not to pure means but only to resultative means, which I count as subgroup of result objects.

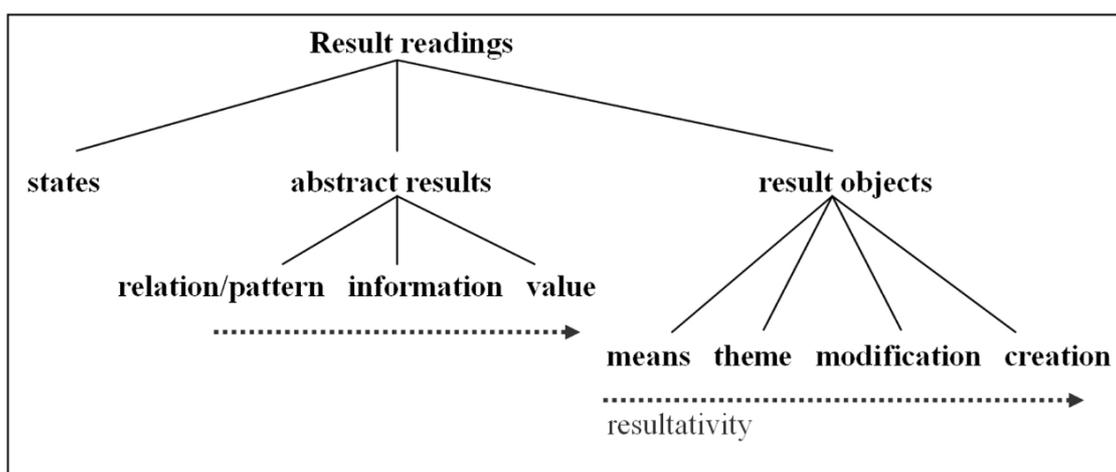


Figure 1. Result readings for *-ung* nominals

As I made clear in section 2.1, not every *-ung* nominal has a single available reading as in Table 1 (although there are some lexicalized ones as e.g. *Fernbedienung* ‘remote control’ or nominals like *Wohnung* ‘apartment’, which lack the default event reading, and *Lesung* ‘reading’, which can only be an event). In the following, I will focus on those nominals that display more than one of these readings because they have to be interpreted in or by context.

As Asher (2008) emphasizes in relation to reading categories, it is important that the semantic types we suggest are somehow encoded in language, i.e. they must have characteristics that other types do not share. In this section, I have intuitively used different sentence environments to distinguish the readings and in Chapter 3 I will deal with the actual contextual clues that indicate a specific reading from Table 1. There, constructions that only allow for some or one of these categories, because of their

<sup>23</sup> Even the creation cases show that resultativity might not be absolute, since we do not create e.g. a construction out of nothing, but by building up its pieces, but these pieces cannot be called *construction* themselves.

selectional restrictions, will be dealt with more systematically and will clarify the similarities and differences of these categories. For now, I will simply list characteristics of the reading categories in Table 3, which I will explain and use in more detail in section 8.1.

	Event	Result State	Abstract Result	Result Object	Means	Agent/ Collective	Location
duration	+	+	–	–	–	–	–
dynamic	+	–	–	–	–	–	–
immaterial	+	+	+	–	–	–	–
resultative	–	+	+	+	–	–	–
volitional	–	–	–	–	–	+	–
cause event	–	–	–	–	+	+	–

Table 3. Categories for *-ung* nominals

After having explained my view on the semantics of deverbal *-ung* nominals, I am now able to conclude Chapter 2 with a classification of *-ung* nominals into other ambiguity phenomena and provide motivation for my choices in the following section.

### 2.3 Qualifying my research focus

Semanticists have identified different types of having “more than one meaning” on a continuum between readings that have a clear relation and others that only accidentally (or etymologically) share the same lexical item, the former generally called polysemy, the latter homonymy. Especially in the former group, we find more subtle differentiations. For linguistic studies, lexical items with related readings constitute more problematic issues, bringing about questions such as: What are the relations between their readings and what counts as a distinct or autonomous sense (cf. Cruse 2000)? Which information does the lexical representation include? And, how do we arrive at the intended reading in a certain context?

Among this group, we find different deverbal nominals (e.g. *-er*, *-erei* and *-ung*), but also simple nouns (e.g. *Buch* ‘book’ or *Birne* ‘pear/bulb’). However, this relatedness can have different forms and the most striking characteristic of *-ung* nominals is that they do not only refer to participants in the event, but also have readings that refer to results of this, as was shown in 2.2. Compared to other suffixes that derive nouns from verbs<sup>24</sup>, only *-ung* nominals can have result readings, as shown below in Table 4.

<sup>24</sup> I won’t take into consideration forms with bases other than verbs such as denominal ones as e.g. *Fleischer* ‘butcher (‘meater’)

Suffix	Common readings of the nominalization
-er	agent ( <i>Sänger</i> ‘singer’), instrument ( <i>Bohrer</i> ‘borer’), abstract other ( <i>Huster</i> ‘cough’ etc.)
-erei	event ( <i>Abkassiererei</i> ‘cashing in’), location/institution ( <i>Bäckerei</i> ‘bakery (shop)’), collective ( <i>Reiterei</i> ‘cavalry’)
-ung	event ( <i>Bewässerung</i> ‘irrigation’), result state ( <i>Schwächung</i> ‘weakening’), entities ( <i>Absperrung</i> ‘obstruction’), means ( <i>Lüftung</i> ‘air-conditioning’), collective ( <i>Verwaltung</i> ‘administration’)

Table 4. German suffixes forming nouns from verbs

The *-er* derivatives can refer to agents and instruments of the corresponding event<sup>25</sup>, while *-erei* derives iterative events, locations where these events are carried out and, seldomly, collectives. However, importantly, none of these readings stand in a resultative relation.

As shown in Table 5, simple nouns and *-ung* nominals are similar as far as their participant readings are concerned, but these simple nouns do not have a resultative relation between any of their readings either and presumably involve a different kind of shift: For example, a school building does not come about by the institution or by the processes involved in the concept school.<sup>26</sup>

	Simple nouns	-ung nominals
<b>Location:</b>	<i>Schule, Parlament, Theater, Universität</i> (‘school, parliament, theater, university’)	<i>Verwaltung, Siedlung, Reinigung, Niederlassung</i> (‘administration, settlement, dry cleaning, branch office’)
<b>Institution:</b>	<i>Schule, Theater, Parlament, ...</i>	<i>Verwaltung, Verbindung</i> (‘administration, fraternity/sorority’)
<b>Means:</b>	<i>Zange</i> ‘pliers’, <i>Fön</i> ‘hair dryer’	<i>Abdeckung, Lüftung, Fernbedienung, Sicherung</i> (‘covering, remote-control, air-conditioning, fuse’)
<b>Collective/agentive</b>	<i>Schule, Stuttgart</i> (‘school’, (city of) Stuttgart)	<i>Verwaltung, Regierung, Bedienung</i> (‘administration, government, waiter’)

Table 5. Simple noun and *-ung* readings

<sup>25</sup> In contrast to *-ung*, which can nominalise the event without adding semantic content, deverbal *-er* indeed can also derive eventive readings such as *Hüpfer* ‘a hop’, but this is very restricted (to semelfactives), and the eventive *-erei* readings add an iterative aspect rather than just nominalising the verbal event as in die *ständige Schreierei* ‘the permanent yelling’.

<sup>26</sup> Just like simple nouns such as *school* and *book*, the agent and instrument or location readings of *-er* and *-erei* nominals are not related to the event or to each other by a result relation.

Moreover, *-ung* is also special in its distribution of readings. It remains unclear whether there is a default reading for simple nouns as *school* or *book*, but presumably we deal rather with a family of readings that share an underspecified semantic core meaning (cf. Bierwisch 1983). Because of the underlying verb, this is different with *-ung* nominalizations: We can derive an event nominal, which is the primary reading that is available for almost all *-ung* forms (except for some lexicalised ones), while the result readings are dependent on this event, since they denote abstract or concrete entities that result from it.<sup>27</sup> Although they are also derived from verbs, the readings of *-er* and *-erei* nominals are not dependent on the event reading since they do not denote its results.

Besides, although they also have related readings (*-er* e.g. refers to animate and inanimate causers of an event), most *-erei* and *-er* nominals have one reading which is more common: for example, *Öffner* ‘opener’ is normally not an agent, while *Fahrer* ‘driver’ cannot be an instrument and while *Träger* ‘bearer’ could be an instrument and an agent, and *Bäckerei* ‘bakery (shop)’ cannot be an event while *Singerei* ‘singing’ always is. For these nominals, one reading is already prominent (most of the time independent of a special context) they are clearly distinguishable and never form a conceptual unit: something cannot be an agent and an instrument of an event at the same time.

In contrast to *-er* and *-erei* nominals, *-ung* nominals often display several readings that are both equally common, as we have seen in sections 2.1 and 2.2, and sometimes even form a conceptual unit, just like certain simple nouns as in (33) compared to (34).

(33) Das Buch ist [interessant]<sub>INFO</sub> / [rot]<sub>PHYSOBJECT</sub>.  
‘The book is interesting / red.’

(34) Die Übersetzung [ist fehlerfrei]<sub>ABSTRACT RESULT(Info)</sub> / [liegt auf dem Tisch]<sub>RESULT OBJECT</sub>.  
‘The translation is faultless / lies on the table.’

There are hence different kinds of relations among the readings: e.g. the German noun for the fruit *Birne* ‘pear’ can also refer to a bulb, because of a similarity (in form) relation, but still, these are clearly distinct readings.<sup>28</sup> In other cases, the relation is much more systematic and the two readings form a closer conceptual unit as e.g. with *Buch* ‘book’ or *Übersetzung* ‘translation’ in an informational or a physical sense

<sup>27</sup> Demske (2002) notes that in Early New High German object readings did not occur very frequently (*Behausung* ‘housing’, *Besoldung* ‘paying’, *Festung* ‘fortress’, *Kleidung* ‘clothing’, *Nahrung* ‘nourishment’, *Ordnung* ‘order’, *Wohnung* ‘apartment’, which do not have an event reading today). The resultative readings, which are dependent on the event, must have evolved over time so that *-ung* does not only transform the base into a nominal anymore. This change affects the lexical-semantic structure of *-ung* and is described by Demske as shifting the focus from the activity to the change of state or state part, respectively, which makes the nominalizations “more nominal”.

<sup>28</sup> The similarity relation might be a systematic one, but not every language uses the same similarity, e.g. in English, *bulb* refers to the part of the plant or to the light bulb.

(readings like these are sometimes called “facets” (Cruse 2000) or “dot objects” (Pustejovsky 1995). As explained in Cruse (2000), we can find modifiers for each of these readings that exclude the other reading, as, for example, *rot* ‘red’ for the physical object reading and *interessant* ‘interesting’ for the information reading, but also some that could refer to both as a unit, as e.g. *neu* ‘new’.

This close relatedness can even lead to the effect that the context suggests two different readings for one token of the nominal without making the example unacceptable (cf. (35) and (36)). This phenomenon is often called “copredication” (cf. Pustejovsky 1994 and Chapter 4 for cases with deverbal nominal), since there are two competing contextual clues that predicate over one nominal form.

- (35) Er hat die [fehlerhafte]<sub>ABSTRACT RESULT</sub> Übersetzung [in den Müll geworfen]<sub>RESULT OBJECT</sub>.  
‘He has thrown the faulty translation into the trash.’
- (36) Er hat das [interessante]<sub>INFORMATION</sub> Buch [durchgeblättert]<sub>PHYSOBJECT</sub>.  
‘He has leafed through the interesting book.’

You can only put something somewhere or leaf through it if it is a physical object, but on the other hand *fehlerhaft* ‘faulty’ and *interessant* ‘interesting’ describe the content of the physical object (the book, pieces of paper, oral utterance etc.). However, as the different subscripts of the indicators for the simple noun *Buch* and the nominalization *Übersetzung* suggest, the crucial difference is that the informational and the physical object in the case of *-ung* are results of the event, whereas *Buch* ‘book’ does not have an event reading. Moreover, *-ung* nominal readings do not only allow copredication structures if they form a conceptual unit, but also, for example, if they stand in a resultative relation as in (37).

- (37) Endlich steht die [mühsame]<sub>EVENT</sub> Übersetzung [in den Buchläden]<sub>RESULT OBJECT</sub>.  
‘Finally, the laborious translation is in the book shops.’

This is not possible with polysemous words like *schwer*<sup>29</sup> (‘difficult’/‘heavy’) or the different readings of *-er* and *-erei* nominals, presumably because their readings are more distinct and antagonistic. This can be inferred from the so-called “zeugma” effect (cf. e.g. Cruse 2000), which they produce in examples like (38)–(40), i.e. they sound very odd.

- (38) ?Der Lenker<sup>30</sup> des Fahrrads [ist betrunken]<sub>AGENT</sub> und [verbogen]<sub>MEANS</sub>.  
‘The driver of the bike is drunk and (the handle-bar) is bent.’

<sup>29</sup> ?Der Koffer war schwer, genauso wie die Aufgabe. ‘The suitcase was heavy and so was the task.’

<sup>30</sup> Literally: something like “guider”, which can refer to a handle-bar or the person using it (the first reading being more common) in German.

- (39) ?Der Flieger<sup>31</sup> [hat einen Flugschein]<sub>AGENT</sub> und [ist überfüllt]<sub>MEANS</sub>.  
‘The aviator has a pilot’s licence and (the plane) is crowded.’
- (40) ?Die Brauerei [liegt am Stadtrand]<sub>LOCATION</sub> und [ist sehr schwierig]<sub>EVENT</sub>.  
‘The brewery is on the outskirts of the city and is very challenging.’

In addition, one of their readings is more common in most cases, as we have seen (in contrast to *-ung* nominals), and that is why copredication with these forms is often odd since the two readings are not equally current for one token.<sup>32</sup> Hence, *-ung* nominals do not only display a greater flexibility of meaning for one nominal form, but they also differ from the *-erei* and *-ung* nominals with respect to copredication structures. Cruse (2000) uses this structure as a test to define how distinct two readings are: since these *-ung* readings can appear in copredication, they are not “antagonistic” in his terms, i.e. they can both be simultaneously asserted of the same entity, and are hence not as autonomous as e.g. *-er* and *-erei* readings. This procedure shows that although they also belong to different ontological classes, the exemplified readings of *-ung* nominals have a closer relation to each other than the ones for *-erei* and *-er*.

I have shown in this section that *-ung* nominals often cover several readings belonging to different ontological classes (such as e.g. events and objects) which are equally current for the specific deverbal nominal. Hence, *-ung* nominals are highly ambiguous and have readings that are closely related, not antagonistic, and sometimes even dependent on the event. Moreover, I have made clear that these nominals can refer to events and participants in the event, but also to results, which distinguishes them from other ambiguity phenomena and makes them worth an in-depth analysis.

Before I take a closer look at the behaviour of *-ung* nominals in environments that suggest more than one of their readings (copredication), I will explain the contextual clues that suggest a reading by their selectional restrictions (indicators) in more detail in Chapter 3. I will clarify the different reading indicators already used in the above examples and introduce some new ones, because, in order to motivate the different types of readings, we need to find “a linguistic construction that accepts expressions of one type but not the other” (Asher 2008: 17) based on its selectional restrictions.

<sup>31</sup> Literally: ‘flyer’, which can refer to the plane or the pilot in German.

<sup>32</sup> *Brauerei* ‘brewery’ refers to the location or institution, but not to the process of brewing itself. This would rather be the nominalised infinitive *das Brauen*. Another example would be *Sänger* ‘singer’, which can only be the agent of *to sing*. This is the case with almost all *-er* and *-erei* nominals and also for other more restricted *-er* readings as e.g. *Hüpfen* ‘jump’, which only have the eventive reading.



### 3. Reading indicators and interpretation in context

In the examples given so far I have acted on the assumption that deverbal nominals are interpreted differently in certain contextual environments and that we can identify these readings because of contextual clues. We often knew which reading was selected because of our world knowledge on what an event can be like or which selectional restrictions are imposed by certain modifiers and predicates. In this chapter, I explain the predicates and adjectives that select a reading of the nominal they predicate over in more detail and support my choice with some corpus queries. To identify copredication examples (cf. Chapter 4), we first need to understand how and when different readings are indicated and in this chapter, I will establish this basis. I will start with what I will call “local” indicators in section 3.1, that is basically adjectives and verbs, which directly impose their selectional restrictions on the noun. In section 3.2, I will present other means for reading indication, which have not yet been taken into consideration.

#### 3.1 *Local indicators*

Up to now, I have marked modifiers and predicates in the phrasal or sentential context with the readings they select and will call them “local” in this chapter to differentiate them from means of indication that apply in the wider discourse (cf. 3.2). As I have shown in Chapter 2, *-ung* nominals often display more than one possible reading in isolation, but in context we find items that impose selectional restrictions on them and hence, in my terms, “indicate” one of their readings (cf. also Heid et al. 2007 for this term and Asher 2008 for a detailed description of selectional restrictions as type presuppositions).

I will first focus on events and result objects, since they are very different as we will see, however not antagonistic since they can appear in copredication structures, i.e. they can be asserted simultaneously of the same entity under certain conditions (cf. (36) above). From the literature on this topic (e.g. in Ehrich & Rapp 2000 or Kamp & Roßdeutscher 2010 for *-ung* and generally in references therein), we learn that events<sup>33</sup> are dynamic and have duration (cf. also 2.2); they begin or end and can be iterated, and are for these reasons different to objects. These characteristics of the event correlate with the selectional restrictions of certain indicators, which lead to odd examples if these cannot be fulfilled by the nominal e.g. with a prototypical physical object, say a table, as in (41).<sup>34</sup>

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<sup>33</sup> In 2.2 I have stated that I use the event label for events and processes. Although not all indicators mentioned here also hold for processes, we are dealing with the general group ‘event’ if one of these indicators occurs.

<sup>34</sup> Since *-ung* nominals often have several possible readings I will exemplify the indicators with simple nouns that only have one reading.

- (41) ?Der Tisch dauert drei Stunden/ wird wiederholt/ endet am 7.Juli.  
‘The table takes three hours/ is iterated/ ends on July 7.’

We could in principle say that an object takes time or is iterated in some contexts, for this example, think about processes involved in carpentry, but the duration will always refer to an event related to the object, e.g. the time taken to manufacture or to deliver it.<sup>35</sup> Events can also be conducted and take manner adverbs as e.g. *cautious* or concerning motion as *slow* (Asher 2008: 14) since they are dynamic, while physical objects cannot, since they are not dynamic as shown in (42).

- (42) ?Der Tisch wird vorsichtig / schnell durchgeführt.  
‘The table is conducted cautiously / quickly.’

On the other hand, physical objects are material and can hence have colours and shapes or lie somewhere, as in (43), but not in (44), where we have an *-ung* nominal that only has an event reading. Physical objects can also undergo physical change as e.g. being torn apart, thrown etc., which distinguishes them from abstract objects, as in the odd example (45), where a physical object indicator is combined with an abstract noun.

- (43) Der Apfel ist rot / rund / auf dem Tisch.  
‘The apple is red / round / on the table.’
- (44) ?Die Lesung ist rot / rund / auf dem Tisch.  
‘The reading is red / round / on the table.’
- (45) ?Er hat die Werte verbrannt.<sup>36</sup>  
‘He has burnt the values.’

Besides, Asher (2008: 15) states that objects “have a complex internal structure and can move with respect to the terrestrial reference frame” while e.g. locations are fixed in this respect.

As we have seen, the characteristics I have described here correlate with so called indicators, with which the readings match or do not match. I have used unambiguous nouns to introduce indicators for events and physical objects, but if we now apply these indicators to nominalizations that can display different readings, the composition with them can indicate one of these readings. In a traditional semantic model, “the immediate sentential environment of a word may call for particular meaning variants and exclude others” (as such summarized in Löbner 2002: 48, but going back to Frege’s considerations about the structure and meaning of complex sentences). This is what happens here: I have introduced and characterized the possible readings for deverbal

<sup>35</sup> As we will see, Pustejovsky (1995) stores these related events in the rich lexical entry of the nominal.

<sup>36</sup> You could in principle burn values, but then we deal with their physical manifestation, e.g. the values printed on a piece of paper.

*-ung* nominals (cf. 2.2). During the compositional process, the selectional restrictions of indicators can disambiguate the nominal if they only allow for one of the readings available for it and lead to sortal mismatches with the others.

According to a model like this, there are two different levels that have to be passed through without inconsistencies: first the syntactic phrase and then the sentential context. There are two main types of indicators, i.e. of predicates and other means that exclude certain readings when combined with the noun and thereby “indicate” others: we find unambiguous ones that only allow for one reading, i.e. they indicate a reading in the narrow sense of the term, and ambiguous ones that match with different readings available for the nominal. In the latter case, several readings can be passed on to the next level, i.e. from the phrase to the sentential context or the context of the whole sentence, where other indicators or contextual knowledge might then eliminate readings if they lead to a mismatch.<sup>37</sup> After I have introduced different indicators in more detail below, I will show that this assumption may be too simplistic for some cases — these cases are then discussed in more detail in Chapter 4.

In Table 6 I list examples for indicators that typically only allow for a specific reading (here for events and result objects, extending a list by Ehrich and Rapp 2000: 254 for German).

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<sup>37</sup> These considerations about semantic composition should be compatible with a view that assumes an underspecified representation for deverbal *-ung* nominals as well as with accounts that assume lexical ambiguity for them. In the underspecification view, an ambiguous indicator would hence not determine on the phrase level for example how the underspecified representation of the noun should be specified, while in the lexical ambiguity view, the number of assumed readings would not be reduced to one (for more details on these views see Chapter 5).

INDICATORS			
EVENT		RESULT OBJECT	
<b>DP modifiers</b>			
Dates / points in time:	<i>am 7.Juli</i> ‘July 7 <sup>th</sup> ’, <i>am Montag</i> , ‘on Monday’, <i>gestrige</i> ‘yesterday’s’	Size, shape, weight:	<i>lang, rot, schwer</i> ‘long, red, heavy’
Iteration:	<i>wiederholt</i> ‘repeated’	Physical change:	<i>zerrissen</i> ‘disrupted/ripped’
Manner and motion adjectives:	<i>vorsichtig</i> ‘cautious’, <i>sorgfältig</i> ‘diligent’, <i>langsam</i> ‘slow’, <i>mühsam</i> ‘troublesome’, <i>kompliziert</i> ‘complicated’	Internal structure:	( <i>200 Seiten/Teile</i> ) <i>umfassend</i> ‘consisting of 200 pages/parts’
<b>Predicates</b>			
Time frame predicates:	<i>beginnen/aufhören/ weitergehen</i> ‘begin’/ ‘stop’/ ‘continue’	Physical change:	<i>überreichen/in den Müll werfen</i> ‘present’/ ‘throw into the trash’
Duration:	<i>dauert 6 Monate</i> ‘takes 6 months’	Posture verbs:	( <i>auf dem Tisch</i> ) <i>liegen/stehen</i> ‘lie/stand (on the table)’

Table 6. Indicators for events and result objects

Most of these indicators can appear either as a modifier or as a predicate: i.e. we could say *Die zerstörte Übersetzung* ‘the destroyed translation’ or *Die Übersetzung wurde zerstört* ‘the translation was destroyed’. We can check the intuitions summarized in the above table in a corpus and search for collocations with these indicators. Thereby, we will see over which nouns they typically predicate and of which type these nouns are (I list a sample of the 15 most frequent co-occurrences below in Table 7). If we take e.g. *wiederholt* ‘repeated’ we can see it occurs with event readings such as *Aufforderungen* ‘requests’ and *Versuche* ‘attempts’ (listed here as found, i.e. in singular or plural form and in different cases, e.g. in the genitive).

LLR	Cumulative	Frequency	cooccurrence
98591	5457	5457	<b>Foulspiels</b> 'foul play'
60048	9744	4287	<b>Male</b> <sup>38</sup>
30540	13656	3912	<b>Mal</b>
12454	14524	868	<b>Foulspiel</b> 'foul play'
3116	14765	241	<b>Meckerns</b> 'grumping'
792	14836	71	<b>Aufforderungen</b> 'requests'
705	14937	101	<b>Aufforderung</b> 'request'
490	15023	86	<b>Versuche</b> 'attempts'
475	15088	65	<b>Warnungen</b> 'warnings'
405	15140	52	<b>Nachfragen</b> 'inquiries'
401	15173	33	<b>Reklamierens</b> 'contesting'
395	15218	45	<b>Beteuerungen</b> 'affirmations'
386	15260	42	<b>Mahnungen</b> 'reminders'
372	15305	45	<b>Verstößen</b> 'offenses'
329	15346	41	<b>Appelle</b> 'pleas'

Table 7. Collocations of *wiederholt* 'repeated'<sup>39</sup>

Consequently, we can use corpora and combinations with unambiguous nouns to identify "good" event indicators for example as I have shown here. Apart from event and result object indicators, which I have exemplified in Table 6, there are also contextual clues selecting for states, abstract results and participants (for a detailed explanation of the reading categories I assume see Chapter 2). The participant readings (except for means) differ from the other readings to an extent, which makes it easier to

<sup>38</sup> *Zum wiederholten Male /Mal* means something like 'yet again', literally "for the repeated time".

<sup>39</sup> These findings are extracted from the cosmas corpus of the IdS Mannheim: [www.ids-mannheim.de/cosmas2/](http://www.ids-mannheim.de/cosmas2/) by a cooccurrence analysis (cf. Belica 1995). Size of the corpus: 2.291.515.012 words, 37830 instances of *wiederholte(r,s,n)* 'repeated' (in every gender and case form). The LLR is the log likelihood ratio, a procedure that relativises the random occurrence of the words at this position.

find clear indicators, e.g. predicates that select for animate subjects such as *anrufen* ‘call’ for agent/collective readings or prepositions as *in* ‘in’ for locations.

However, if we look at means and results, we do not always find clear-cut clues for indication, since not all readings are as different as e.g. events and result objects — still, we often find special lexical items that make the necessary distinction: States share some characteristics with events, e.g. duration, but they rather take for example the predicate *andauern* ‘persist’ than the eventive *dauert 2 Stunden* ‘takes two hours’ and, further, are not dynamic: This is often indicated by stationary predicates such as *bestehend* ‘existent’ (cf. Ehrich & Rapp 2000). Means and result objects are similar in that they are material and can undergo physical change etc., but they are normally not both available for the same lexical form: For example, both *Lüftung* ‘air-conditioning’ and *Beleuchtung* ‘lighting’ have a means, but no result object reading. In addition, means can be distinguished from the mixed resultative means group (cf. section 2.2) by the predicate *funktionieren* ‘work/operate’, which cannot be applied to the latter group (*?Die Absperrung funktioniert nicht* ‘the obstruction does not work’). Finally, the abstract result category has very specific indicators, which depend on the specific nominal and have to be identified from case to case, e.g. *fehlerhaft* ‘faulty’ and *interessant* ‘interesting’ for information results, *visionary* ‘visionary’ or *sich widerspiegeln in* ‘be mirrored in’ for some cases of relation/pattern results or *auf 2 Stellen genau* ‘accurate to two decimal places’ and *betragen* ‘amount to’ for values (cf. 2.2).

Still, there are many predicates and modifiers that in principle allow for more than one reading type and need contextual information to be able to indicate a specific reading. If, for example, we combine *langwierig* ‘tedious’ with *-ung* nominalizations as *Absperrung* ‘obstruction’ and *Übersetzung* ‘translation’, which can both be an event and a result object among other things, the modifier functions as a clear event indicator as in (46).

- (46) Die langwierige Übersetzung raubte mir den letzten Nerv.  
 ‘The tedious translation drove me round the bend.’

If a translation is tedious then it has to be the event of translating that has a temporal structure and takes a long time. Nevertheless, if we check the collocations in a corpus again, we do not only find events, as shown below in Table 8.

LLR	Cumulative	Frequency	Co-occurrence
14231	1385	1385	<b>Verhandlungen</b> 'negotiations'
4256	1842	457	<b>Prozess</b> 'process'
4037	2329	487	<b>Verfahren</b> 'proceedings'
3914	2712	383	<b>Verletzung</b> 'injury'
2731	3035	323	<b>Ermittlungen</b> 'investigations'
2135	3280	245	<b>Prozeß</b> <sup>40</sup> 'process'
1763	3505	225	<b>Verletzungen</b> 'injuries'
1376	3674	169	<b>Diskussionen</b> 'discussions'
1375	3791	117	<b>Kniewerletzung</b> 'knee injury'
1333	3915	124	<b>Rechtsstreit</b> 'law suit'
1304	4023	108	<b>Prozedur</b> 'procedure'
1003	4112	89	<b>Genehmigungsverfahren</b> 'licensure'
931	4264	152	<b>Suche</b> 'search'
886	4377	113	<b>Angelegenheit</b> 'affair'
710	4445	68	<b>Gerichtsverfahren</b> 'trial'

Table 8. Collocations<sup>41</sup> of *langwierig* 'tedious'

The modifier *langwierig* 'tedious' occurs mainly with events as *Verhandlungen* 'negotiations' and *Prozesse* 'processes', but also with states<sup>42</sup> like *Verletzung* 'injury'.

<sup>40</sup> This is the same word as *Prozess* above, simply in an old spelling. I did not add the two, since I would also have to change the LLR then and the order of the findings is not so important for me here. The same holds for plural forms and derived compounds as *kniewerletzung*.

<sup>41</sup> Again, these findings are extracted from the cosmas corpus of the IdS Mannheim: [www.ids-mannheim.de/cosmas2/](http://www.ids-mannheim.de/cosmas2/) via a co-occurrence analysis (cf. Belica 1995). Size of the corpus: 2.291.515.012 words, 13527 instances of *langwierige(r,s,n)* 'tedious'.

<sup>42</sup> Hence, *langwierig* 'tedious' seems to select for temporal aspects. An injury could as well be an object (a burn, a broken bone etc.), but in combination with *langwierig* 'tedious' it applies to the period of time before it heals again.

Indicators like this one are thus not disambiguating *per se*, since their selectional restrictions leave open several possible reading categories. Nevertheless, they can still function as indicators on the phrase level, since in the inventory of readings for a nominal, there may only be one reading matching the selectional restrictions of the modifier. I will exemplify this with the deverbal nominal *Übersetzung* ‘translation’, which can be interpreted as the event of translating a text, as the abstract result of this event (namely the information), and also as the physical object that contains this information, i.e. a book, manuscript etc. I will list these possible readings in curly brackets below. As shown in Table 8, *langwierig* ‘tedious’ selects for events as well as states, which I will list in dashes in (47).

- (47) *Übersetzung* ‘translation’: {event, abstract result, result object}  
*langwierig* ‘tedious’: /events, states/

If we now compose a phrase out of these two components, i.e. [*langwierige Übersetzung*] ‘tedious translation’, we recognize that there is only one reading which they both have in common: the event. Hence, the other possible readings are eliminated on this level (the phrase), since they do not match the modifier’s selectional restrictions as illustrated in Figure 2.

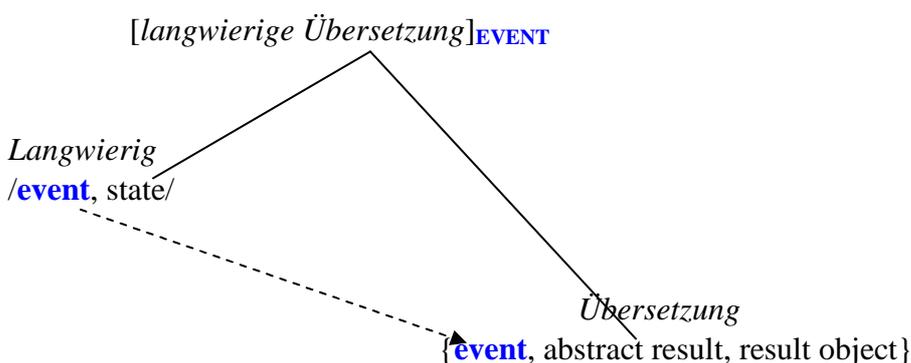


Figure 2. Ambiguous indicators in composition

We can double check our intuition that there is really no state reading for *Übersetzung* ‘translation’ by combining it with a state indicator: As Ehrich & Rapp (2000) suggest, this could be a predicate like *fortbestehen* ‘endure’ or *aufheben* ‘cancel’ or a stationary predicate like *bestehend* ‘existing’ or *vorgefunden* ‘found’ as in (48) and (49), since states are non-dynamic periods of time.

- (48) ?Die Übersetzung besteht fort/wurde aufgehoben.  
 ‘The translation endures/was cancelled.’
- (49) ?Die vorgefundene/bestehende Übersetzung überraschte uns.  
 ‘The found/existing translation surprised us.’

We can hence act on the assumption that translations really have no state reading (although they might have a resulting state in the world, cf. 2.1) and hence *langwierig* ‘tedious’ leads to the disambiguation of the above example on the phrase level. The ambiguous adjective *langwierig* ‘tedious’ could still function as an indicator in Figure 2 because of the interplay with the characteristics of the nominal.<sup>43</sup>

As we have seen, indicators can disambiguate on different levels of context: Sometimes they already indicate within the phrase or sentence if they generally only allow for one reading type. If their selectional restrictions allow for more than one reading type, the level on which disambiguation can take place depends on the inventory of readings available for the modified nominalization: if it has two or more readings matching the indicators selectional restrictions, we need additional contextual information (cf. footnote 43) so that the reading can finally be indicated on the phrase level or within the context of utterance.

Nevertheless, as mentioned in 2.3 (and dealt with in greater detail in Chapter 4), we often have a conflict between two different reading indicators, namely in copredication examples, where a reading might be fixed within the phrase while an indicator on the sentence level selects for an already eliminated reading. As exemplified in this chapter, it is sometimes not clear what kind of indicator we are dealing with, since some allow for different types of readings. This makes it harder to identify the relevant examples for the phenomenon of copredication: There are cases with two indicators, in which it is not clear whether both select for the same reading or whether we have a copredication example. In these cases, contextual knowledge is needed in order to determine whether we have two event indicators or one result indicator for example as in (50).

- (50) Die [langwierige]<sub>EVENT</sub> Übersetzung [brachte mir viel Geld  
ein]<sub>EVENT/RESULT OBJECT</sub>.  
‘The tedious translation earned me a lot of money.’

It depends on the context whether [*brachte mir viel Geld ein*] ‘earned me a lot of money’ indicates a result or an event. Imagine the following scenarios:

- Scenario 1: I had to translate a book and I am paid by hour for the efforts I made to translate this text. Since it was not easy, it took a long time and hence I earn more. The duration of the event hence correlates with the amount of money I receive. In this scenario, we would have two event indicators and hence no copredication.

<sup>43</sup> In other cases, there might be more reading correspondences between the nominal and the modifier, such as in [*die permanente Verhüllung*] ‘the permanent wrapping’, which could refer to an (iterative) event or to a result state, e.g. both could get on someone’s nerves. Here, a wider context would be needed to indicate a reading on the sentence level.

- Scenario 2: On the other hand, it could be the case that I do not really get money for the event as such but only through the sold books, no matter how long it has taken me. Since the text is so difficult to translate, not many people have accomplished that task (at least not with a good result) and hence the book is very much in demand. Here, only the sold copies of the book, i.e. the result objects, earned me money and we accordingly have a case of copredication in this context.

Another example for these ambiguous indicator predicates is *zeigen* ‘show’ in (51).

- (51) Die [wiederholten]<sub>EVENT</sub> Messungen [zeigen]<sub>EVENT/ABSTRACT RESULT</sub>, dass etwas nicht stimmt.  
 ‘The repeated measurements show that something is wrong.’

On one hand, we could interpret *Messungen* ‘measurements’ as the values, suggesting the following scenario: The abstract result of a related event tells us something is wrong, because the values exceed some limit or the like. On the other hand, we could get the impression that something is wrong just because we know that there have been repeated measurements (but without knowing the results). The same holds for predicates such as *support* and the like, since events, but also results can for example support a claim etc. Again, however, it does not mean that these indicators are ambiguous in every context, as shown in (52).

- (52) Die [wiederholten]<sub>EVENT</sub> Messungen [zeigen]<sub>ABSTRACT RESULT</sub>, dass der Grenzwert überschritten wurde.  
 ‘The repeated measurements show that the critical value was exceeded.’

In this example, we only know whether the critical value was exceeded if we know the values of the repeated measurements so that we can compare them; accordingly, the sentence level gives us an unambiguous sentence. I will continue to mark the indicators itself with the readings they indicate (e.g. [*dauerte lange*]<sub>EVENT</sub> ‘took a long time’), because we have already seen that it is not always clear which reading the nominal should get on the sentence level: Sometimes the nominal has to face two competing indicators (copredication), which will be the topic of the next chapter. This is a convenience notation that shows which reading of the nominal the indicator selects for in this context. Now that I have explained them in more detail, I will abbreviate event indicators by EV, result states by RS, abstract results by AR, result object indicators by RO, and collectives and locations by COLL and LOC in the subscripts.

So far, I have only dealt with “local” indicators, i.e. adjectives and verbs in the DP and the VP surrounding the nominal, but as we have seen in this section, the wider context plays an important role, and so does world knowledge. Hence, for a comprehensive picture of the interpretation process of deverbal nominals in context, I will take a look at

different types of indicators neglected in the literature on this topic so far, which complement the inventory of indicators e.g. for corpus annotation.

### 3.2 *Additional means for indication*

In some examples the local environment (such as adjectives or verbs combining with the nominal) does not determine a unique reading for the nominal, but there can still be other means of indication. These can be established through structural or sense relations to other, unambiguous nouns in context and discourse, e.g. in coordination structures where the two nominals have to be of the same type or based on sense relations that enable us to identify the right reading for the nominal.

If we have a complement coordination construction within the sentence, we expect the two conjuncts to be of the same type<sup>44</sup>, as the contrast between (53) and (54) shows.

(53) ?Die [bunte]<sub>RO</sub> Verpackung und [Versendung]<sub>EV</sub> der Pakete ist wichtig.  
‘The colourful wrapping and sending of the packages is important.’

(54) Die [pünktliche]<sub>EV</sub> Verpackung und [Versendung]<sub>EV</sub> der Pakete ist wichtig.  
‘The prompt wrapping and sending of the packages is important.’

Hence, if one of the conjuncts is unambiguous (*Versendung* ‘sending’ only has an event reading), the other must be of the same category in this structure (*Verpackung* ‘wrapping’ can be the event, or the resultative means). In example (55), the nominal is ambiguous, too.

(55) Die [Auflistung]<sub>EV/RO</sub> der Daten ist wichtig.  
‘The listing of the data is important.’

Imagine your boss tells you this: He/she could be referring to the event of listing and hence requesting you to do it or he/she could be referring to the result, namely a file or sheets where these data are listed, and is requesting that you bring them to a meeting by uttering this sentence. But if this nominal appears in a coordination structure and if the other conjunct is unambiguous, say an event like *Abspeicherung*<sup>45</sup> ‘storage’, we can derive or conclude the reading of the other conjunct as in (56).

<sup>44</sup> This does only hold for coordinations with the structure [[NP] and [NP]] VP, i.e. two coordinated NPs composed with the same VP, and not for the structure [[NP] [VP]] and [[NP] [VP]], as we will see in Chapter 4 and 8.

<sup>45</sup> In German, we do not use *Abspeicherung* ‘storage’ to refer to the saved data as in ?*Die Abspeicherung wurde gelöscht* ‘The storage was deleted’.

- (56) Die [Auflistung]<sub>EV</sub> und [Abspeicherung]<sub>EV</sub> der Daten ist wichtig.  
‘The listing and storage of the data is important.’

Hence, in this example we can conclude that the first conjunct, which is ambiguous between the event of listing and its result (the listed items), should be interpreted as an event as well, due to the unambiguous reading of the second conjunct and the restrictions of the sentence structure.

Nevertheless, often both of the conjuncts are ambiguous: In example (57) both *Einschätzung* ‘estimation’ and *Messung* ‘measuring’ are ambiguous and can be interpreted as an event or as an abstract result, namely a value (*Deine Einschätzung ist falsch* ‘Your estimation is wrong’; *Die Messungen weichen ab* ‘The measurements vary’).

- (57) Die Divergenz zwischen [Einschätzung]<sub>EV</sub> und Messung könnte unter diesen Umständen also bedeuten: Der Mensch hört allmählich schlechter, aber er merkt es nicht.(cosmas<sup>46</sup>)  
‘The divergence between the estimate and the measurement could under these conditions mean: humans hear gradually worse, but they don’t realize it.’

But since we know that only two events can diverge from each other, and not two values (here, the results of the estimate and the measurement), we can infer that both conjuncts must be interpreted as events. Thus, in this case context and world knowledge give us the information needed to fix the reading within the sentence, while the structure tells us that both conjuncts are of the same type.

The structuring of different nominals within the sentence plays a role here, but in other examples, discourse relations between nominals can also provide clues for the intended reading as in (58).

- (58) Bei der Messung [am 30. Juli]<sub>EV</sub> an der Romanshorerstrasse 12 war es gar fast jedes dritte Fahrzeug, das die Geschwindigkeitsbegrenzung überschritt. Auch bei der [Kontrolle]<sub>EV</sub> (...) im Rohrenmoos (...) waren es nicht viel weniger. (cosmas)  
‘During the measurements on July 30<sup>th</sup> at the Romanshorerstrasse, every third car drove too fast. At the (street) control at Rohrenmoos it was not much less.’

The date *am 30. Juli* ‘on July 30<sup>th</sup>’ already indicates that *Messung* ‘measurement’ refers to an event. Nevertheless, in the next sentence *Kontrolle* ‘check’ is used synonymously to avoid repetition: Both nominals refer to the same procedure, namely the control of

<sup>46</sup> Examples marked with ‘cosmas’ are taken from the cosmas corpus of the IdS Mannheim: <https://cosmas2.ids-mannheim.de/cosmas2-web/>

the cars' speed (at two different locations). Since *Kontrolle* 'control' in the second sentence can only refer to an event, we have an additional indicator here, as shown in (59).

- (59) ?Die Kontrolle liegt auf dem Tisch / liegt über dem Grenzwert.  
'The control lies on the table / exceeds the critical value.'

Since we know what *Kontrolle* refers to, we can conclude that *Messung* is also an event in this context — the anaphoric function of the discourse particle *auch* 'also' hints at the synonymous relation between the two as well. It follows that sense relations can also indicate readings in context. Another way to determine the sortal reading of a nominalization is by means of other sense relations, as e.g. semantic hierarchies. Imagine we have a superordinate or hypernym and its hyponym in one sentence as in (60).

- (60) Die Messung am Handgelenk ist von allen [Methoden]<sub>EV</sub> die praktischste.  
Das Gerät wird mit der Manschette am linken Handgelenk befestigt.  
(cosmas)  
'Of all techniques, measuring on the wrist is the most practical one. The device is attached to the left wrist with the wrist band.'

In this context *Methoden* 'techniques' functions as a hypernym to *Messung* (*am Handgelenk*) 'measuring (on the wrist)' and as a technique can only be an event, the hyponym *Messung* 'measurement' can be inferred to denote an event, too. As we have seen, there are different kinds of indicators other than the local ones examined in 3.1.

There are two other kinds of indicators that are structural rather than lexical, namely arguments of the nominal and plural forms. Such arguments have been claimed to indicate an event (or state) nominal, e.g. by Grimshaw (1990), since they are directly inherited from the verb's argument structure, as shown below in (61).

- (61) Die Untersuchung der Patienten dauerte lange.  
'The examination of the patients took a long time.'

The patients are the theme arguments of the base verb here and can also be arguments of the resulting *-ung* nominal, but Grimshaw claims that it is only possible for event nominals to explicitly express the theme argument of the base verb. Nevertheless, there are many counterexamples as Bierwisch (1989) and Ehrich & Rapp (2000) have shown. So called referential nominals, like abstract results and result objects, can often be accompanied by the theme argument as examples (62)–(65) show, while in (66) this is not possible (the first two examples are taken from Bierwisch (1989: 39), the last one is from Ehrich & Rapp 2000: 298).

- (62) Die Übersetzung der Bibel [enthält einige Fehler]<sub>ABSTRACT RESULT</sub>.  
‘The translation of the Bible contains some errors.’
- (63) Die Übersetzung der Bibel ist [dicker als das Original]<sub>RO</sub>.  
‘The translation of the Bible is more voluminous than the original.’
- (64) Die Füllung des Zahns [ist aus Gold]<sub>RO</sub>.  
‘The filling of the tooth consists of gold.’
- (65) Die Verpackung der Geschenke [ist aufwändig gemacht]<sub>RO</sub>.  
‘The wrapping of the presents is elaborately done.’
- (66) ?Die Ausgrabung des Altars steht im Museum,  
‘The excavation of the altar is in the museum.’

Ehrich & Rapp (2000: 4) motivate the restrictions on argument realization and interpretation through the specific lexical semantic structure of the base verb, which leads to different readings.<sup>47</sup> Based on my assumptions concerning the different result types (cf. 2.2) I assume in other words that we can realize the verb’s theme argument if the result reading is really conceived as a new object different to the theme of the base verb, as e.g. the filling of a tooth, which may have changed its form when it is in the tooth and functions as a filling then.

Apart from inheriting the argument structure of the verb, event nominals are also said to prevent pluralisation in contrast to result nouns (see Grimshaw 1990), which can appear in the plural as in (67) and (68).

- (67) Die Absperrung(?en) der Straßen [dauerten lange]<sub>EV</sub>.  
‘The obstruction(?s) of the streets took a long time.’
- (68) Die Lieferungen [wurden bereits ausgepackt]<sub>RO</sub>.  
‘The deliveries were already unwrapped.’

Nevertheless, there are also counterexamples to this constraint (cf. (69)–(71), (69) stems from Bierwisch 2009) and for that reason I will not use pluralisation as indicator in this work, although this assumption might apply in many cases.

- (69) Unsere Erkundungen der Insel dauerten jeweils bis zum nächsten Morgen.  
‘Our explorations of the island always went on until the next morning.’

<sup>47</sup> For example, nominalizations based on creation by representation verbs as *Übersetzung* ‘translation’ and *Beschreibung* ‘description’ can have the internal argument and a result object reading (i.), while nominalizations of a creation base verb where the theme argument came into being through the event do not allow this (ii): i. *Die Übersetzung von Berlin Alexanderplatz steht im Regal*. ‘The translation of *Berlin Alexanderplatz* is on the shelf.’ ii. *?Die Erfindung des Telefons ist auf dem Tisch*. ‘The invention of the telephone is on the table.’

- (70) Die Untersuchungen dauerten Wochen.  
'The examinations took weeks.'
- (71) Die vielfachen Übersetzungen des Buchs veränderten den Inhalt immer mehr.  
'The multiple translations of the book increasingly changed the content.'

We now have an inventory of readings available for deverbal nominals and different kinds of indicators for these readings that can disambiguate the nominals on different levels of context. With this basis we are able to identify examples for a problem case, namely copredication, where two competing indicators apply to one nominal form. In the next chapter, I will show how deverbal nominals are used in discourse and what kind of problems copredication poses for the semantic composition on the sentence level and for the disambiguation in context. I will then present different theories on nominalization that make use of different modules of linguistics to explain the ambiguity of simple nouns and verb-derived nominals. Then I will test whether they are able to account for this phenomenon and propose a complementary approach at the interface between semantics and pragmatics.



## 4. Deverbal nominals in discourse and sentential context

Nominalizations can display a variety of readings from different ontological categories and these categories have characteristic features that correspond to selectional restrictions of modifiers and predicates that can disambiguate them, as shown in Chapters 2 and 3. In this chapter, I will particularly look at real corpus examples<sup>48</sup> and examples from the web to clarify their use in the sentential context and wider discourse and also to show that the reading indication (or disambiguation) in context is not always straight-forward: a deverbal nominal can, for example, be accompanied by different kinds of indicators or be taken up by anaphora indicated to be of a different type. In Chapter 5, I will then go on to discuss whether existing theories can account for the reading alternation in context in general and for copredication cases in particular.

If a deverbal nominal has been introduced into discourse and a certain reading indicated for it, there are two general ways to proceed with this discourse referent: we can either remain with the indicated reading or alter it in the ongoing discourse under certain conditions, e.g. in order to describe other aspects it might have. I will summarize different structures here before I substantiate them by examples in the consequent sections, the main question being: When does an introduced reading have to be preserved and under which conditions can it change in context?

In what I will call a “reading-preserving discourse”, we have different options to take up the referent of the nominal while remaining with its reading type: We can repeat the same nominal form, use a different related noun (synonym, hyponym etc.) or introduce an anaphoric pronoun — in any case accompanied by an indicator selecting the same reading. In a “reading-changing discourse”, we have the same options to refer back to the first nominal form (same or different lexical form, pronoun), but an indicator selecting a different reading applies to these second occurrences. I will summarize these options in Table 9, where the subscripts x and y correspond to the indicated reading and show where these readings categories are shared or altered.

<b>Reading-preserving discourse</b>	<b>Reading-changing discourse</b>
<i>Die Übersetzung<sub>x</sub>...Die Übersetzung<sub>x</sub> ...</i> ‘The translation...The translation...’	<i>Die Übersetzung<sub>x</sub>...Die Übersetzung<sub>y</sub>...</i> ‘The translation...The translation...’
<i>Die Übersetzung<sub>x</sub>...Der Text<sub>x</sub>...</i> ‘The translation...The text...’	<i>Die Übersetzung<sub>x</sub>...Der Text<sub>y</sub>...</i> ‘The translation...The text...’
<i>Die Übersetzung<sub>x</sub>...Sie<sub>x</sub>...</i> ‘The translation...It...’	<i>Die Übersetzung<sub>x</sub>...Sie<sub>y</sub>...</i> ‘The translation...It...’

Table 9. Discourse structures with deverbal nominals

<sup>48</sup> Cosmas corpora of the IdS Mannheim: [www.ids-mannheim.de/cosmas2/](http://www.ids-mannheim.de/cosmas2/)

Moreover, we can add indicators for the same or a different reading to the context without introducing new lexical items related to the first occurrence. Often, we find more than one indicator for one and the same noun and, in the special case of copredication, we can even have two incompatible indicators applying to it. Copredication examples thus pose questions for compositionality and the semantics-pragmatics interface: We know that these nominalizations can have several readings that are indicated by certain modifiers and predicates — leading to one reading in one case and to a different reading in another case — but we come into conflict when we have to interpret a certain nominal form to which two or more incompatible indicators apply.

We do not know yet which reading the nominalization itself will get in copredication cases or how it can satisfy competing and per se incompatible requirements in context. Moreover, as common as copredication might be, I will show that we find acceptable as well as unacceptable cases for these combinations of different indicators. I will accordingly pose the question if and how these exceptions can be predicted. In the following two sections, I exemplify the occurrences of deverbal nominals and indicators in discourse listed in Table 9 with sentence pairs from the corpus and the web. In doing so, I will focus on event and result object readings, but these discourse structures should be possible for the other readings as well.<sup>49</sup>

#### ***4.1 Reading-preserving discourses***

In Chapter 3, I have given a few examples in which the deverbal nominal was clearly fixed for one reading since it was accompanied by only one indicator selecting only one of its readings. I will give some more of these cases embedded in sentence pairs (taken from the cosmas corpus<sup>50</sup>), to show how the introduction of the nominalization establishes a certain type of discourse referent and how it is taken up in the ongoing discourse (based on Table 9). There are e.g. cases, where a nominal form is repeated in the ongoing discourse, anaphorically referring back to the same object, as in (72).

<sup>49</sup> With regard to copredication, I will check different reading combinations in section 8.1.

<sup>50</sup> Cosmas, Search on August 28, 2009. I will list the concerned newspapers below the examples. It might strike the eye that most of them stem from Suisse newspapers, but I have only used examples that are perfectly acceptable for me as a “German native speaker of German”.

- (72) Derek meldete sich um 14.32 Uhr hier bei mir, dass er die<sup>51</sup> **Lieferung** [abgeholt habe]<sub>RO</sub> und sich auf den Weg zur New Bond Street mache. Die **Lieferung** sollte dort bei der Hershey-Bank [abgegeben werden]<sub>RO</sub>.  
 ‘Derek let me know at 14.32 that he had picked up the delivery and was on his way to New Bond Street. The delivery is supposed to be dispensed there at the Hershey-Bank.’  
**A97/NOV.34438 St. Galler Tagblatt, 10.11.1997**

*Abholen* ‘pick up’ indicates the delivery to be an object in the first sentence, as does *abgeben* ‘drop’ in the second sentence. We have a repetition of the same nominal form here, which is also of the same reading type. In the second sentence, the second occurrence of *die Lieferung* ‘the delivery’ could also have been substituted by a pronoun: *Sie sollte dort (...) abgegeben werden*. ‘It is supposed to be dispensed there (...).’

We can also use a different noun to refer to the same entity in the ongoing discourse. Instead of repeating the introduced deverbal nominal, we can use a more general or more specific noun in the ongoing discourse, as shown below in (73).

- (73) Die Vorarlberger Kriminalpolizei hat eine **Lieferung** von 21 Kilo Heroin [sichergestellt]<sub>RO</sub>. Das [**Rauschgift**]<sub>OBJECT</sub> wurde vergangene Woche im Wagen einer 28jährigen Frau aus Bregenz [gefunden]<sub>OBJECT</sub>.  
 ‘The Vorarlberg police have seized a delivery of 21 kilograms of heroin. The drugs were found in the car of a 28-year old woman from Bregenz.’  
**A97/MAI.03382 St. Galler Tagblatt, 14.05.1997**

The delivery found by the police consisted of heroin and is introduced in the first sentence with an indefinite article. The phrase [*Lieferung von 21 Kilo Heroin*] ‘delivery of 21 kilograms of heroin’ is then taken up with the noun *Rauschgift* ‘drugs’, which is more general than its hyponym *heroin*, since it can refer to different kinds of drugs. On the other hand, it reduces the whole phrase (the delivery of x) to its components, since we already know that it was a delivery. Both refer to the same object.

In (74), a *Verpackung* ‘wrapping’ is introduced in the first sentence and in the following sentence the object that functions as this wrapping is used to specify the more general deverbal nominal *Verpackung*, which could be either an event or an object.

<sup>51</sup> The discourse referent is already introduced in the preceding sentences, which explains the use of the definite article, but not especially as the nominal *Lieferung* ‘delivery’ (associative).

- (74) Peter Werren (...) stellte die neue **Verpackung** vor. Anstelle der Kartonschale werden Kirschen künftig in einem [**Beutel**]<sub>OBJECT</sub> angeboten.  
 ‘Peter Werren (...) presented the new packaging. Instead of a card-board bowl, the cherries will be offered in a bag from now on.’  
**A97/JUN.10731 St. Galler Tagblatt, 21.06.1997**

We first get the general information that someone is presenting or introducing a new packaging — this could either be an event or an object. In the second sentence we now learn what kind of packaging it is, namely a bag. The packaging is hence the hypernym of the bag, while both refer to the same object: Since a bag is an object, *Verpackung* ‘packaging’ is of the same type here (cf. also other similar means of indication in 3.2).

In examples like this, we only have one reading indicator per lexical form. For those instances, what we need is a general theory on the reading alternation of nominalizations like this and their composition in context. As stated above, we do not always have to repeat the whole nominal form when we want to continue with the discourse referent: another possibility is to take up the nominalization with an anaphoric pronoun, sharing the reading of its antecedent, as in (75).

- (75) Viele Menschen, die einfach nur die Unterführung passieren wollten, [ärgerten sich über]<sub>RO</sub> die **Absperrung** und wollten **sie** [durchqueren]<sub>RO</sub>.  
 ‘Many people who just wanted to go through the underpass were irritated by the obstruction and wanted to go through it’  
**NUZ04/DEZ.02605 Nürnberger Zeitung, 21.12.2004**

Obviously, one can be irritated by both the event of obstructing something and the object, but in this context, it is clear that the obstruction was already erected. The anaphoric pronoun *sie* ‘it (she)’ is then also accompanied by a predicate selecting for its object reading, i.e. we are still talking about the object in the second part of the sentence. Moreover, we also find cases with more than one indicator applying to one and the same lexical form, without introducing another lexical item or pronoun, as in (76).

- (76) Valentins-Gruß: Die Verpackung [aus rotem Seidenpapier]<sub>RO</sub> [enthält]<sub>RO</sub> eine Flasche "The Wine of Love" Moscato Frizzante.  
 ‘Valentine’s compliment: The wrapping of soft red tissue paper contains a bottle of “The Wine of Love” Moscato Frizzante.’  
**HMP06/FEB.00911 Hamburger Morgenpost, 09.02.2006**

This structure is similar to copredication examples (cf. 4.2) where we also have two or more indicators for one deverbal nominal. There is, however, an important difference: In copredication, the two indicators select for different readings. In the following

section, I will deal with sentences and discourses, during which the first introduced reading is not preserved.

## 4.2 Reading-changing discourses

The examples in section 4.1 involved two coreferent lexical forms, where both were indicated to be either events or results. However, often there is more than one indicated reading of the same nominal form involved in a discourse: In (72), we had an example where the same two lexical forms were repeated in sequent sentences (*Lieferung* ‘delivery’). These shared their reading type, but we can also repeat the same form with different indicated readings, as in (77).

- (77) Edelweiss [geht neue Wege in]<sub>EV</sub> der **Zusammensetzung**, Gestaltung und **Verpackung**. Die international geschützte Marke, die **Zusammensetzung** [und Form]<sub>RO</sub> der Bonbons, die erste **Lebensmittelverpackung** [aus rezykliertem Karton]<sub>RO</sub> und ein völlig eigenständiger Auftritt zeigen, dass hinter Edelweiss mehr steht als nur eine Idee.

‘Edelweiss is breaking new ground in composition, design and packaging. The internationally trademarked brand, the composition and form of the candies, the first food packaging made of recycled cardboard and a completely independent performance all show that there is more behind Edelweiss than just an idea.’

**A97/MAI.04589 St. Galler Tagblatt, 21.05.1997, Ressort**

If an enterprise breaks new ground in something, then this happens in the events they conduct, for example by composing, packaging and designing (the packaging of) the candy as in this example. This becomes more obvious if we try to combine this indicator with a noun that only has an object reading, which leads to the odd sentence: *?Edelweiss geht neue Wege in/bei Kartons* ‘Edelweiss is breaking new grounds in/with cardboard boxes’. In the second sentence in (77), two nominalizations are repeated, namely *Zusammensetzung* ‘composition’ and *(Lebensmittel)-Verpackung* ‘(food) packaging’. We are now dealing with the characteristics of the object (the candy): its form and the result of the composing<sup>52</sup>, namely something like the mixture, and the material out of which the packaging is made (recycled cardboard). Accordingly, in the second sentence these two repeated nominalizations are indicated as having a reading that differs from the one of their antecedents: they correspond to the results of the events introduced in the first sentence. As I will show in this section, this common procedure of applying different indicators to the same nominal form appearing twice in discourse can also apply between antecedent and anaphor or even in cases, where we only have one nominal form (copredication).

<sup>52</sup> *Zusammensetzung* ‘composition’ is not interpreted as an event in the second sentence of (77), since the coordinated structure with the unambiguous *Form* ‘form’ (no event) indicates an object reading, cf. 3.2.

Obviously, events and their results are intertwined and often occur in the same discourse: When we talk about events, we often refer to their results as well. In (78), I give another example where the nominalization (*Verpackung* ‘wrapping’) appears twice in subsequent sentences with different reading indicators, namely first as a result object and then as the event (the corresponding press article deals with Christo-style house wrappings).

- (78) Das Entsetzen der Berner Notablen war gross, die **Verpackung** musste nach ein paar Tagen vorzeitig [entfernt werden]<sub>RO</sub>. Aber der [Start zu einer internationalen Serie von]<sub>EV</sub> **Verpackungen** war geglückt.  
 ‘The horror of Bern’s notables was large; the wrapping had to be removed some days ahead of schedule. But the start to an international series of wrappings had been successful.’  
**A98/NOV.73355 St. Galler Tagblatt, 16.11.1998**

In the first sentence of (78), the wrapping undergoes physical change — it has to be removed — and is hence an object. In the second sentence, we learn that the event that brought about this result has triggered a series of repetitions or imitations, which must also be events. Obviously, we can also continue with a different noun somehow related to the deverbal nominal and accompanied by an indicator selecting another reading (cf. Table 9) as in (79).

- (79) Die Übersetzung [war langwierig]<sub>EV</sub>. Der Text [ist jetzt aber eingereicht]<sub>OBJECT</sub>.  
 ‘The translation was tedious. The text, however, has been submitted now.’

The simple noun *text* does not have an event reading and here refers to the result of the translation, which was introduced as an event in the first sentence. As the examples in this section have shown, introduced deverbal nominals fixed for a specific reading can be continued in discourse in another reading: this should not be a problem for a semantic nominalization theory, since up to now we always had only one reading per lexical form. As seen in the reading-preserving cases, these examples are not problematic if we can account for the meaning variation of deverbal nominals and composition in context.

However, as in reading-preserving discourses, we find cases where the deverbal nominal is taken up in the ongoing discourse without repeating or introducing another nominal form. Still, we can add an indicator for a different reading without such a second nominal form. This indicator can either apply to an anaphoric pronoun referring to the deverbal nominal in the first sentence, or it can apply to the first (and unique) deverbal nominal as well (copredication). Thus, we can not only find several occurrences of a nominalization having different readings in context, but for example also pronouns with nominal antecedents that do not share the same reading indication, as in (80).

- (80) Bei der Entwicklung eines neuen Produktes ist die **Gestaltung** der Verpackung ebenfalls [in der Aufgabe inbegriffen]<sub>EV</sub>. **Sie** muss [dem Inhalt entsprechen]<sub>RO</sub> und zum Kauf animieren.

‘During the development of a new product, the design of the packaging is also part of the task. It has to correspond to the content and has to encourage purchase.’

**A97/JUN.10119 St. Galler Tagblatt, 18.06.1997, Ressort: AT–KAP**

The nominalization *Gestaltung* ‘design’ is interpreted as an event here, since it is a hyponym of the noun *Aufgabe* ‘task’, which corresponds to the development of a new product: this development involves different events, e.g. to design the wrapping. In the second sentence, the pronoun *sie* ‘it (she)’ refers to the abstract result of the design event<sup>53</sup>, since it is rather the result of the design process that corresponds to the content and persuades the customer to buy the product, then the event of designing the wrapping. Accordingly, we first talk about the event and then describe its result by using a pronoun. In this case, the referent is so to speak introduced anew through the pronoun and every indicator still has its own language material to ascribe a reading to, but the pronoun is not in a strict sense coreferential with its antecedent, i.e. of the same reading type. Since the nominalization’s reading is already fixed by an indicator in the first sentence, the pronoun seems to lack a suitable discourse referent to refer back to (assuming that coreferentiality requires reading consistency): the deverbal nominal and the anaphoric pronoun have competing indicators. I do not have a specific theory on anaphora resolution to elaborate on here, but it should be clear that we are dealing with a phenomenon similar to traditional copredication here, since we have two competing indicators for one nominal form. Accordingly, I consider my observations on this structure relevant for the discussion of copredication cases even if they are not theory-based and I will show in 8.1 that pronouns are not infinitely flexible here, i.e. we cannot add any indicator to them, since they underlie restrictions that have to be predicted.

For these examples, we do not only need a theory on nominalization readings and their indication in context, but also an explanation for the ability of the pronoun to have a reading not indicated for its antecedent (the result reading may even be eliminated by the first indication in (80)).<sup>54</sup> Although it is not yet clear how this structure can be solved, at least we have two word forms for the indicators in these examples, a nominalization and a pronoun: These seem to have different readings, since they are accompanied by different indicator types. I will observe these pronoun examples as well for a full picture of discourse structures although I do not claim to have a theoretical account for anaphora and reading change.

<sup>53</sup> The packaging itself cannot really “mirror” the content – if this was an option, it would have to be in a corresponding shape or scent etc., which seems unlikely

<sup>54</sup> For an account to anaphora resolution with examples like these see Hamm & Solstad (2009) and my short summary in 5.3.

For (traditional) copredication examples we get a different picture: As I have shown, the phenomenon of reading change does not only play a role in discourse, but also within one sentence. In copredication, we only have one token of the noun to which both indicators apply their contradictory selectional restrictions, as shown below in (81) and (82). Accordingly, the conflict between the indicators becomes even more obvious, since it cumulates in one and the same lexical form.

- (81) Die Übersetzung dieses Werks konnte bereits 1990 [abgeschlossen werden]<sub>EV</sub> und als erster Band des Gesamtprojekts [erscheinen]<sub>RO</sub>.  
‘The translation of this work could already be completed in 1990 and could appear as the first volume of the overall project.’
- (82) 1514 [überreichte]<sub>RO</sub> er Louis XII die [schwierige]<sub>EV</sub> Übersetzung von Texten des Thukydidés.<sup>55</sup>  
‘In 1514 he gave Louis XII the difficult translation of texts by Thucydides.’

In these examples, predicates as *abgeschlossen werden* ‘be completed’ and *schwierig* ‘difficult’ select for the event reading, while *überreichte* ‘gave’ and *erscheinen* ‘appear’ indicate a result object reading for the deverbal nominal *Übersetzung* ‘translation’. The question is whether one of the indicators “wins” and imposes its selectional restrictions on the nominal or whether all the readings remain accessible even after a first disambiguation.

The term “copredication” is described as the phenomenon, “where apparently incompatible types of predicates are applied to a single type of object”<sup>56</sup> (Asher & Pustejovsky 2005: 2). The ability of the readings of specific lexical items to appear in a copredication structure has been described as a characteristic that shows, how closely related their readings are (e.g. by Cruse 2000 and Bierwisch 1983). Accordingly, some ambiguous items, like, for example, polysemes without a logical relation or homonyms “accidentally” sharing the same form (cf. also 2.3) do generally exclude copredication.

Sometimes there are even more than two indicators involved selecting for different readings of the deverbal nominal as in (83)<sup>57</sup>, where we have a measuring event, its resulting values and a report, in which its results are represented.

<sup>55</sup> This example comes from a text about a translator. *Schwierig* ‘difficult’ clearly refers to the event and not to the source text in this context, since he gives the results and not the original to the king: [http://www.hist.uzh.ch/static/ag/e-learning/bdb\\_detail.php?id=468](http://www.hist.uzh.ch/static/ag/e-learning/bdb_detail.php?id=468), 13.08.2009

<sup>56</sup> This should not be confused with the rhetoric figure of zeugma, where the oddity of the sentence is intended (*He lost his mobile and his temper* or the like).

<sup>57</sup> The translation of (83) is structurally different from German and for reasons of readability, I will give a gloss here in the footnote:

Die [im März durchgeführte]<sub>EV</sub> Messung [zeigt]<sub>AR</sub> im [nun vorliegenden Bericht]<sub>RO</sub> auf,  
the in March conducted measurement shows in the now present report  
dass die für diese Feststoff-Feuerungsanlage anzuwendenden Emissionsgrenzwerte deutlich  
that the for this solids-firing system applying emission prescriptive limits definitely

- (83) Die [im März durchgeführte]<sub>EV</sub> Messung [zeigt]<sub>AR</sub><sup>58</sup> im [nun vorliegenden Bericht]<sub>RO</sub> auf, dass die für diese Feststoff-Feuerungsanlage anzuwendenden Emissionsgrenzwerte deutlich unterschritten und somit bestens eingehalten werden.

‘The measurement conducted in March shows in the report now present that the emissions from this solids-firing system are definitely below the prescribed levels.’

**A97/OKT.27582 St. Galler Tagblatt, 02.10.1997**

The measurement conducted in March hence has an event reading, but the report as such is an object that is present and in which the physical manifestation of the values is included. In addition, we have another type here: I claimed in Chapter 3 that the indicator *zeigen* ‘show’ is per se ambiguous, since the mere fact that there have been events can mean that something is shown, but (more prominently) results show or prove something. However, in this example *zeigen* ‘show’ is clearly referring to an abstract result (value), since we have to know the values to see whether the limits are adhered to (as already mentioned in Chapter 3). Hence, we actually seem to have three different reading types in this sentence: the events, their values (abstract result) and a report, which is a present object and includes the values.

The object reading is here accompanied by its own lexical form corresponding to the container (*Bericht* ‘report’) and is presumably not expressed by the nominalization *Messung* ‘measuring’ alone.<sup>59</sup> Still, we have at least two indicators applying to the only token of the nominalization (namely *Messung* ‘measuring’): the event indicator [*im März durchgeführte*] ‘conducted in March’ and the abstract result indicator [*zeigen*] ‘show’. Hence, if we had to annotate this corpus example, it would not be clear which reading to assign to *Messung* ‘measurement’, since it would have to satisfy different selectional restrictions of the indicators.

The same holds for (84), where the only occurrence of *Messung* is first indicated to be a result object, then described as an event, and lastly as an abstract result. The example is about a traffic control and the measurement made there by using a specific video system.

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*unterschritten und somit bestens eingehalten werden.*

underrun and hence optimally adhered are

<sup>58</sup> In this context, *zeigen* ‘to show’ is not ambiguous between event and result indicator as generally claimed in Chapter 3, since the report is mentioned as a kind of instrument to show something.

<sup>59</sup> However, it would be possible to refer to the report by using *Messung* as in: *Die Messung [liegt auf dem Tisch]<sub>RO</sub>* ‘the measuring lies on the table.’

- (84) Nur wenn man die genaue Bezeichnung des Videosystems kennt, kann man abschließend sagen, ob die [vorliegende]<sub>RO</sub> Messung [regelmäßig durchgeführt]<sub>EV</sub> wurde und somit [verwertbar]<sub>AR</sub> wäre.<sup>60</sup>  
 ‘You can only tell whether the measurement at hand was conducted regularly and is hence viable if you know the precise name of the video system.’

If a measurement is at hand or present, it must be a physical object, but to conduct something requires an event reading, whereas the result of the event is of questionable viability here, but rather in an abstract sense than in a physical sense (the question is, whether information can be used to prove that someone drove too fast).

In Chapter 3 I have shown that there are a variety of possibilities to disambiguate nouns on different levels of context. Hence, the surprising thing is not that we often have two indicators applying to the same nominalization, but that these indicators can range over such different semantic domains as events and objects: Events have duration, while objects cannot directly be said to take a specific amount of time or have a beginning or an end. Objects can, for example, undergo physical change and have a colour, size, shape or weight, while events do not have these specifications, as we have seen in Chapter 3. Moreover, copredication is not only possible for these two domains, as examples (85)–(87) involving different indicator combinations show.

- (85) Die [gestern erfolgte]<sub>EV</sub> Sperrung der Foren [wird bald wieder aufgehoben]<sub>RS</sub>.  
 ‘The blocking of the bulletin boards carried out yesterday will be lifted soon.’
- (86) Die Übersetzung [hat ein Jahr gedauert]<sub>EV</sub> und kann nun endlich [gedruckt werden]<sub>AR</sub>.  
 ‘The translation has taken one year and can finally be printed now.’
- (87) Der Redakteur hat die [fehlerhafte]<sub>AR</sub> Bekanntmachung [in den Mülleimer geworfen]<sub>RO</sub>.  
 ‘The editor has thrown the faulty announcement into the trash.’

<sup>60</sup> [www.frag-einen-anwalt.de/Polizeivideo-bei-Geschw.%C3%BCberswchreitung\\_f26038.html](http://www.frag-einen-anwalt.de/Polizeivideo-bei-Geschw.%C3%BCberswchreitung_f26038.html), 7.02.2008. The translation in (84) is structurally different from German and for reasons of readability, I will give a gloss here in the footnote:

*Nur wenn man die genaue Bezeichnung des Videosystems kennt, kann man abschließend sagen, ob die [vorliegende]<sub>RO</sub> Messung [regelmäßig durchgeführt]<sub>EV</sub> wurde und somit [verwertbar]<sub>AR</sub> wäre.*  
 Only if one the precise name of the video system knows can one terminatory say whether the at hand measurement regularly conducted was and hence viable was

Besides different reading combinations as in the above examples, there can also be different structures in which the two indicators can appear with the nominalization: I will deal with all these options in Chapter 8. For now, it should suffice to say that I will count all structures where two indicators selecting for different readings are modifying or predicating over one and the same nominal form as copredication, regardless of whether one indicator is embedded in a relative clause or modifies an anaphoric pronoun coreferent with the deverbal nominal. The main question is again, when we can change a reading introduced for a nominal form in discourse or sentential context: as we have seen this is possible if we simply introduce the same nominal form again or use another coreferent nominal or pronoun, but surprisingly also if we just introduce another indicator.

Copredication is not only interesting as a characteristic of certain lexical forms that allow it, but also challenging from an analytic compositional point of view. These examples lead to annotation problems if we find them in corpora (cf. Heid et al. 2007), because we do not know which reading the nominalization itself should obtain: In these cases, we have a conflict in selectional restrictions at first sight, because there is only one token of the deverbal nominal present. This deverbal nominal can in general fulfil event and result object requirements, but presumably not both conditions at the same time. If we compose a sentence like (88) step by step, the problem might become more obvious.

- (88) Die [abgeschlossene]<sub>EV</sub> Übersetzung [liegt endlich auf dem Tisch]<sub>RO</sub>.  
 ‘The finished translation finally lies on the table.’

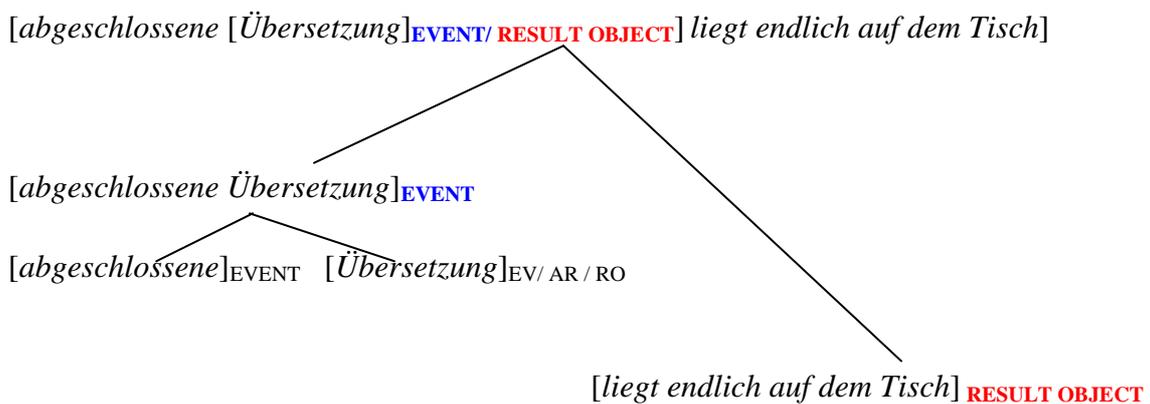


Figure 3. Composition and copredication

Obviously, the decision for a reading must remain undetermined on the sentence level in this example. There are other cases, where this is the case due to other reasons: In 3.1, I hinted at the fact that there can also be two options left for the nominalization on the sentence level if an ambiguous indicator selects for two different readings (as e.g. *langwierig* ‘tedious’ for events and states) that the nominalization (e.g. *Absperrung*

‘obstruction’) shares with it. In such cases, the decision for a nominal reading is left open on the sentence level as well, since the indicator can select for more than one reading available for the nominalization. Nevertheless, in those examples with ambiguous indicators, the intended reading could be made explicit by adding contextual knowledge.

This is not the case for copredication examples: the nominalization is clearly disambiguated within the individual phrases and hence the problem does not arise due to ambiguous indicators. For example, in the phrase [*abgeschlossene Übersetzung*] ‘finished translation,’ the nominalization refers to an event and in [*Die Übersetzung liegt endlich auf dem Tisch*] ‘the translation finally lies on the table’ it refers to a result object. In a case like this, adding contextual knowledge will not disambiguate the nominalization.

Consequently, the question is how to compose these sentences. Within the scope of compositionality theory, Löbner (2002) has described composition in general as a bottom-up process: The meanings of the individual parts are composed step by step to determine the output. During this process, different levels of context are passed through (e.g. phrase, sentence, context of utterance) and readings can be eliminated on each level if they are not consistent with it. Assuming a compositional semantic model like this (cf. also section 3.1), we would eliminate<sup>61</sup> one reading on the phrase level — in (88) the result object and abstract result reading of *Übersetzung* ‘translation’. However, when it comes to composition of this phrase with a VP, we need one of these eliminated readings again to satisfy both selectional restrictions: here, we need the result object reading, since *auf dem Tisch liegen* ‘lie on the table’ selects for a physical object, but we have already eliminated this reading on the phrase level.

At first sight, one might propose for example to shift the meaning of the nominalization so that it can first satisfy the requirements of the first indicator and then of the second or that the first indicator does not actually eliminate the other readings, leaving them still available for reference. Before I compare different strategies like this to solve this mismatch in Chapter 5, I will hint at another factor, which should be taken into account in considering a compositional solution to the copredication problem: we have to make sure that a theory does not overgenerate concerning this phenomenon, since we find many examples as e.g. in (89)–(91) where copredication is not licensed.

- (89) ??Die [regelmäßige]<sub>EV</sub> Lüftung der Kinderzimmer ist wichtig, aber [kaputt]<sub>MEANS</sub>.  
 ‘The regular air-conditioning of the children’s rooms is important, but broken.’

<sup>61</sup> For a criticism of the idea that disambiguation finally deletes or eliminates readings see e.g. Hamm & Solstad (2009).

- (90) ?Die Messung ist [kompliziert]<sub>EV</sub> und [auf zwei Stellen genau]<sub>AR</sub>.  
 ‘The measurement is complicated and accurate to two decimal places.’
- (91) ?Die Absperrung [aus Holz]<sub>RO</sub> [dauerte ewig]<sub>EV</sub>.  
 ‘The obstruction (consisting) of wood took for ever.’

In (90) and (91), we also have two indicators referring to different readings of the *-ung* nominalization, just like in the examples dealt with so far, but copredication is still not licensed here. However, example (92) involves the same nominal form with indicators selecting the same readings as (91), yet is acceptable.

- (92) Die [aus 25 Teilen bestehende]<sub>RO</sub> Absperrung [dauerte ewig]<sub>EV</sub>.  
 ‘The obstruction (consisting) of 25 parts took for ever.’

These examples show that copredication, though frequent, is not an unconstrained structure and seems to depend on the relation between readings, and also on factors independent from them. A theory on copredication with deverbal nominals should not only be able to account for the above cases and their composition, but also to predict only acceptable examples. An analysis solving the questions copredication poses for composition and interpretation in context will hence tell us something about how we build up discourses and interpret sentences with lexical items that have more than one reading, and should further, and in particular, be able to explain exceptions.

These phenomena can be found in a similar way with simple nouns as *book* or *school*, which can also have several closely related readings, as in (93).

- (93) Die Schule muss [renoviert werden]<sub>BUILDING</sub> und (sie) hat dafür Gelder [eingeworben]<sub>INSTITUTION</sub>.  
 ‘The school has to be renovated and (it) has raised funds for that.’

Such non-derived forms are often the starting point for considerations concerning lexical items with different readings and I will therefore give extra examples in the discussion of the theories in Chapter 5. However, I have shown in section 2.3, that they differ in the distribution of their readings and that the dependent resultative relation does not play a role for simple nouns. Consequently, we might also find differences concerning copredication.

In Chapter 5, I will determine whether and how different theories on simple nouns and nominalizations explain and predict these phenomena. These theories are not especially designed as analyses for copredication, but they will make clear that we might need more than a semantic theory on nominalization to analyse and to predict these cases, which will, in turn, be the topic of Chapters 7 and 8.

Questions for the theories will be:

- How are the different interrelated readings of simple nouns and nominalizations classified and lexically represented?
- Do they differentiate between the observed three groups of readings (event, results, participants) and, if yes, how?
- Can they account for copredication with simple nouns and nominalizations and if yes, how?
- Can they predict exceptions for copredication/do they overgenerate?

## 5. Semantic-pragmatic theories on meaning variation

The design of an approach to different readings of deverbal nominals in context and specifically to copredication cases depends to a large extent on the general classification of nominalizations and consequently on how nominalizations are composed with indicators in context. The overall question is: Are inconsistent readings eliminated during or after the (first) indication or not? If they are, how can we account for copredication cases where a second indicator applies to an eliminated reading? If they are not, how do we prevent the overgeneration of this mechanism, since we cannot always access readings afterwards? I will clarify these two options (elimination or not) and their implications in short now before I turn to the actual design of the theories I have chosen.

- **Ambiguity — selection and elimination**

There is no real consensus regarding what the term ambiguity covers.<sup>62</sup> The essence is that there is a given set of senses for a word from which the context selects one option, i.e. there is an ‘exclusive *or*’- relation between the readings. Accordingly, other available senses are cancelled if they do not match the selectional properties of the context. If we apply this view to nominalizations in a copredication environment, we have a problem, as we have seen earlier: The first indicator in the sentence disambiguates the noun in a manner that causes the second predication to fail, since this predication applies to the same nominal. This is so, because in copredication, the second indicator requires a different reading than the first and this reading has been discarded due to the indication of the first reading. Let us look at an example: If we have to indicate a reading for the nominal *Übersetzung* ‘translation’ in the sentence *Die langwierige Übersetzung verkaufte sich gut* ‘the tedious translation sold well’, the first indicator *langwierig* would select the event reading and eliminates the result object reading at the same time. However, this result reading would then be selected by the following verb, which leads to a mismatch. The question is, can we stick to the elimination assumption and still solve the mismatch between first indicated reading and second indicator?

- **Inherent and global underspecification/local disambiguation**

Some theories are based on the assumption that nominalizations are not ambiguous but underspecified and only get enriched in context; others have rich lexical structures, but leave the decision for a reading open on the sentence level. The former is what I call inherent underspecification, the latter rather assumes underspecification globally, i.e. on the sentence level. Theories that leave the decision for a reading open on the sentence level share an allowance for local disambiguation in the case of copredication, i.e. they do not cancel or eliminate the

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<sup>62</sup> Only homonymy, only polysemy, only non-systematic polysemy, homonymy and polysemy etc. See Behrens (1998) for an extensive overview.

other options once a “disambiguation” has taken place. Such theories do not fix, but rather focus one reading or aspect of the lexical structure, e.g. on one reading within the DP, and on another one outside of it. Since these accounts do not fix a reading globally (i.e. for the whole sentence) but assume that the deverbal nominal’s reading is flexible, we do not have the same problem with copredication as the ambiguity view at first sight. However, as we have seen at the end of Chapter 4, this strategy overgenerates in general, since not all readings of a noun are parallelly accessible in copredication structures. Accordingly, underspecification accounts have to be constrained somehow to make the right predictions.

In order to understand how the readings come about and behave in composition in context, we need to know how deverbal nominals with more than one reading are classified by the particular theory and how the readings are differentiated, related and represented in a lexical entry. The question, how to distinguish and classify different forms of having more than one meaning is addressed by Cruse (2000) for example. He uses the acceptability of copredication structures as a diagnostic method for simple nouns: According to his approach, if copredication is possible with two discrete<sup>63</sup> readings of a lexical item, they are not antagonistic because they can be seen as a close semantic unit so that one does not exclude the other in combination and they are hence not ambiguous (in the sense of two clearly distinct though related meanings). This is illustrated in (94) and (95), taken from Cruse (2000) and Asher & Pustejovsky (2004) respectively.

- (94) a. ?the ten million dollar inheritance just walked in to be reinvested.  
 b. ? John and his driving licence expired last Thursday.  
 c. ?The bank specializes in IPO’s and is being quickly eroded by the river.
- (95) a. The newspaper [won’t hire me]<sub>INSTITUTION</sub>, so I don’t [subscribe to it]<sub>MEDIUM</sub>.  
 b. The Sunday newspaper [weighs 5 lbs]<sub>MEDIUM</sub> and [documents in depth the economic news of the week]<sub>INFO</sub>.

Although almost all the lexical items in question here (except for (94)c) have readings that are related (i.e. they are not homonymous), the acceptability of copredication suggests that some of them are still antagonistic. As I have shown in Chapter 4, the readings of deverbal nominals can in principle appear in copredication, that is, Cruse’s test would predict that these readings are not antagonistic and hence not ambiguous. However, the question remains as to how meaningful this test is if it leads to inconsistent outcomes, even if we combine the same readings as in (91) and (92) (cf.

<sup>63</sup> Discreteness of readings means that they can be clearly distinguished; this can e.g. be proven if they have independent truth conditions. We could for example ask the following question about a translation and answer it in either way at the same time, without provoking a logical conflict:  
 Magst du die Übersetzung? –Nein, sie ist so langwierig/ –Ja, sie wiegt weniger als das Original.  
 ‘Do you like the translation? –No, it is so tedious/ –Yes, it is lighter than the original.’

section 4.2): In one case it would predict that the event and the result reading are antagonistic, while in the other they would be compatible. These examples show that copredication as a test is context-dependent rather than absolute (like many ambiguity tests<sup>64</sup>, see e.g. Zwicky and Saddock 1975, Geeraerts 1993). To improve the explanatory power of this test, we therefore need clear-cut conditions and constraints for copredication structures, which I will establish in Chapter 8.

I will first focus on some theories on nominalizations that are based on an underspecification strategy since it seems more promising to me to constrain such an account to analyse copredication than to solve the general compositional problem that copredication poses for ambiguity accounts. I have chosen Bierwisch's two-layer semantics and Pustejovsky's generative lexicon, since they address the phenomenon of readings in context for a broad variety of cases. Bierwisch's account is of use in answering my questions about the meaning variation of deverbal nominals and their occurrence in copredication structures, since he explains meaning variation by general patterns applying on an abstract least common denominator. The different readings are hence not included fully specified as such in the lexical entry, but they are only triggered and derived by contextual means such as indicators. Pustejovsky on the other hand does include all the readings in the lexicon: he has a complex type especially for closely related readings as in the case of derived nouns and this type is designed to explain their special behaviour, e.g. in copredication structures.

Hence, they make very different assumptions about the design of the lexicon and for the behaviour of these nominals in context. I will test which of these theories can account for the different examples given in Chapter 4 before I introduce a new viewpoint and complementary analysis for this phenomenon, which is based on another theory by Nunberg that does not involve underspecification. In the following, I will also consider those parts of the theories that deal with non-derived nouns, since these nouns can occur in the same structures. Although these nouns differ in some aspects from deverbal nominals (cf. also 2.3), assumptions made about them will help to illustrate the theories. In Bierwisch's and Pustejovsky's theories, the meaning variation of certain simple nouns was the starting point, which was then extended to deverbal nominals.

### ***5.1 Bierwisch's two layer semantics***

As already mentioned, we first of all need an account for the different readings that simple nouns and nominalizations can display in different contexts in order explain the examples from Chapter 4 that had one indicator per nominal form. Bierwisch has developed a general semantics with two layers, the lexical structure and the conceptual

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<sup>64</sup> Both note e.g. the identity test with "x..., so is / does y" as well as truth-conditional differences of the form "p and not p", where we have to insert the two readings: "x is a dog and so is y" / "x is a dog and is not a dog". They show that these tests can contradict each-other in yielding different results as well as internally (one unique test leading to two different results depending e.g. on the context).

system, because he is of the opinion that not all (often systematic) alternations for verbs, adjectives and nouns can be explained only in terms of their lexical structure. He assumes that they are closely related to conceptual knowledge.

In his 1983-paper on the semantic and conceptual representation of lexical units, he also deals with the various reading options that nouns like *Schule* ‘school’ or *Buch* ‘book’, and also verbs like *verstehen* ‘understand’, can have in different contexts. In his opinion, these come about in context by the interaction of semantics with the conceptual system. Later he also applied this analysis for the meaning representation of verb-derived nominals like *Berechnung* ‘calculation’, which can also have several possible readings such as, for example, an event or a result reading (Bierwisch 1989).

Bierwisch (1983) deals with simple nouns and proper names that can be interpreted in different ways without striking us as extraordinary, as in (96).

- (96) Faulkner ist schwer zu verstehen.  
 ‘Faulkner is hard to understand.’

The indicator *verstehen* ‘understand’ is ambiguous since it can select for actions or articulations, but also for informational contents (of a book etc.) and all of these readings are available for the proper name. In (97), *Regierung* ‘government’ refers to a location or building, but in other contexts it can also be interpreted as the people there, particularly if combined with an indicator like *to decide*.

- (97) Die Regierung liegt am Stadtrand.  
 ‘The government is located on the outskirts.’

The same holds for *Schule* ‘school’ and *Buch* ‘book’: According to Bierwisch, we can get many different readings for *Schule* ‘school’, as shown below in (98), which are all closely related but belong to different ontological classes.

- (98) Die Schule ...  
 a. steht neben dem Sportplatz.  
 b. wird von der Gemeinde unterstützt.  
 c. langweilt ihn nur gelegentlich  
 ‘The school ...  
 a. is next to the sports field.  
 b. is supported by the community.  
 c. only bores him from time to time.’

Hence, a school can be a collective of people, a location, a building, a process etc. depending on the context, whereas a book can be a physical object, an abstract object (i.e. information/content) etc. as in Bierwisch’s examples in (99), included below.

- (99) Das Buch ...
- a. liegt auf dem Schreibtisch.
  - b. wurde mit Erfolg verfilmt.
  - c. ist noch immer die wichtigste Publikationsform
- 'The book ...
- a. is on the table.
  - b. was turned into a film successfully.
  - c. is still the most important form of publication.'

Bierwisch assumes a general pattern here, namely a three-fold, generalized conceptual shift between the concepts i) principle or genre, ii) structure or institution, iii) event or spatiotemporal object. Some of these nouns and their patterns resemble nominalizations like *Übersetzung* 'translation' and *Verwaltung* 'administration', since they also have very closely related readings that can belong to different ontological classes. Bierwisch (1989: 39) claims that deverbal nominals undergo the same shift, which creates "families of concepts" with simple nouns. However, as we have already seen in 2.3, simple nouns differ in their distribution of readings, since they do not have a clear default reading and are not related by a result relation.

### 5.1.1 Representation and interpretation in context

To understand Bierwisch's motivation for the representation of nouns with several, closely related readings in the lexicon, we first need to consider his classification of these phenomena. I will clarify this with respect to simple nouns first, since the basic theory is more worked out in his paper on this topic. According to Bierwisch (1983), the above simple nouns and the sentences they occur in are not semantically or syntactically ambiguous/ polysemous, but also not vague or non-literal, as suggested when he states:

„Ich betrachte also nur Fälle, in denen die lexikalischen Einheiten nicht ambig sind und nicht metaphorisch interpretiert werden.“

'Hence, I only consider cases, in which the lexical units are not ambiguous and are not interpreted metaphorically.'

(Bierwisch 1983: 76)<sup>65</sup>

He argues against analysing the phenomena in (96)–(99) as ambiguity or ellipsis: Since we would not have natural constraints on their interpretation<sup>66</sup> for example, these expressions would become indefinitely ambiguous. Moreover, in contrast to prototypically vague examples as *red* or *big*, they have clearly specifiable readings that do not merge.

<sup>65</sup> Translations of the quotes are done by myself.

<sup>66</sup> *Faulkner* can be interpreted in context as his behaviour, his books, his pronunciation etc. but why not also as his favourite meal, his property, his children etc?

According to Bierwisch, these phenomena only get more than one reading on the level of utterance meaning, i.e. in context. Hence, he assumes that the several utterance meanings (i.e. readings in context) available for these sentences are not due to polysemy, ambiguity or vagueness concerning their lexical entries, but emerge somewhere else as stated in this quote:

„Akzeptiert man die These des vorigen Abschnitts, dass Sätze wie [(96), RB] syntaktisch und auch semantisch nicht ambig sind, dennoch aber (mindestens) zwei verschiedene wörtliche Interpretationen haben, dann muß der Unterschied zwischen diesen Interpretationen in *m* bzw. in *ct*<sup>67</sup>, also auf der Ebene der konzeptuellen Repräsentation liegen.“

‘If we accept the thesis of the previous section, that sentences such as [(96), RB] are syntactically and semantically not ambiguous, but still have (at least) two different literal interpretations, then the difference between these interpretations must lie in *m* or *ct*, i.e. on the level of conceptual representation.’

(ibid.: 77)

These phenomena are hence classified as unambiguous on the level of expression meaning, i.e. they share a semantic core from which the actual readings are derived on a different level. This does also hold for deverbal nominalizations in his opinion: Nominalizations like *Berechnung* ‘calculation’ or *Verwaltung* ‘administration’ hence do not have several possible readings stored in the lexicon but only one abstract one which holds for all readings.

Since he assumes that his example sentences do not involve ambiguous items, but still have different utterance meanings, the unambiguous expression meaning<sup>68</sup> must be enriched by other knowledge to give rise to the different readings. This is particularly pressing given that the meaning alternation is not part of the semantic representation in this approach. Bierwisch assumes cooperation with the conceptual layer C: here, the “family” of different variants (or “concept family”) is determined by the semantic form. The intended reading is then determined by the context (i.e. indicators) and hence gives us the specific utterance meaning, as I will show in Figure 4 for *Schule* ‘school’.

<sup>67</sup> The labels *m* and *ct* stand for utterance meaning (interpreted in context) and context.

<sup>68</sup> Expression meaning is the meaning abstracted from a context, utterance meaning is the meaning interpreted in a specific context with fixed reference.

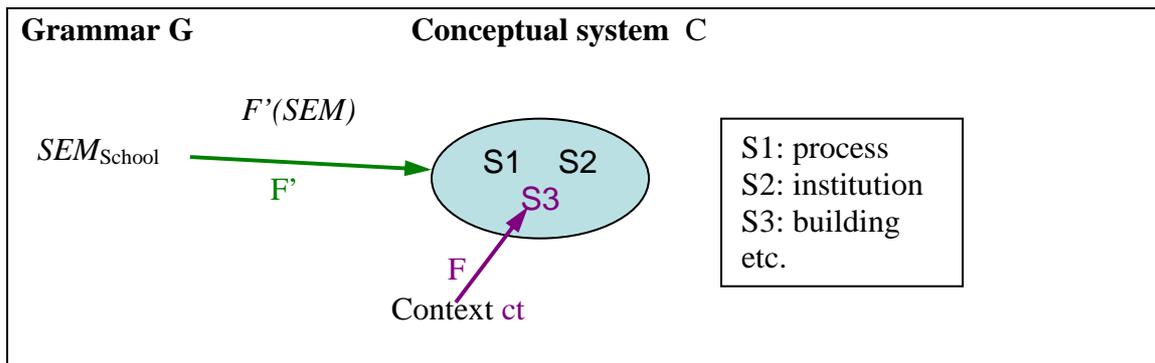


Figure 4. Bierwisch's two layer semantics

Function  $F'$  determines the relation between grammar (i.e.  $SEM$ , which is the semantic form in the lexicon) and conceptual system, i.e. it gives you the conceptual units which are potential reading variants in C. Subsequently, function  $F$  ( $F(sem, ct) = m$ ) determines the actual variant (i.e. the utterance meaning  $m$  of *school*) out of the given set in C in the specific context  $ct$ : i.e. if we have an indicator as [*muss renoviert werden*] 'has to be renovated' in the context it will select for the building reading of *Schule* 'school' and triggers its insertion from C into the underspecified  $SEM$ .

$SEM$  can hence not contain all of the readings, since they are in C and are "activated" by context to specify a reading. Bierwisch's introductory question is whether the lexicon contains the fully specified, unique literal meaning of a word in these cases from which the other readings are derived by shifts (I will call this "unique literal meaning hypothesis") or whether it contains the invariant of all the context dependent readings out of which the other readings are specified or generated ("invariant hypothesis"). In the first case, the lexicon would, for example, only contain the institution reading, from which the functions for process, locations etc. would derive the corresponding other readings, as represented below in Figure 5.

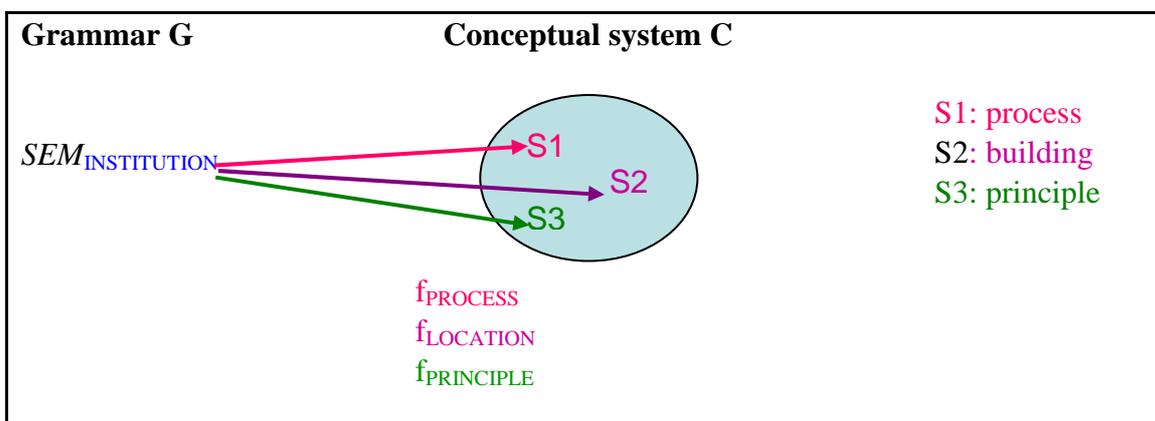


Figure 5. Unique literal meaning hypothesis

In the second case, we have a very abstract semantic representation, a least common denominator. Bierwisch initially suggests purpose, here something like teaching and

learning processes, as the abstract core meaning of simple nouns like this. The conceptual system includes the general schemata for the available readings and combines them with the abstract semantic representation to form the utterance meaning, i.e. for the example *Schule* ‘school’, something like the institution with the purpose of “teaching and learning processes” as in my Figure 6.

Grammar G	Conceptual system C (Conceptual schemata)	Utterance meaning
$SEM_{INVARIANT}$ $\lambda X$ [PURPOSE X W] with W = teach and learn processes	$\lambda X$ [INSTITUTION X AND SEM X] $\lambda X$ [PROCESS X AND SEM X] $\lambda X$ [BUILDING X AND SEM X] $\lambda X$ [PRINCIPLE X AND SEM X]	$\lambda X$ [INSTITUTION X AND PURPOSE X W] etc.

Figure 6. The invariant hypothesis

Hence, we have the following two options: derivation from a primary variant and specification of an underspecified semantic form. Bierwisch opts for the invariant hypothesis, the latter option, where the semantic form only contains an underspecified representation of the “least common denominator” and gives the following arguments:

- i.) it is not clear which of the readings should be the unique literal one, that is, more literal than the others (e.g. book: physical object or information?<sup>69</sup>),
- ii.) if one reading is more literal, then processing should also be more costly with the others: if e.g. the primary reading variant of *Schule* ‘school’ is the institution reading, then if we would hear a sentence like *The school has to be renovated*, we would first have to go through the institution reading to arrive at the building reading, which seems unlikely in his opinion,
- iii.) the derivation functions  $f$  would have to include constraints on their applicability, otherwise they would generate examples like (100), which is unacceptable, yet still possible with similar concepts, as shown in (101).

(100) ?Die Regierung liegt am Stadtrand.  
 ‘The government is located on the outskirts.’

(101) Das Parlament liegt am Stadtrand.  
 ‘The parliament is located on the outskirts.’

It seems plausible that simple nouns determine rather a family of readings than a clear default reading, although the abstract invariant is not yet worked out: The above

<sup>69</sup> You could talk about an empty book and it would still be a book, and also about a book that has not yet been printed.

example for school would not, for instance, differentiate schools from universities and other educational institutions in my opinion.

In his 1989-paper on event nominalizations, Bierwisch deals with the different interpretations of deverbal nominals like *Berechnung* 'calculation' or *Ordnung* 'arrangement' as, for example events or results: One can, for example, arrange books (event) and as a result they are in a certain order, while the result of the event of calculating something can be a value or a result object representing this value. He treats deverbal nominals and simple nouns in an analogous model, but for the former the underspecified form common to all readings corresponds to the event reading. This point of origin is not as abstract as the concept family of simple nouns, since it corresponds to one reading (the event as shown in (102) and (103), where INST stands for "instance").

(102) *Ordnung* 'arrangement'  
 $\lambda x, \lambda y, \lambda e [e \text{ INST } [y \text{ ARRANGE } x]]$

(103) *Berechnung* 'calculation'  
 $\lambda x, \lambda y, \lambda e [e \text{ INST } [y \text{ CALCULATE } x]]$

Still, the event representation is included in all formal representations of the readings as their least common denominator: If there is a need for a conceptually shifted reading in context (imposed e.g. by abstract result indicators as *falsch* 'false' in the case of *Berechnung* 'calculation' or *wiederherstellen* 'restore' in the case of *Ordnung* 'arrangement' etc.), operators with constants like RESULT-OF are inserted to yield the different readings in context, such as in examples (104) and (105).

(104) *Berechnung* 'calculation'  
 $\lambda x \lambda y \lambda z [z \text{ RESULT-OF } e] : [e \text{ INST } [y \text{ CALCULATE } x]]$

(105) *Ordnung* 'arrangement'  
 $\lambda x, \lambda y, \lambda z [z \text{ RESULT-OF } e] : [e \text{ INST } [y \text{ ARRANGE } x]]$

Here, the constant RESULT-OF should be understood as a primitive provided by Universal Grammar and the expansion with this operator as a "purely semantic change" (Bierwisch 1989: 47) that is combined with the event representation by means of functional composition. Accordingly, the relation to conceptual knowledge is inscribed in the lexical structure: "The conceptual origin of the variation in interpretation does not automatically imply, though, that it is not entrenched in some way in the lexical system" (Bierwisch 1989: 40). However, the "ordinary representation" (ibid.: 46), i.e. that of the event, is only expanded if the context requires a specific reading, such as a result, in contrast to ambiguity accounts, where all the readings would be equally represented. Bierwisch sees this proposal as an alternative to theories that treat the meaning variation

of deverbal nominals as actual ambiguity of affixes (homonymy of an event and a result affix, e.g. Grimshaw 1990) or separate complex lexical entries.

This theory would allow us to explain those examples from Chapter 4 in which we have one indicator per lexical form: different operators corresponding to non eventive readings, such as result or means readings are inserted in the representation of their least common denominator (here the event) depending on the indicators in context. In the next section, I will check whether this theory can also explain copredication examples with two indicators applying to one nominal form.

### 5.1.2 Copredication in a two-layer semantics

Bierwisch does not focus on copredication in his theory, but he does briefly mention it in his 1983-paper as an argument against categorizing these simple nouns and deverbal nominals as ambiguous (in line with Cruse 2000). In his terms, copredication<sup>70</sup> is not possible with the readings of ambiguous expressions, as he exemplifies with example (106).

- (106) Das Schloss, das am See liegt, ist verrostet.  
‘The palace/lock that lies near the lake is rusted.’

The first example is acceptable, but only if *Schloss* refers either to a lock or to a palace, but not to both in the same nominal form. In contrast to these different “meanings” of a lexical form, he states that different “meaning variants” (Bierwisch 1983: 81), i.e. readings of simple nouns like *school* and deverbal nominals like *Überdachung* ‘roofing’, can occur in a copredication construction (cf. (107) and (108) below).

- (107) Die Schule, die neben dem Sportplatz liegt, hat einen größeren Betrag gestiftet.  
‘The school that lies next to the sports field has donated a major amount.’
- (108) Peter hat die Überdachung [geplant]<sub>AR</sub>, [geleitet]<sub>EV</sub> und wieder [abreißen lassen]<sub>RO</sub>.  
‘Peter planned, conducted and then pulled down the roofing.’

In (107), we have an indicator for locations or buildings, namely that the school lies somewhere, whereas only an institution (or person) can donate something, however both can impose their selectional restrictions on the noun. The same holds for (108) taken from Bierwisch (1989: 40, indicator marking by myself): To plan roofing is to

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<sup>70</sup> Although he does not use the term copredication, he paraphrases the phenomenon by saying: “Ontologically different concepts can simultaneously interpret one and the same expression if their relation is sufficiently close” (Bierwisch 1989: 37).

plan an imagined event or object, you can only conduct something that is an event, and it is only possible to pull down a physical object.

The aim of Bierwisch's two layer semantics explains and models the meaning variation of verbs and nouns in context in general. He does not focus on copredication as a structure requiring an own analysis, but rather as a characteristic that hints at the noun's flexibility and distinguishes it from other lexical forms. Still, I will try to show what an underspecification account like that would have to face if it was used to analyse copredication examples in order to show, which open questions my own account will have to answer.

Let us consider (109), in which we find an event and a result object indicator applying to the nominalization *Bestellung* 'order', which would trigger the insertion of a result operator.

- (109) Die [heute erfolgte]<sub>EV</sub> Bestellung [wird bereits verpackt]<sub>RO</sub>.  
 'The order carried out today is already being packed up.'

The nominalization *Bestellung* 'order' would have a semantic representation as shown in (110) in Bierwisch's terms, which corresponds to the event. In addition, on the context level the result indicator *wird bereits verpackt* 'is already being packed up' would generate the object reading through interaction with the conceptual level as in (111).

- (110) *Bestellung* 'order'  
 $\lambda x, \lambda y, \lambda e$  [e INST [y ORDER x]]
- (111) *Bestellung* 'order'  
 $\lambda x, \lambda y, \lambda z$  [z RESULT-OF e] : [e INST [y ORDER x]]

If we assume this we get a problem on the context level, since the first indicator is compatible with the semantic representation but the second one requires the insertion of an operator. Since we have only one token of the nominalization here, these two requirements collide, as shown in Figure 7: Bierwisch's shifting rule (the insertion of an operator for the non-eventive readings) would have to be inserted into the syntax after we have composed the first indicator with the noun, but as a lexical-conceptual structure rule it might not be designed for that purpose.

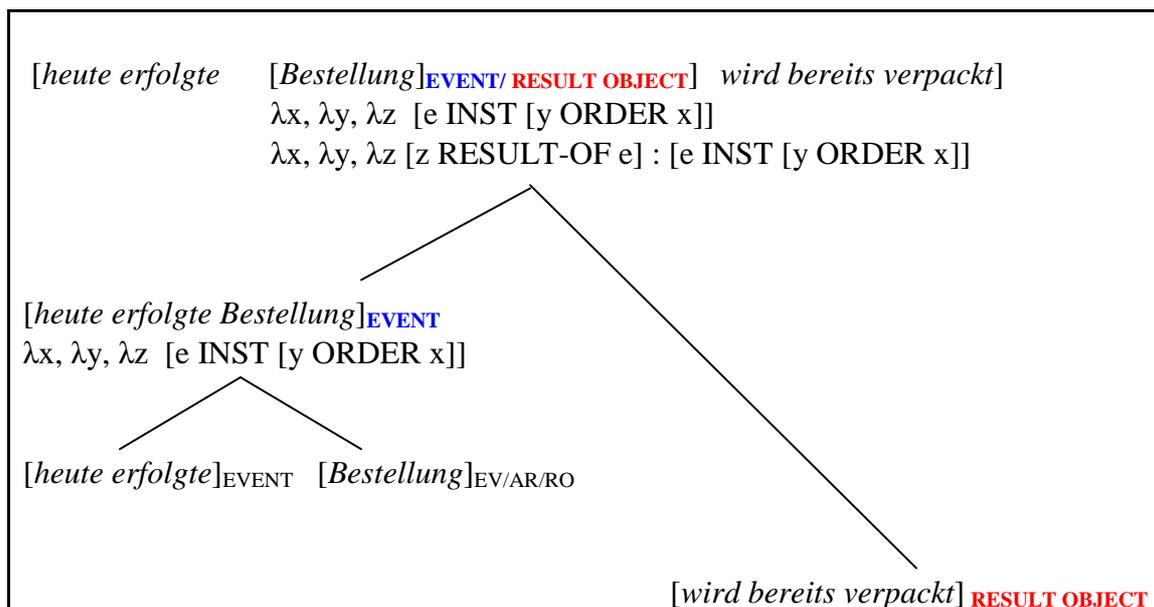


Figure 7. Copredication in a two-layer semantics

### 5.1.3 Restricting copredication

In Chapter 4, I concluded from the data that there are constraints on copredication which, in addition to an analysis of the structure itself, a theory on copredication should be able to explain. Before I do this myself in Chapter 8, I will repeat the preliminary observations Bierwisch makes with regard to exceptions. Bierwisch (1983) briefly mentions some exceptions with simple nouns, which have to do with the readings involved ((112) and (113)), and the structure of the sentence ((114) and (115), indicator marking and translation by myself).

(112) ?Die Schule, die [neben dem Sportplatz liegt]<sub>LOC</sub>, [langweilt ihn nur gelegentlich]<sub>EV</sub>.

‘The school that lies next to the sports field only bores him from time to time.’

(113) ??Die Schule, die [aus der Geschichte Europas nicht wegzudenken ist]<sub>PRINCIPLE</sub>, [langweilt ihn nur gelegentlich]<sub>EV</sub>/[liegt neben dem Sportplatz]<sub>LOC</sub>/[hat einen größeren Betrag gestiftet]<sub>INSTITUTION</sub>.<sup>71</sup>

‘(The) school, without which European history would not be the same, only bores him from time to time/lies next to the sports field/has donated a major amount.’

<sup>71</sup> The first part of the sentence sounds a bit odd in English. It means something like *School plays an important role in European history*, cf. also (115).

Hence, although we have a family of readings, not all combinations are possible here: the event reading in (112) is presumably a coerced reading typically related to the noun, which is possible with almost every noun and also seems to be incompatible with the other readings. In (113), we find a reading called “principle”, which corresponds to a generic reading abstracting from a specific occurrence of the noun referent.<sup>72</sup> As the event reading of school, principle is also a more general reading available for all kinds of lexical items and these readings seem to be incompatible with the other more specific readings.<sup>73</sup>

However, these reading restrictions on copredication are not sufficient to explain some examples from Chapter 4, which I repeat below ((92) and (89)). Both examples involve an event reading, as *school* in (112), but they differ in acceptability.

(92) Die [aus 25 Teilen bestehende]<sub>RO</sub> Absperrung [dauerte ewig]<sub>EV</sub>.  
‘The obstruction consisting of 25 parts took for ever.’

(89) ??Die [regelmäßige]<sub>EV</sub> Lüftung der Kinderzimmer ist wichtig, aber [kaputt]<sub>MEANS</sub>.  
‘The air-conditioning of the children’s rooms is important, but broken.’

Nominalizations differ from simple nouns, in that they have the event as a point of origin and normally allow combinations between it and (result) objects, as in (92), or other result readings (cf. Chapter 4) belonging to different ontological classes, for example. A resultative relation is not given between the readings of simple nouns (the school building is not the result of the school process, etc.) and this might be the reason, why one of the readings in copredication structures with deverbal nominals can be an event, while this is not possible with simple nouns (cf. 8.1). However this does not explain why example (91) is odd, because we also have an event and a result object indicator here.

(91) ?Die Absperrung [aus Holz]<sub>RO</sub> [dauerte ewig]<sub>EV</sub>.  
‘The obstruction (consisting) of wood took for ever.’

Moreover, the means reading in (89) is not a generic reading and its unacceptability in a copredication with the event can hence not be explained by genericity or restrictions on combinations with the event as given by Bierwisch. Whereas most theories on nominalizations ignore them, Bierwisch also includes the constants MEANS-OF and PLACE-OF to account for examples like *Lüftung* ‘air-conditioning’ like in (89) and *Unterführung* ‘pedestrian underpass’. Since these are inserted in the same way as the result operator in Bierwisch’s account, we cannot derive a different behaviour in copredication from their representation.

<sup>72</sup> This might also be the case for the coerced event reading of school, since we are not necessarily talking about this specific school that bores him, but often about school in general.

<sup>73</sup> For restrictions on genericity with respect to type shifting anaphora see ter Meulen (1995).

Apart from the readings involved, Bierwisch (1983) also recognizes structural constraints on copredication as far as coordination is concerned, as shown in (114) and (115).

(114) ?Die Schule liegt neben dem Sportplatz und (sie) hat einen größeren Betrag gestiftet.

‘The school lies next to the sport’s field and (it) has donated a major amount.’

(115) ??Die Schule ist aus der Geschichte Europas nicht wegzudenken und (sie) hat einen größeren Betrag gestiftet.

‘(The) school plays an important role in the history of Europe and (it) has donated a major amount.’

In the first unacceptable example, we have the same readings as in the acceptable subordinated example (107) above, whereas in the second, coordination makes the unacceptable combination of readings even worse. Since the readings did not change, this should depend on the coordination structure. Still, we cannot explain why an example such as (90) is not acceptable, since it involves compatible readings and the first reading indicator is embedded in a relative clause.

(90) ?Die Messung, welche [kompliziert]<sub>EV</sub> ist, ist [auf zwei Stellen genau]<sub>AR</sub>.

‘The measurement, which is complicated, is accurate to two decimal places.’

As I have shown, these constraints, which concern the combination of readings (for simple nouns) and the sentence structure, are a helpful starting point, but they still cannot explain all the exceptions for deverbal nominals exemplified in section 4.2. Up to now, we are thus not able to make predictions for these examples.

Bierwisch has a convincing account for the variability of readings available for deverbal nominals, since he shows that they follow general patterns and locates these in the conceptual structure. However, the non-eventive readings are all inserted via the same type of operators and this does not mirror their varying behaviour in copredication structures. My aim in Chapter 8 will also be to use copredication to motivate a differentiation between these readings groups that Bierwisch’s account lacks. Concerning these structures, we still have the problem that we only have one token of the nominalization that has to be assigned two different representations: one, which is underspecified (the event) and one, which is expanded or enriched.

In the next section, I will present a theory that does not have this analytical problem since it assumes a different design for the lexicon and its types and consequently leaves, so to speak, the noun underspecified on the sentence level. It makes use of different

shifts (or coercions) that apply within the lexicon to avoid type mismatches in context. The question is, whether this theory can also predict the right examples.

## 5.2 Pustejovsky's generative lexicon

As with Bierwisch, we first need to take a look at the phenomena that Pustejovsky aims to explain and at their semantic representation to understand how the process of interpretation in context works in his theory. Pustejovsky (1995) deals with the following nominal alternations, among others<sup>74</sup>:

- Count/mass: e.g. lambs and their meat
- Container/contained: e.g. to drink a bottle or to fill one
- Figure/ground: e.g. a window as an aperture or an object
- Product/producer: e.g. a newspaper or its employees
- Process/result: e.g. the obstruction of a street and its object

He develops the theory of a generative lexicon (GL) with a multidimensional structure to account for the characteristics of word meaning listed below. He derives these from the mentioned phenomena and states that he believes they hold for deverbal nominals as well:

a) The relations between the different readings of expressions like *book*, *exam*, *school* etc. are logical, they follow more general patterns (e.g. building holds an institution etc.) and have “overlapping, dependent or shared meanings” (Pustejovsky 1995: 28).

b) Word senses overlap and cannot always be clearly distinguished, i.e. word meanings are “permeable” (ibid.: 47, e.g. *cook* in the creation and change of state reading).

c) The interpretations of word meaning cannot be seen independently of context, since expressions are used creatively and develop new meanings in new contexts (e.g. *good teacher/knife* or *fast car/typist*).

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<sup>74</sup> He also deals with verbs and adjectives, which I will not discuss here: Inchoative/causative alternation: e.g. something breaks or someone breaks it; *Good*: e.g. a *good* knife vs. a *good* teacher (depends on what it is modifying); verbs with multiple complement types: e.g. *to begin* (a book/reading a book etc.)

In the next section, I will give an overview of this theory, since its design is crucial for the interpretation of deverbal nominals and copredication in Pustejovsky's approach.

### 5.2.1 Representation and interpretation in context

We have seen that Bierwisch classifies phenomena like *school*, *book* or *calculation* as non-ambiguous or non-polysemous, whereas the reading alternation emerges on the context level (in cooperation with the conceptual system): These nouns are hence, according to Bierwisch, underspecified in their lexical entry (cf. also von Heusinger 2009, von Heusinger & Schwarze 2006).

Pustejovsky's generative lexicon (1995) is different, since he treats these examples as complementary<sup>75</sup> or logical polysemy. That means that they have "systematically related senses" following a general pattern (Pustejovsky 1995: 31) and are already present on the level of expression meaning, i.e. in the lexicon. Since he is of the opinion that so called *sense enumerative lexicons*, in which every item only gets one separately listed denotation or type (*monomorph language*, *ibid.*:56), cannot account for the variability and flexibility of word meaning, he assumes different levels of representation in this rich lexicon, whose components are not only listed, but also display relational structure between each other.

Apart from argument structure and event structure, GL provides a so-called qualia structure for lexical expressions, which includes the "properties or events associated with a lexical item which best explain what that word means" (*ibid.*: 77). They are divided into the four parameters, as given in (116) (cf. Pustejovsky (1991)).

- (116) a. FORMAL: The basic category that distinguishes the meaning of a word within a larger domain — also size, shape, color, etc. (e.g. a house is a building). For events: resultant state.
- b. CONSTITUTIVE: The relation between an object and its constituent parts (e.g. a hand consists of fingers). For events: subevents.
- c. TELIC: The purpose or function of the object, if there is one (e.g. a typist's function is to type).
- d. AGENTIVE: The factors involved in the object's origin or "coming into being" (e.g. a house is built).

To understand how the interpretation of nouns and copredication works, we need to consider his type system, keeping in mind that his different types correspond to my term

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<sup>75</sup> Complementary is opposed to contrastive ambiguity, where the different readings accidentally have the same form.

“reading”. In GL, lexical items can have different types: they can be simple, unified and complex (dotted). Examples for simple types would be events, physical objects, abstract entities or artefacts, as in (117). The telic role tells us here that an artefact is made by a human being, which corresponds to the default (D)-argument here.

$$(117) \quad \text{artefact} \quad \left( \begin{array}{l} \text{ARGSTR} = \quad \text{ARG1} = x: \text{top} \\ \quad \quad \quad \text{D}^{76}\text{-ARG1} = y: \text{human} \\ \text{QUALIA} = \quad \text{FORMAL} = x \\ \quad \quad \quad \text{TELIC} = \text{make} (e, y, x) \end{array} \right)$$

Simple types like this can be unified to more specific types, e.g. to the subgroup of artefacts, which are physical (e.g. *knife* or *key*), where we have to specify the referential argument as physical as in (118).

$$(118) \quad \text{phys\_artefact} \quad \left( \begin{array}{l} \text{ARGSTR} = \quad \text{ARG1} = x: \text{physobj} \\ \quad \quad \quad \text{D-ARG1} = y: \text{human} \\ \text{QUALIA} = \quad \text{FORMAL} = x \\ \quad \quad \quad \text{TELIC} = \text{make} (e, y, x) \end{array} \right)$$

It is important to note that only different qualia can be combined. A unified type thus cannot be physical and abstract at the same time, which would then exclude expressions as *book* (information and/or physical manifestation), *window* (physical object and/or aperture), and also some of our deverbal nominals that are abstract and physical and thus involve more than one type. Hence, these nouns do not establish a subgroup as in (118), but need an additional type: the complex or dotted type.

To create complex types, which permit different, even incompatible, types such as *book*, *window* etc. and deverbal nominals such as *translation* we need a type constructor: the dot or *lcp* (lexical conceptual paradigm) operator, which brings together type  $\sigma_1$  and type  $\sigma_2$  of the expression  $\alpha$  without creating a subgroup, as shown below in (119). The paradigm or type cluster for complex types (“dot objects”) includes both simple types separately and a combination of the two in a dotted type, since some indicators focus on one of these types (or readings), as in *a red book*, or on both of them forming a conceptual unit (e.g. *a new book*), as shown in (120) for *book*, whose lexical entry is given in (121).

<sup>76</sup> D stands for default argument, i.e. it does not have to be expressed overtly.

$$(119) \frac{\alpha : \sigma_1 \quad \alpha : \sigma_2}{lcp(\alpha) : \sigma_1 \cdot \sigma_2}$$

$$(120) \text{Lcp} = \{\sigma_1 \cdot \sigma_2, \sigma_1, \sigma_2\}$$

$$\text{Lcp}(\text{book}) = \{\text{information.phys\_obj}, \text{information}, \text{physical object}\}$$

(121) *Book*

$$\left( \begin{array}{l} \text{ARGSTR} = \text{ARG1} = x:\text{info} \\ \quad \quad \quad \text{ARG2} = y:\text{physobj} \\ \\ \text{QUALIA} = \text{FORMAL} = \text{hold}(y, x.y) \\ \quad \quad \quad \text{TELIC} = \text{read}(w,x) \\ \quad \quad \quad \text{AGENTIVE} = \text{write}(v, x.y) \end{array} \right)$$

The qualia gives us the relation that the physical object holds the information, tells us that the purpose of a book is to read the information, and also shows that it came into being because someone (a human being) wrote it. Hence, all this information is already given in the lexical entry.

Deverbal nominalizations are treated analogous to (complementary polysemous) simple nouns, but might involve different simple types: deverbal nominals like *translation* or *construction* are complex, “dotted” types consisting e.g. of an event plus an information reading (*translation*, (122)) or a process<sup>77</sup> plus a result reading (*construction*, (123)).

$$(122) \text{Lcp}(\text{translation}) = \{\text{event.information}, \text{event}, \text{information}\}$$

$$(123) \text{Lcp}(\text{construction}) = \{\text{process.result}, \text{process}, \text{result}\}$$

In contrast to Bierwisch, different readings of deverbal nominals are hence already available in the lexicon before the context requires and develops them<sup>78</sup>, as shown in the lexical entry in (124). Here, we find a dot with an event and a result object type or reading, whose characteristics are specified in the argument structure:

<sup>77</sup> Pustejovsky distinguishes between processes and events; I have used event as a more general term for both.

<sup>78</sup> I will clarify which result readings are meant here in section 5.2.3.

(124) *Construction*<sup>79</sup>

EVENTSTR =	<div style="border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;"> <p><math>E_1 = e_1</math>: <b>process</b></p> <p><math>E_2 = e_2</math>: <b>state(s) of existence</b></p> <p>RESTR = event co-identification <math>e_1=e_2</math></p> </div>
ARGSTR =	<div style="border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;"> <p>(d)ARG1 = x: <b>animate individual</b> FORMAL = <b>phys obj</b></p> <p>(d)ARG2 = y: <b>artifact</b> CONST: z FORMAL = <b>entity</b></p> <p>(d)ARG3 = z: <b>material</b> FORMAL = <b>mass</b></p> </div>
QUALIA =	<div style="border-left: 1px solid black; border-right: 1px solid black; padding: 5px;"> <p><b>event•result-object_lcp</b></p> <p>FORMAL: <b>cause (e,y)</b></p> <p>AGENTIVE: <b>construct (e<sub>1</sub>=e<sub>2</sub>,x,z,y)</b></p> </div>

The qualia mirror the relation between the different types here, in a way that differs from simple nouns: The event of constructing causes the result, which is an artefact and corresponds to the direct object of the verb *to construct*, while e.g. a book object is not the result of the information (cf. (121)).

For other, less resultative readings (cf. 2.2), like, for example the result of a translation, which is based on an already existing text brought into a new state<sup>80</sup>, Jezek & Melloni (2009) assume a hidden argument<sup>81</sup> for the resulting text. They assume that this entity does not correspond to a syntactic argument of the base verb. For these nominalizations, which they call re-description nouns, they refine traditional GL representations and suggest lexical entries, as in (125).

<sup>79</sup> The representations for *construction* and *translation* are taken from Jezek & Melloni (2009), who have further developed lexical entries for different deverbal nominals in GL.

<sup>80</sup> In contrast to nominals based on verbs of creation, the state(s) involved in the event structure is/are hence not all described as states of existence.

<sup>81</sup> Cf. Badia & Sauri (2001)

(125) *Translation*

EVENTSTR =	$\left[ \begin{array}{l} E_1 = e_1: \text{process} \\ E_2 = e_2: \text{state(s)} \\ \text{RESTR} = \text{event co-identification } e_1=e_2 \end{array} \right]$
ARGSTR =	$\left[ \begin{array}{l} \text{(d)ARG1} = x: \text{human} \\ \quad \text{FORMAL} = \text{phys obj} \\ \text{(d)ARG2} = y: \text{artifact} \\ \quad \text{FORMAL} = \text{info\_physobj} \\ \text{(h)ARG3} = z: \text{artifact} \\ \quad \text{FORMAL} = \text{info\_obj} \end{array} \right]$
QUALIA =	$\left[ \begin{array}{l} \text{event}\cdot\text{result-object\_lcp} \\ \text{FORMAL: cause } (e,z) \\ \text{AGENTIVE: translate } (e_1=e_2,x,z,y) \end{array} \right]$

They distinguish two end states for *translate*, namely the state of the book being fully translated and the state of existence of the translation, and we have three arguments in the argument structure: The agent, which is human, the artefact, which is translated and constitutes a complex type comprising of information and physical object (the source text), and another artefact *z*, which is the translated information. The formal quale tells us that the event of translating causes this artefact *z* (to exist) and not the original text *y*, which shows its dependency on the event. It is important to note that the result of *translation* refers to the abstract result here, namely the information, since *z* has the formal quale *info\_object* (and not *physical\_object*), i.e. the physical manifestation of the information is not included in the lexical entry.

To understand how these representations are composed into phrases and sentences, and how copredication can be dealt with, we have to consider the different generative mechanisms operating on this rich lexical structure. According to GL, two things can happen in the composition of a predicate and its argument: Either the argument itself matches the requirements of the predicate directly or not. If the argument is of the right type, e.g. *water* is a liquid and *drink* requires a liquid argument, composing them is called “selection”. If the argument cannot directly satisfy the requirements of the predicate, the type can be “coerced” (cf. Pustejovsky 1995, 2006) to avoid type mismatches. Type coercion can make use of information given in the rich lexical

structure, it can, for example, “exploit” certain aspects of the qualia. Consider, for instance, the case of a *fast typist*: as *fast* selects for an event and a typist is not per se an event, the adjective can refer to the information given in the TELIC role (“selective binding/subordinated exploitation”), namely to the event of typing. The qualia can hence be understood as the “jumping off point for operations of semantic reconstruction and type change” (Pustejovsky 1995). However, these are not the mechanisms that we need in order to explain the examples from Chapter 4.

More importantly for indicating the readings of deverbal nominals in context and for copredication is that we can also exploit the equal, but not independent, components of a complex type: a predicate like *conduct* would, for example, access the event type of *translation*, while *buy* would select the physical object type: “Type exploitation occurs when a verb selects only a part of the semantics associated with its arguments” (cf. Pustejovsky & Rumshisky 2008: 339). In section 5.2.3, I will show how this mechanism accounts for copredication examples as well.

Although the lexical entry might be very rich in information, there are cases where the necessary component for exploitation is neither included in the complex type nor in the qualia, as, for example, in the case of the physical object reading of translation (cf. (125)). In this case, we have to introduce the required type first. This happens by “wrapping” the original type with the required semantic type in examples like *Mary read a rumour about you*, where rumour is itself informational but is wrapped with a physical manifestation type (cf. Pustejovsky & Rumshisky 2008) and analogously in the *translation* example, where we have to wrap the information type if we select for its physical object, which is not included in the complex type or in the qualia. With these mechanisms in mind, I will now look at copredication in a GL framework.

### 5.2.3 Copredication in GL

Asher & Pustejovsky (2000) note that “dot objects were first introduced to explain copredications in the context of polysemy”, i.e. this special type (complex/dotted) came about to explain the behaviour of these nouns in copredication structures. According to GL, the indicators will simply select for different aspects of the complex dotted type in such an example with two required readings for one noun:

“The constituent types pick out aspects of the object, and the object’s complex type reflects the fact that it may have several, distinct, even incompatible aspects. (...) The intuition is that copredication requires these two types<sup>82</sup> to be accessible simultaneously during composition; the function of dot objects is to make this possible.”

Asher & Pustejovsky (2005: 7–8)

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<sup>82</sup> They talk about the physical object and information readings of *book* here, but this can be generalised to all dot objects.

Let us look at an example where this is the case: *Übersetzung* ‘translation’ has a complex type consisting of an event and an information type, as illustrated in (125) above. An adjective like *langwierig* ‘tedious’ can hence exploit the event type in the complex type, whereas the predicate *ist fehlerlos* ‘is faultless’ exploits the information type, as in (126).

- (126) Die *langwierige* *Übersetzung* *ist fehlerlos*.  
  
 ‘The tedious translation is flawless.’

This mechanism of type exploitation corresponds to local disambiguation, because one indicator operates within the DP and the other one during the combination with the predicate. Both indicators can “look into” the representation, and thus the reading of the noun is not specified for the sentence level. It follows that the reading alternation with deverbal nominals and the cases with two competing indicators applying to one token of the associated nominalization are explained by exploiting complex (“dotted”) types. One remaining question is, whether it is possible and plausible that anaphors accompanied by an incompatible indicator would also be able to exploit the complex type. Moreover, I will show that such a view overgenerates, since under the discussed assumptions all readings should be accessible independent of the specific context.

#### 5.2.4 Restricting copredication

Asher & Pustejovsky (2005: 8) state that contrastively ambiguous words, i.e. those which have readings without a logical relation like *bank*, do not license copredication, as shown in (94) repeated here (cf. also Cruse 2000 and Bierwisch 1983), and do hence not consist of a dot object.

- (94) ?The bank specializes in IPO’s and is being quickly eroded by the river.

As far as complementary polysemous words with a logical relation between their readings are concerned, all combinations of readings should be possible in a copredication if only there is a corresponding dot object including these types of readings for the nominalization or types in the qualia that we can exploit. This is so because we do not fix a single reading globally on the sentence level, but the indicators can look into the rich structure and focus on certain aspects without eliminating the others.

However, if this is the case, it is still not clear why examples like (89), repeated below, are also not acceptable, since the readings involved are closely related.

- (89) ??Die [regelmäßige]<sub>EV</sub> Lüftung der Kinderzimmer ist wichtig, aber [kaputt]<sub>MEANS</sub>.  
 'The regular air-conditioning of the children's rooms is important, but broken.'

The prediction in GL would be that these readings do not form a dot object, since they cannot appear in a copredication. However, a dot object is not the only possibility to license copredication: some readings come about by different mechanisms, e.g. by exploitation of the qualia, as in Asher & Pustejovsky's example *Lunch was delicious but took forever* (Asher & Pustejovsky 2000: 8), where the telic role of lunch is exploited by *took forever* (to eat). It is not clear where a means reading, such as in (89), would appear in the qualia. It might or might not correspond to a certain quale, but it will at least be included in the argument structure.

Although it is not explicitly stated in Pustejovsky's GL theory, I will check now whether we can explain the acceptability of copredication by means of the different generative mechanism bringing it about or coercing it. We can have readings that are generated by exploitation, i.e. they are already part of the lexical representation, either in the qualia or in the complex type itself. On the other hand, we can have readings that have to be introduced first by wrapping the argument with the intended type (as e.g. the physical object of the translation). The question is whether it might be easier to copredicate two readings that are inherent in the dot or at least in the qualia than to include a reading that has to be introduced first. As I have mentioned above in 5.2.2, the physical manifestation reading of a translation would have to be introduced first by wrapping the information reading if there is an indicator that requires this physical reading.<sup>83</sup> However, if we compare examples (127) and (128), in which we have a copredication with the dot readings and of a dot reading with an introduced reading, their acceptability does not seem to differ considerably, while (89) above is still odd, although means are presumably represented somewhere in the lexical entry (just like the material for constructing something in (124) for example).

- (127) Die [treffende]<sub>AR</sub> Übersetzung [war langwierig]<sub>EV</sub>.  
 'The accurate translation was tedious.'

- (128) Die [langwierige]<sub>EV</sub> Übersetzung [verkaufte sich millionenfach]<sub>RO</sub>.  
 'The tedious translation sold million-fold.'

Further, it is not always clear which readings make up the dot and the qualia and which ones get introduced, since to my knowledge there are no clear rules for that aside from vague intuitions. Moreover, if we had these clear conditions, dot objects alone would not explain why we sometimes get unacceptable examples with two readings obviously forming a complex type as for example in (91).

<sup>83</sup> This is similar to Bierwisch's introduction of operators indicated by predicates or modifiers in context, cf. 5.1.

- (91) ?Die Absperrung [aus Holz]<sub>RO</sub> [dauerte ewig]<sub>EV</sub>.  
 ‘The obstruction (consisting) of wood took for ever.’

Asher & Pustejovsky (2005) note that the acceptability of copredication structures does not only depend on dot objects, but also on discourse context and rhetorical relations, as (129) and (130) show below (cf. Asher & Pustejovsky 2005: 8–9).

- (129) The Sunday newspaper weighs 5 lbs and documents in depth the economic news of the week.
- (130) ?The newspaper was founded in 1878 and weighs 5 lbs.

However, they attribute this to the different types involved – the physical object is combined once with an information object and once with an institution. However, type combinations cannot explain the oddity of (91), because it includes the same reading indicators as in acceptable copredications (event and result object). Accordingly, the assumption of dot objects licensing copredication should be substantiated by clear constraints concerning readings, structure and contextual factors.

### 5.3 *Intermediate summary*

The theories I have dealt with so far (the two-layer semantics and the generative lexicon) were both able to account for the interpretation of deverbal nominals in contexts with one type of indicator, even though they used very different strategies. Bierwisch used an underspecified lexical entry that all readings share, Pustejovsky used a very rich generative lexicon. In both cases, we need shifts (“conceptual shift” or “type shift/coercion”) to arrive at the intended reading in context: The former for the enrichment to non-eventive readings, the latter to select an already available reading or coerce it into a suitable type out of a given set. Both theories have their shortcomings: Bierwisch admits that he cannot yet give a clear theory on the conceptual system and its structure, whereas Pustejovsky’s GL was often said to extend the lexicon too much<sup>84</sup>.

However, as the focus of my thesis is on copredication and its constraints, I will rather evaluate these theories with respect to what they contribute to these topics. While it is not clear how a two-layer semantics could solve the conflict between two competing indicators for one noun, GL assumes complex types that allow predications over different aspects they involve simultaneously. However, if we do not eliminate readings in composition, we should have clear constraints on their accessibility in further discourse, i.e. in copredication.

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<sup>84</sup> For a critical view on GL see for example Dölling (1998).

Both theories have shown that copredication is not possible with homonyms (“contrastive ambiguity” in GL) or readings of polysems not systematically related, as was also stated by Cruse (2000). Moreover, Bierwisch has shown that coordination structures might impede copredication and that generics (and processual readings of simple nouns) are excluded for copredication, but since he uses the same templates or operators for all non-eventive readings, we cannot infer further constraints from their introduction. Pustejovsky stores the different readings on different levels (dot object, qualia, introduction), but the procedures to coerce them cannot always be used to differentiate the acceptability of copredications involving them. This leaves some questions unresolved, for example, why some subordinated examples are still odd, why compatible readings such as event and result (forming a dot object in GL) do not always lead to acceptable copredications, and which readings are generally excluded from copredication (in addition to the generic ones excluded by Bierwisch).

Both theories focus on the noun’s variability or flexibility in context and make use of shifts that apply on its lexical structure to arrive at the second indicated reading in copredication. However, we have seen that this basic assumption still leads to mismatches in composition or overgeneration as far as the conditions for copredication are concerned. Hence, the question arises, whether it is right to assume, that we do not eliminate readings if we apply an indicator to the noun in composition, since as we have seen, not all readings seem to be accessible for the second indicator in copredication.

Obviously, there are some other theories on nominalizations and copredication and I will sketch some of them here to show what their respective focusses are and which questions they leave open. Asher (2008) deals with different kinds of predication and mismatches involved in them, that is, with the “conflict between the demands of the predicate for a certain type of argument and the type of its actual argument” (Asher 2008: 11). These include examples with a mismatch between NP and VP, but also copredication examples. Instead of assuming that lexical meaning can change in context, he opts for a complication of the notion of predication and logical form, i.e. for a typed lambda calculus, so that these mismatches are a problem for compositionality and not for meaning shifts. I will not go into the details of these analyses here, since the question what the constraints for copredication are and how we can predict the right examples is left unanswered by his approach, too. Asher discusses some contextual effects on certain NP VP combinations, but as we will see in 8.1, there are also different kinds of constraints for copredication that this account cannot explain.

“Reambiguation” (cf. Solstad 2008 and Hamm & Solstad 2009) is a combined constraint logic programming (van Lambalgen & Hamm 2005) and DRT account that — in effect — assumes local disambiguation for copredication examples especially with anaphora, suggesting there would be no mismatch between the indicators in these sentences, since we can select a reading within and another one outside of the DP. They deal e.g. with examples like (131) (Hamm & Solstad 2009: 3).

- (131) Die Absperrung des Rathauses wurde vorgestern von Demonstranten behindert. Wegen anhaltender Unruhen wird sie auch heute aufrechterhalten.  
 ‘The cordoning-off of the town hall was disturbed by protesters the day before yesterday. Due to continuing unrest, it [the state of being cordoned off] is sustained today as well.’

According to this account, the first indicator does delete the other readings, but allows the deleted readings to become available again under certain conditions. They discuss some constraints on this process of “reambiguating” concerning the accessibility of certain readings after the first indication<sup>85</sup>, which they explain in terms of the internal structure of the noun's first focussed reading (with respect to the example above, it is decisive whether the event representation of *Absperrung* in the first part of (131) involves a state component, so that it can be accessed by the second indicator, or not). However, even if the second indicator refers to a reading predicted to be accessible here, other factors can prevent the licensing of copredication, which do not depend on the readings involved as I will show in more detail in Chapter 8.

Since the theories discussed in the last sections leave some questions open, especially concerning constraints on copredication, I will try to look at mismatches in general and copredication in particular from a different perspective. In the next chapter, I deal with a complementary approach in more detail.

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<sup>85</sup> These constraints often concern the order of the readings involved, i.e. whether we first indicate an event and then a result etc. I do not agree with all acceptability judgements given there, since in my opinion we can for example have a result indicator preceding an event indicator, cf. footnote 103 and 8.2.

## 6. Nunberg's predicate transfer

In this chapter I will establish a new viewpoint on copredication examples based on a theory that was developed independently of more specific nominalization and copredication issues, but rather deals with meaning shift in general. My aim is to find a complementary analysis of copredication examples which allows us to predict the right examples by motivating the licensing factors. Since the constraints on copredication could not be clarified comprehensively by the theories discussed so far, I suppose that they might not depend entirely on the noun's lexical structure, on which these theories have focussed. Before I introduce Nunberg's predicate transfer as a complementary alternative, I will first give an overview on different kinds of sortal mismatches, of which copredication is only one aspect, and how they are solved.

### 6.1 Sortal mismatches and shifts

I have dealt with different strategies to match nouns with their indicators in the preceding chapter, i.e. with the fixing of their readings in different contexts and the resolution of sortal mismatches between nouns and their surroundings. These mismatches can occur in different forms and, although their specific description depends on the theory applied, there are some general observations that can be made: In case of a systematic meaning variation as with *school* etc., which has a family of readings, a mismatch can exist between an indicator applying to the noun and some of its readings. This leads to a shift to one of those components that matches the selectional restrictions of the indicator, e.g. to the building (*is renovated*), the institution (*has called*) etc. Hence, these readings are all given for the noun and an indicator can select one of them.

Similarly, deverbal nominals such as *Absperrung* 'obstruction' are composed with an event or result indicator: although the event is the point of origin on which the result depends here, the result readings are systematic (for a large group of nouns) and appear in the lexical structure. In the case of a mismatch between the indicator and the event reading, we shift to another reading that fulfills the selectional requirements and is also already given for the nominalization. A more problematic form of mismatch is involved in copredication, where it exists between the two indicators: one, for example, selects for an event whereas the other selects for a result, even though both apply to the same nominalization. We would intuitively have to apply two shifts to avoid a mismatch in such cases.

As we have seen above, Bierwisch and Pustejovsky have dealt with sortal mismatches of the kind first mentioned: They applied different kinds of shifts (conceptual shift and coercion cooperating with the lexicon) on the nouns to fix their reading in context. The

former uses conceptual shifts from an underspecified to a specified form of the nominal in context. The latter uses coercion to the required type, e.g. by exploiting different aspects (complex types, qualia) stored within the lexical entry of the noun. In both cases, it is the noun that is adjusted to the contextual requirements. The shifts accomplishing this adjustment are based on the noun's lexical structure, which includes all the readings. As we have seen, these assumptions pose problems for copredication examples. Since the shifts involved here cannot fully solve them, I will consider a different kind of shift in this chapter.

The discussed theories were designed in the first place to explain systematic shifts between readings which are available for whole groups of nouns, and can be applied in every situation, for example, between a physical object and its content (*book, container* etc.) or a building and the corresponding institution (*school, theatre* etc.) or count mass distinctions (*chicken, oak*). However, we also find sortal mismatches where we cannot shift to another literal reading, because either the noun has only one reading or none of the ones available matches the selectional restrictions of its surroundings. For these cases, there are different mechanisms that only apply in specific situations and these contextual shifts and situational uses are the topic of a theory by Nunberg (1995, 2004). These mismatches lead to general questions about the flexibility of meaning and the lexicon, but also about the mechanisms applying in context: What are the constraints on the flexibility of word meaning? How do we decide whether a mismatch can be resolved and under which conditions?

Nunberg deals with the general possibility of using “the same expression to refer to what are intuitively distinct sorts of categories of things” (Nunberg 1995: 109). Metonymy, i.e. when we take *The White House* to denote the government in there and not the house itself, is an example for an underlying principle<sup>86</sup> for these mechanisms of transfer. Yet, although we have the same underlying principle, it might lead to very different shifts, i.e. to systematic or context-dependent ones. (132) is an example for cases which depend on a special context: Here, the expression for a disease is used to refer to the patient suffering from it.

(132) The pneumonia asked for more ice-cream.

We can only express this sentence successfully in a hospital setting or the like, where a description like this is helpful for speaker and hearer. Since we need special settings for these cases, it seems implausible to include this reading in the lexicon, in a form like *pneumonia*: 1. disease, 2. person suffering from this disease. However, both this example and the systematic ones involving lexical readings like *school* etc. rely on metonymy, i.e. the shift of the concept's reference to one of its components.

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<sup>86</sup> Another one would be metaphor: here, we also have a shift to a reading not in the domain of the expression itself.

What about deverbal nominals then? If we compare them to the mentioned two groups of shifts, namely systematic and context-dependent ones, we recognize that deverbal nominals can also be involved in both of them, just like simple nouns: On the one hand deverbal nominal readings are very systematic and e.g. the shift from an event to a result reading is available for a whole group of nominalizations. On the other hand, they can be used in specific situations, as exemplified in (133).

- (133) Die Vormerkung hat schon wieder ihren Leihausweis vergessen.  
 ‘The prebooking/reservation has again forgotten his library card.’

We could imagine this sentence being uttered by a librarian complaining about a customer who has prebooked a book and who always forgets his library card. However, I have focussed on event and result readings of deverbal nominals in this thesis, which are more systematic.

The most important question for my purposes is which kind of shift is involved in copredication cases with deverbal nominalizations and when is it licensed? Since the accounts treated so far were not able to fully explain this phenomenon, I will now turn to a different kind of shift, namely “predicate transfer”, to figure out whether the application or advancement of this shift can give new insight into copredication and its constraints. Since it focusses on different parts of the sentence than the noun, I will first consider shifting positions in sortal mismatches.

## ***6.2 Shifting positions***

If we have to deal with a mismatch, we have to decide how to make the parts of a sentence fit. Relating this to the example in (132), only a person can ask for something, but not a disease. The central question here, as well as for copredication, will thus be: Which part of the sentence has to be shifted if we have a mismatch between two parts?

In most theories, the flexibility in meaning is ascribed to the noun and its potential to shift, as we have seen. In contrast, Nunberg claims that there are different kinds of shifts and that it does not always have to be the noun that is adjusted to the rest of the sentence. Let us compare the two situative<sup>87</sup> examples (134) and (135) taken from Nunberg (1995: 110); they are both uttered in a situation where a customer hands his key to an attendant at a parking lot.

- (134) This is parked out back.

- (135) I am parked out back.

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<sup>87</sup> By “situative”, I mean that examples like these depend on a special setting to be acceptable and understandable, i.e. a restaurant, a parking lot etc.

Clearly, it is not the key itself that is somewhere out back, but the car and the predicate can also not literally refer to the speaker as indicated by the pronoun since s/he is in front of the hearer. These examples are not peculiar at all; if we think about it, we do these things all the time: it is easy to think of examples like (136)–(141), which are analogous to Nunberg's examples.

- (136) Ich bin online/offline.  
'I am online/offline.'
- (137) Wir laufen auf der Filmschau.<sup>88</sup>  
'We are shown at the Filmschau.'
- (138) Ich habe einen Platten.  
'I have a flat tire.'
- (139) Du vibrierst/klingelst.  
'You are vibrating/ringing.'
- (140) (auf eine Eiffelturmminiatur zeigend): Das ist meine Lieblingsstadt/Da will ich mal hin!  
(pointing at an Eiffel tower miniature): 'This is my favourite city/I want to go there!'
- (141) (auf eine LP zeigend): Die habe ich letzte Woche im Keller Klub gesehen.  
(pointing at an LP): 'I have seen them/it<sup>89</sup> at Keller club last week.'

I can hence say that I am online or that I have a flat tire as in (136) and (138), though actually it is my computer that is online and my bike that has a puncture. A person can also be said to ring or vibrate as in (139), although it is not really the person herself, but his/her cell phone.<sup>90</sup> Moreover, I can point at an object while uttering something related to that object, e.g. about a city by pointing at one of its landmarks in miniature form as in (140), or at a band by pointing at their LP as in (141): I certainly do not want to express that I want to go to the place where the miniature is or that I saw the LP last week in the club. We do not have to make this information explicit, but we might still recognize that there is a sortal mismatch between the parts, since, for example, a person does not have tires that can be flat.

Hence, the crucial thing about examples like these is again that we have to adjust or shift something to make the parts fit each other, but there are no available matching

<sup>88</sup> This sentence was uttered by a film team, referring to their work shown at a film festival.

<sup>89</sup> In German, we use the same demonstrative pronoun for singular and plural to refer to the LP and the band (members), namely *die*.

<sup>90</sup> In the case of vibrating it might indirectly be the case that I myself vibrate, but it won't involve my whole body.

readings *per se* to shift to. What we do have is a mismatch between the subject and the predicate in these sentences and we know that we need to change something in this context to arrive at a plausible interpretation. The first question is: What do we have to change and why do we choose to change this part and not the other? The follow-up question would then be: How do we change the part in question?

The first intuition concerning both *parked out back* examples by Nunberg would presumably be that we have a shift from the referent of the demonstrative or pronoun to the car so that both sentences correspond to *My car is parked out back*. Nunberg (1995: 110) uses three tests to check the intuition that in these cases *I* and *this* actually refer to the car. For the first two tests, the assumption is that if this intuition is true, it should be reflected in the grammar, e.g. in number (i.) or gender (ii.) congruence. In addition, a semantic composition test is introduced (iii.).

i. If the demonstrative or the pronoun really refers to the car, then its number should correspond to the object or objects we want to refer to (the car) and not to the thing demonstrated instead (the speaker or the key). If it is congruent in number with the object, we can conclude that its reference has been shifted to this object, in this case the car. For deverbal nominals, this would mean that we have to check whether the number of the event presented first and of the result then indicated can differ (e.g. one event vs. several results), as we will see in the next section.

ii. The second test concerns grammatical gender (in languages that mark adjectives and demonstratives accordingly): Should the words for car and key have a different gender in such a language, the adjective (*parked*) must demonstrate gender congruence either with the referent (the car) or with the *demonstratum* (the key or the speaker). This will then tell us which part is shifted. However, a test like this does not work for German or English, where (predicatively used) adjectives and demonstratives are not marked with gender and where the event and result readings of deverbal nominals have the same gender anyway. Hence I won't use this test in the next section on deverbal nominals, but I will demonstrate it here with an example from Italian to illustrate Nunberg's claim.

iii. The third test concerns semantic factors since it depends on the ability to conjoin additional predicates of different sorts: We have to determine whether we can conjoin the above sentences with a predicate referring to the car or with one referring to the key or the speaker. If e.g. *I* was shifted to refer to the car, then we should be able to say something else about the car as well apart from being parked somewhere. For deverbal nominals, this would mean that we should be able to conjoin a predicate applying to results, if the deverbal nominal is shifted (to a result reading) and not the predicate.

According to Nunberg, we can now apply these tests to both situative examples ((134) and (135)) to see whether they are based on different kinds of transfers applying to different positions. Let us start with the number congruence: If I would hold more than one key fitting a car parked somewhere, I would still not say *These are parked out*

*back*, i.e. the number of the demonstrative depends on the referent and not on the demonstrated thing, which has a relation to the referent car. I will try to illustrate this situation in Figure 8.



Figure 8. Several keys fitting one car

However, this is not the case for example (135) with the pronoun: According to Nunberg, I cannot say *We are parked out back* when I am on my own and have more than one car as in my figure 9. This would only be possible, if there were several drivers. Here, the number of the pronoun is congruent with the number of the speaker, that is the *demonstratum*, and not with the number of the intended referent, i.e. the car.



Figure 9. One driver, several cars

Let us see whether the two examples also differ with respect to the gender and conjunction test: According to Nunberg, we need to have the same gender for the demonstrative and the adjective describing the car. In Italian, the word for car and for key is feminine, while the one for truck is masculine. If I talk about a truck, the demonstrative would be masculine in the *parked* sentence correlating to the gender of *truck*, and not feminine like the word for key. Hence, number and gender of the

demonstrative depend on the referent, namely the truck here. In contrast, in the pronoun sentence an Italian man would use the masculine form of the adjective *parked* talking about his car, which corresponds to the speaker, but not to the feminine gender of car.<sup>91</sup>

Another difference shows up as far as conjunctions are concerned, as exemplified by examples (142) and (143), taken from Nunberg (1995: 110–111, indicator marking by myself).

- (142) a. This [is parked out back]<sub>CAR</sub> and [may not start]<sub>CAR</sub>.  
 b. ??This [fits only the left front door]<sub>KEY</sub> and [is parked out back]<sub>CAR</sub>.
- (143) a. I [am parked out back]<sub>CAR</sub> and [have been waiting for 15 minutes]<sub>DRIVER</sub>.  
 b. \*I [am parked out back]<sub>CAR</sub> and [may not start]<sub>CAR</sub>.

We recognize that we can only conjoin a predicate that refers to the car when we have the demonstrative pronoun, suggesting that the reference might really be shifted from the key to refer to the corresponding car in this sentence as expected. On the other hand, the sentence with the pronoun referring to the speaker cannot be conjoined with car predicates, but only with those that refer to the owner. I will summarize the test behaviour in Table 10.

	I (am parked out back)		This (is parked out back)	
	CAR	DRIVER	CAR	KEY
Congruence in				
• Number with		X	X	
• Gender with		X	X	
Coordination with predicates applying to		X	X	

Table 10. Tests for transfer position

Nunberg takes this as evidence that the pronoun *I* has not been shifted to the car in the *parked out back* example, but still refers to the owner, while the demonstrative *this* actually refers to the car. I will clarify this in (144) and (145) (based on Nunberg) by indicating the shifted or extended meaning of an expression in curly brackets.

- (144) a. **This** is parked out back.  
 b. {**This**<sub>key</sub> = *the car*} is parked out back.
- (145) a. **I** am parked out back.  
 b. **I** am {*the owner of a car that* is [parked out back]<sub>CAR</sub>}<sub>DRIVER</sub>

<sup>91</sup> Holding up a key (*la chiave*, *f*) to refer to a truck (*il camion*, *masc.*): *Questo (masc. sg.) è parcheggiato (masc. sg) in dietro.* "This (masc.) is parked (masc.) in back." (Nunberg 1995: 110).

Hence, although both types of meaning transfer are metonymic of the type driver/car, they differ in whether the transfer affects the argument or the predicate. This is one of the main claims of Nunberg's study: We can use the same general underlying principles, but they do not necessarily lead to the same phenomena in language. Metonymy can be the basis for lexical alternations as in the case of *school* or *book*, but also for shifts only applying in very special situations. In addition, they can lead to what Nunberg calls "deferred ostension", where we really have a shift from the key to the car as in the first example, or to so-called "predicate transfer", where the subject keeps its meaning and the context is adjusted.

All the tests have shown that the personal pronoun *I* in the second example still refers to the owner. If the pronoun does not adjust its meaning to the requirements of the context, then it has to be the predicate that does so. What we thus need is a predicate that can be applied to human beings (and not to cars). That is why Nunberg enriches the predicate *parked out back* to a property of humans, namely to "being the owner of a car that is parked out back". This mechanism called "predicate transfer" will be the topic of this section. It is informally described by Nunberg as follows:

"The principle here is that the name of a property that applies to something in one domain can sometimes be used as the name of a property that applies to things in another domain, provided the two properties correspond in a certain way."

Nunberg (1995: 111)

This is a very general mechanism, which also holds for metaphors: In this case, we have a "direct correspondence between properties" (Nunberg 1995: 127), e.g. in form or behaviour (cf. *Birne* 'pear' in German used for the head of a human being, or *Löwe* 'lion' for a person acting like the animal in some way). The interesting thing about this theory is the change of viewpoint on what is shifted or adjusted when we have a mismatch between the parts of a sentence: In contrast to other theories, Nunberg's predicate transfer permits parts other than the subject or noun to change its meaning because it focuses on properties, as we will see in more detail in the next section.

However, predicate transfer is not limited to the change of a specific part of the sentence, but it can also affect properties expressed by common nouns in any position of the sentence. This is shown in the well-known ham sandwich examples in (146) also used in Nunberg (1995, 2004).

- (146) a. Who is the ham sandwich?  
       b. The ham sandwich is at table 7.

This is also a general phenomenon: we often use common nouns for a dish someone has ordered, an illness someone suffers from or a piece of clothing someone wears (*The red*

*coat has asked for a different size*) to refer to the person related to it, particularly when this property might be more salient in certain situations, for example, in order to identify a customer, than other properties of this person. However, we still have a sortal mismatch between this common noun and the indicator applying to it in these cases: Hence, according to Nunberg, the property of being a ham sandwich is enriched to the property of having ordered a ham sandwich, since the question pronoun *who* (in contrast to *what*) and the verb phrase *is at table 7* require a human being.

The peculiarity of predicate transfer is hence not only the position where it applies, but also the way in which it applies: Nunberg assumes that it is really a transfer of meaning since we create a new predicate meaning (including the original one) and not a transfer of reference (as in the deferred ostension case with demonstratives above, where we just refer to something else). Again, he uses number congruence to test whether this holds true (Nunberg 1995: 115), i.e. whether the number of a demonstrative depends on the number of orderers and not on the number of actual ham sandwiches in (147).

(147) That (\*those) French fries is (\*are) getting impatient.

Another hint for Nunberg is the presupposition tied to the determiner in this example: Do we presuppose that there is only one ham sandwich (and no others in the kitchen or elsewhere), or do we presuppose a unique orderer? Nunberg opts for the latter to vindicate his classification as meaning transfer: He claims that we do not really shift the reference from one object to another, but enrich the meaning, for example, of *being a ham sandwich* to being a person who ordered one.

Since predicate transfer provides a new viewpoint on the phenomena of sortal mismatches of different kinds, I will illustrate it in more detail in the next sections. In Chapter 7, I will then try to apply predicate transfer to deverbal nominals, especially in copredication environments, since we also have sortal mismatches in these cases. As I have mentioned, the event-result alternation displayed by deverbal nominals differs from simple nouns as well as from the situative cases discussed by Nunberg so far. I thus may need to advance it to make it fruitful for these cases. Before I come to this application, I will introduce and discuss the conditions and constraints on this very general mechanism of meaning shift to avoid overgeneration.

### ***6.3 Conditions on predicate transfer***

In the last section, I have described Nunberg's viewpoint on sortal mismatches and the determination of a transfer position in such cases. However, there are obviously mismatches that cannot be solved, no matter which part of the sentence we adjust. Accordingly, I will show in this chapter, how Nunberg tries to prevent predicate transfer from overgeneration and from being too universal by stating conditions on its use.

Accordingly, he asks when we can “use an expression that denotes one property as the name of another property” (Nunberg 2004: 4).

As we have already seen with the copredication examples, general mechanisms like this cannot predict the right examples if we do not state clear conditions for their application. Since we cannot simply use any expression, say *house*, for any other expression, say *apple*, a first condition concerns the relation between the two properties or between their bearers, much like the case of metonymy. We know that, independent of a special context, there is something that relates cars and human beings, namely that the latter own and drive cars. The relation has to be a salient functional one, according to Nunberg, and it can exist between the bearers<sup>92</sup> of the properties, as in our parked out back example: We can hence use the car property of being parked somewhere for a human being as well, because there is a salient relation between owners and their cars, namely ownership. Nunberg formulates the condition for metonymic transfers as follows, in (148).

(148) **Metonymic Transfers**

Let  $h$  be a salient function from a set of things  $A$  to another (disjoint) set of things  $B$ . Then for any predicate  $F$  that denotes a property  $P$  that applies to something in  $A$ , we can represent the meaning of a derived predicate  $F'$ , spelt like  $F$ , as in either a. or b.

- a.  $\lambda P. \lambda y (\forall x_{[\text{dom } h]}. h(x) = y \rightarrow P(x))$   
 b.  $\lambda P. \lambda y (\exists x_{[\text{dom } h]}. h(x) = y \wedge P(x))$

Nunberg (2004: 8)

According to this condition, we can use predicates that normally do not apply to a certain domain, say drivers, if the domain they normally apply to (say cars) is saliently related to this “new” domain. That means I can express that I, myself, am parked somewhere, even though it is rather my car to which the property of being parked somewhere can apply, because I own the car and this relation between me and my car is salient. The difference in formulas a. and b. is that sometimes all (relevant) bearers of a property are concerned and sometimes it is enough if at least one is concerned (e.g. as in Nunberg's examples *I'm in the Whitney*, where it would suffice to have only one work of art in the museum, while in *I am published by Knopf* the speaker might refer to all of his books). The difference to metaphors is, accordingly, that the salient relation exists between the bearers of certain properties and not between the properties itself. I will specify the condition from (148) for Nunberg's *I am parked out back* example, so that it looks like (149) and I will illustrate the transfer between the two domains involved in my Figure 10.

<sup>92</sup> Sometimes, the salient relation exists between the properties themselves, according to Nunberg: In this case we are rather dealing with a metaphor than with a metonymy, as for example when we use the word *mouse* for a computer mouse, which resemble each other in form.

(149) **Predicate transfer of *parked out back***

Let *car* and *owner of a car* be sets of things that are related by a salient transfer function  $g$  (being the owner of  $x$ ):  $car \rightarrow owner\ of\ a\ car$ . It follows, if *parked out back* is a predicate that denotes the property of *being parked out back*  $\epsilon$  *being a car*, there is also a predicate *parked out back'*, spelt like *parked out back*, that denotes the property of *being the owner of a car that is parked out back*.

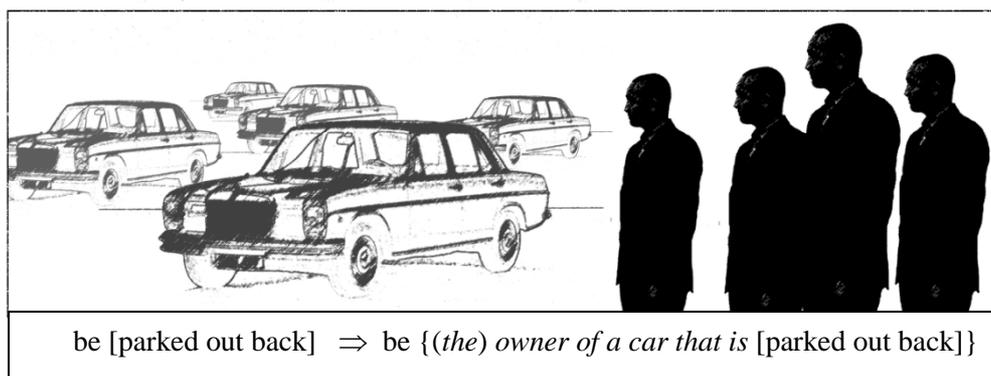


Figure 10. Predicate transfer between cars and drivers

Hence, the predicate [*parked out back*], which normally applies to cars, can also apply to their owners through the salient relation of ownership. To accomplish this, we enrich this car predicate to a predicate that applies to the owners: it is adjusted to the contextual requirements imposed on it by the personal pronoun *I*, but it shares the lexical form of the original predicate. The salient relation between owners and their cars thus indicates that whatever happens to the car might affect its owner as well and it can be expressed as if he was in the car's place. Therefore, we cannot only say that cars are parked somewhere, but we can also say that their owner is parked somewhere since this can mean that the owner has to walk there, cannot move the car if he is blocked in or the like. According to Nunberg, this is slightly different for metaphors: An animal used as a metaphor for a person is not affected by anything that happens to the person, i.e. if Paul as a person is described as a lion and an actual lion is for example harmed, this does not have anything to do with Paul.

Although this relation holds between the nouns here, we do not shift the reference from one to the other to avoid a mismatch between noun and verb phrase, instead we change the context of the subject. What this means is that we enrich the predicate's meaning while we stick to its lexical form instead of shifting the noun itself as in the other theories presented up to now (cf. Chapter 5), which were focussed on the flexibility of the noun.

Let us look at another example, this time one of my own, to see which conditions predicate transfer involves and how it is spelt out. As I have claimed above, it is not really the person that is online in (150), but rather the computer itself.

- (150) a. Ich bin online.  
 'I am online.'  
 b. Ich bin {der Nutzer eines Computers, der [online] ist}.  
 'I am the user of a computer which is online.'

Since this person owns the computer or works on it, there is a salient relation between the domain of users and the domain of technical devices, namely "usership" or ownership. Hence, certain properties normally ascribed to the computer can also be said of the user, like, for example, the online status or something like *My firewall is down* or *I have a virus*, which only indirectly apply to the user. This can be done without altering the lexical form of the predicate on the surface, and hence we can have two predicates [*online sein*] 'be online' and {*einen Computer nutzen, der [online ist]*} spelt in the same way.

I will discuss another example by Nunberg (1995), namely (151), to illustrate this mechanism and his arguments for the transfer position.

- (151) Billy's shoes are tied.

This expression might not strike us as uncommon or in any way not matching in itself, but Nunberg states that it is actually not the shoes, which are tied, but their shoe laces. We often do not recognize these peculiarities, since we use them so often, but I found many cases like this around, as e.g. in (152) and (153).

- (152) Ich habe mein Fahrrad aufgepumpt.  
 'I have pumped up my bike.'

- (153) Paul steht im Telefonbuch.  
 'Paul is in the phone book.'

In (152), it is not the bike, but the tires I have inflated and in (153) it is Paul's telephone number and not himself that is in the phone book. We do not need to express this explicitly in order to understand what is meant, but still there must be some underlying principle with clear conditions which enables us to combine these predicates with these subjects under certain conditions. Otherwise we should be able to combine all kinds of different expressions, e.g. (154).

- (154) ?Ich habe meinen Urlaub aufgepumpt.  
 'I have inflated my vacation.'

I should be able to utter this sentence in a literal sense if I want to express that I have inflated my inflatable mattress, because it might be somehow linked to vacations.

To state clear conditions, we first have to decide again which part of the sentence should be adjusted to make the two parts fit in composition: Do we e.g. shift *shoes* to their laces in (151) or do the shoes get affected by something that happens to their laces, i.e. can we use a predicate, which normally only applies to laces, to shoes as well because of that correlation?

In both cases, we need a salient relation between shoes and their laces, according to Nunberg, which should be given, because one is part of the other. We can use the coordination test again to find out which part is adjusted to the rest: Nunberg assumes that if it is really the predicate *are tied* that is affected, we should be able to continue with another predicate applying to the shoes (and not the laces), because we do not change the meaning of the NP, as shown below in (155)–(157).

(155) Billy's shoes were neatly tied but dirty.<sup>93</sup>

(156) ??Billy's shoes were neatly tied but frayed.

(157) Billy tied his shoes, which where dirty (??frayed).

Assuming that *frayed* applies to shoelaces, but not to shoes themselves, we can conclude from Nunberg's test that the NP has not changed its meaning. Another hint is Nunberg's observation that shoes do not necessarily get affected by their shoelaces being frayed, but they do when they are tied (e.g. they might be tighter, fit better etc.). The transferred meaning of the predicate would hence apply to shoes and I will paraphrase it as in (158).<sup>94</sup>

(158) Billy's shoes {are such, that their laces [are tied]<sub>LACES</sub>}<sub>SHOES</sub> /  
 {have laces, which [are tied]<sub>LACES</sub>}<sub>SHOES</sub>.

The same procedure can be applied to my example *Paul steht im Telefonbuch* 'Paul is in the phone book'. First we have to check which part of the sentence is shifted. I will use Nunberg's coordination test and conjoin another predicate applying to telephone numbers in (159) and one applying to persons in (160) to determine which part of the sentence is shifted

(159) Paul steht im Telefonbuch und [ist meistens erreichbar]<sub>PERSON</sub>.  
 'Paul is in the phone book and is reachable most of the time.'

(160) ?Paul steht im Telefonbuch und [ist schwer zu merken]<sub>NUMBER</sub>.  
 'Paul is in the phone book and is hard to memorize.'

<sup>93</sup> Actually, I think the example might be clearer with the adjective *oversized* instead of *dirty*, since it could also be the case that only the shoelaces are dirty.

<sup>94</sup> Nunberg does not specify the enriched predicate for this example here.

Since only the first sentence is acceptable, we can act on the assumption that *Paul* still refers to the person Paul and that the predicate [*steht im Telefonbuch*] 'is in the phone book' is thus transferred to a new predicate that assigns a property of persons, namely something like (161).

- (161) Paul {hat eine Telefonnummer, die [im Telefonbuch steht]<sub>NUMBER</sub>}<sub>PERSON</sub>  
 'Paul has a phone number that is in the phone book.'

Predicate transfer hence shifts the predicate from one for shoelaces or phone numbers to an enriched one for the corresponding shoes or person in these examples. This shows that shifts in general do not only operate on the lexical structure of the noun, as it is the case in terms of the generative lexicon and in a sense also in Bierwisch's two layer semantics, but that they can also alter the context based on world knowledge.

Nunberg also criticizes that theories like the generative lexicon cannot account for the fact that shifts often apply to phrases, as e.g. in the sentence *The South side of Cambridge voted Conservative*, where the whole phrase [*The South side of Cambridge*] is shifted to the people living there. We cannot solve a phrasal process in cases like these, if the conditions for a shift would only come from information in the lexicon (Nunberg 1995: 120), say that we can use the proper name of a town for its inhabitants. Another argument against a purely lexical account like the generative lexicon is illustrated with (162) (ibid.: 120), which brings us back to more systematic cases, here involving the general shifting mechanism often termed "grinding" (derivation of a mass noun from a count noun).

- (162) a. They served meat from corn-fed (Arkansas, happy, beheaded) chickens.  
 b. They served corn-fed (Arkansas, ??happy, ??beheaded) chicken.

In general, we do not have to mention the meat explicitly; we can simply use the expression for the animal. In terms of Pustejovsky's generative lexicon, we would assume that *chicken* has information about the origin of the meat in its qualia, so that the adjectives retain their original meaning and e.g. *corn-fed* can exploit this aspect of the noun's lexical entry and refers to the meat. However, following Nunberg, why can't we use other adjectives applying to the animal then? What is the difference between *beheaded* and *corn-fed* here if they retain their literal meaning? And, how can we account for this? Lexical accounts regarding the variety of readings have problems with these exceptions.

However, Nunberg's salient relation between meat and animal is given in any of the cases in (162) and can hence also not account for these exceptions on its own.<sup>95</sup> Nunberg has stated a general condition for predicate transfer, namely, the salient

<sup>95</sup> It is important to note that this example is also a kind of copredication, even though Nunberg does not mention this: You can only serve the meat, but the adjectives function as an indicator for the animal. I will come back to these examples later on.

relation between the bearers of the concerned properties, which does not depend on a special context and therefore should hold in every situation. However, if we look at these examples, and also at the already mentioned tests (e.g. conjunction with predicates applying to one or the other bearer), we recognize that predicate transfer does not license every shift and can lead to unacceptable examples as shown, for example, in (156) above. Hence, this condition is not enough to make the right predictions and has to be constrained somehow. In the next chapter, I will explain Nunberg's notion of noteworthiness, which represents an additional and complementary condition that is more context-dependent than the salient relation between the bearers, and might also be useful for other mismatches like the deverbal nominal copredication cases.

#### ***6.4 Constraints on predicate transfer***

To show that his condition on metonymic shift (cf. (148)) overgenerates if it stands alone, Nunberg construes the following scenario: Imagine Ringo Starr has a car. He has the same salient relation to his car as every other person owning a car. Now, if he drives this car and gets into a car crash we can felicitously utter (163).

- (163) Ringo was hit in the fender by a truck when he was momentarily distracted by a motorcycle.

What we want to express here is that Ringo owns a car that was hit in the fender while he was driving, and this utterance is possible without explicitly mentioning the car. In this case, the relation leads to an acceptable sentence. However, the salience condition would also predict an example like (164) to be acceptable, which is taken from Nunberg (1995: 114).

- (164) ??Ringo was hit in the fender by a truck two days after he died.

Let us assume that the car still belongs to Ringo given such a short period after his death. Then the salience condition is also given in this example, but still predicate transfer is not licensed since the example is unacceptable. The difference between the two scenarios is that in (163), the clause about being distracted suggests that Ringo is actually driving the car when the crash happens. The important thing is that what affects the car also affects him in this situation, since he might get hurt or annoyed. This is not the case in (164).

To solve this problem, one might be tempted to simply substitute the salient relation between the human being and the car stated by Nunberg by saying that it is not only ownership as assumed by Nunberg above, but something like "drivership". This would also explain the unacceptability of cases like (165), construed by myself:

- (165) Ich bin zugeparkt. #Mein Bruder kommt später.  
'I am blocked in. #My brother will be late.'

I can say that I am blocked in meaning that I own a car that is blocked in, but if I lend the car to my brother, I would not say *I am blocked in* if he is late because of this. However, the situation does not necessarily have to involve the person who drives the car to license predicate transfer here: In the *I am parked out back* situation, the speaker stands in front of the hearer, while the car is parked somewhere. Hence, although he is not in the car in this situation, predicate transfer is possible as we have seen.

The requirements for predicate transfer to be licensed seem to change from context to context although the salient relation is stable across contexts. Hence, what we need is an additional constraint that predicts the right examples and is sensitive to the situation. Take the following questions, for example: In (164), the point was that if Ringo is dead, why should something that happens to his car be important to him? And if we order chicken (meat), does it "help" us to know that the animal it stems from was beheaded as in (162)? On the other hand, if we know that it was corn-fed, the meat might get a new specification that is interesting and noteworthy for us.

In addition to the general salience condition, Nunberg suggests a pragmatic restriction on the creation of new predicates by predicate transfer that requires the enriched version to be noteworthy in the utterance situation. He defines noteworthiness as the new predicate's property of being "useful for the identification or classification of the bearer" (Nunberg 2004: 9). Hence, if I create an enriched predicate for a bearer to which it does not normally apply, the bearer has to acquire a property through this predicate that is noteworthy in this context and thus adds a new classification to the bearer or helps to identify it within a set.

Noteworthiness can relate to a special situation, for example, if we use the name of a dish for a customer in a restaurant or a person for his car in a parking lot situation. In such instances, the predicate helps the waiter to identify a customer or the parking assistant to identify a car, and is thus noteworthy, but the same predicate may no longer be useful for that purpose in another situation or conversation. This kind of noteworthiness is thus very specific to its context of utterance.

However, there are other cases of noteworthiness that do not depend on such a special situation to utter them, which Nunberg illustrates with examples like *I'm in the Whitney* (meaning one of my paintings or the like is exhibited there, cf. Nunberg 1995: 114). According to Nunberg, the enriched predicate or property in this example is not only important for the bearer in the situation where it is uttered, but also beyond: I would acquire a general noteworthy property from the fact that one of my works is there. So, noteworthiness is still involved in such instances, since the salient relation between painters and their works would not suffice to exclude examples like (166) and (167) (the latter stems from Nunberg 1995: 114).

(166) ?Ich bin auf dem Transport beschädigt worden.  
‘I was damaged during transportation.’

(167) ?I am in the second crate on the right.

Nunberg introduced the noteworthiness constraint to restrict the creation of new enriched predicates, but also as a diagnostic for the transfer position as such: If the predicates are sensitive to noteworthiness, this must be because they have transferred senses, although the noun keeps its meaning (Nunberg 1995: 120). Hence, noteworthiness also plays a role in transfer position tests, i.e. if we try to find out which part of a per se mismatching expression is accommodated, as in (156) and (162) repeated here.

(156) Billy’s shoes were tied/ ?frayed.

(162) They served corn-fed (Arkansas, ??happy, ??beheaded) chicken.

It is not noteworthy for shoes, whether their laces are frayed and also not noteworthy for chicken meat, whether the animal it stems from was beheaded. Nunberg is of the opinion that an account where these adjectives keep their original meaning, as assumed in the generative lexicon for example, cannot explain these constraints, because all these adjectives should be able to “look into” the noun’s rich structure to coerce, for example, the meat reading in the example above.

I found another situation in the same style, which came up a lot in the media lately concerning the Wagyu cow. This cow is at least said to be hand-massaged and beer- or sake-fed while listening to Mozart, which is believed to make the beef very tender (and is presumably intended to justify its price). Hence, on the web we find many examples like (168).

(168) Why not try some beer fed, hand massaged wagyu beef instead?<sup>96</sup>

It is not actually the beef that is massaged, but the animal before it is slaughtered. However, since the breeders expect its beef to change in quality through this procedure, it acquires a noteworthy property through the animal’s massage. To demonstrate this, see the following example using the predicate *three-legged* in (169).

(169) ?Why not try some three-legged wagyu beef instead?

The meat is not influenced by the cow having only three legs. Hence we can modify the meat with a predicate normally applying to the animal only if it is noteworthy for the meat (even if it modifies the explicit mass term *beef* here<sup>97</sup>).

<sup>96</sup> [www.flyertalk.com/forum/diningbuzz/717174-whale-meat.html](http://www.flyertalk.com/forum/diningbuzz/717174-whale-meat.html), December 2, 2009 (2 p.m.)

In line with Nunberg, the adjectives *beer fed* and *hand massaged* have a transferred sense here, which enables them to apply to beef as well. This is because the bearers of the properties (the animal and the meat) stand in a salient relation (one is part of the other) and the new predicate assigns a noteworthy property to the latter, that is, the meat.

I will give one last example from Nunberg to illustrate predicate transfer and noteworthiness. In (170)b., we find the container word *stadium* used to express something about the people therein, in accordance with the a. example.

- (170) a. The people in the huge (overflowing, domed, old) stadium rose to give the team a standing ovation.
- b. The huge (overflowing, ??domed, ??old) stadium rose to give the team a standing ovation.

We can create new enriched predicates applying to one of the domains while sharing the lexical form of a predicate applying to the other domain, because the salient relation of “containership” exists between the bearers, i.e. the stadium and the people. Further, the adjectives *huge* and *overflowing*, normally applying to the stadium, are noteworthy for the people here as well: they tell us that they are many, because there is much space. We could even claim that they tell us something about the noise of the standing ovation etc. On the other hand, the architecture of the stadium does not provide a noteworthy property for the crowd, and neither does the fact that it is old.

In addition to the theories by Bierwisch and Pustejovsky, which have dealt with more systematic shifts, I have chosen to introduce Nunberg's theory, since he provides a totally different perspective on mismatches in composition. He shows that their resolution does not only apply to the noun's lexical structure and depends on its flexibility, but also on contextual pragmatic factors, which seem to be general enough to be transferable to other phenomena (I will test this in Chapter 7). However, the generality of such a principle does not only have advantages, particularly because the notion of noteworthiness is not at all a clear-cut concept, as intuitive as the examples discussed here might be. Noteworthiness is a condition for the licensing of predicate transfer, but it also needs its own conditions, to explain what relations qualify as being noteworthy and which do not. Nunberg provides examples with and without noteworthiness, which differ in acceptability, but he does not state clear conditions, apart from saying that an enriched predicate must be useful for the identification or classification of the bearer. More questions, which should be addressed when attempting to transfer this principle to other areas, are:

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<sup>97</sup> However, we could think of hand massaged chicken as well, where we do not have a special expression for its meat. In German, we would simply say *Warum nicht stattdessen biergefüttertes, von Hand massiertes Rind probieren?*, since there is also no special word referring to the meat of a cow .

- What is the status of noteworthiness as a relation: is it a causal relation, a presupposition etc.?
- Does it always depend on a specific situation of utterance?
- Does it always exist between a noun and its predicate?
- If it does not exist between noun and predicate, can it be substituted by other means?

I have considered different kinds of mismatches and shifts so far. Copredication is also a case of sortal mismatch, but not between a noun or pronoun and a predicate as in the main examples by Nunberg, but between two predicates indicating different readings for a single noun. In the next section, I will give an overview of Nunberg's considerations concerning this kind of structure with simple nouns and the resolution of this mismatch in terms of predicate transfer, before I check the applicability of Nunberg's theory for deverbal nominals in Chapter 7.

### 6.5 Copredication with simple nouns

Nunberg's mechanism of predicate transfer is generally designed for different kinds of mismatches with simple nouns, regardless of whether they are systematic or context-dependent ones. Moreover, he applies it to what he calls "sortal crossings" in the syntax, that is, to all kinds of constructions, which "ordinarily impose conditions of identity" (Nunberg 1995: 122). These examples are analogous to what I have called copredication and can involve anaphora and coordination structures, amongst others, as in Nunberg's examples (171) and (172) (indicator marking by myself).

(171) Yeats is [still widely read]<sub>WORKS</sub> though [he has been dead for more than 50 years]<sub>AUTHOR</sub>.

(172) Roth is [Jewish]<sub>AUTHOR</sub> and [widely read]<sub>WORK</sub>.

Here, the identity condition between an antecedent and its anaphor, or within the coordination structure with two verbal phrases applying to the proper name, is violated, but still does not lead to unacceptable examples. Nunberg does not use the term copredication in relation to these examples, but it is obvious that he appeals to the same phenomena I illustrated above: In (171) the anaphoric pronoun *he* should be coreferential with its antecedent *Yeats*, but the predicate *widely read* requires Yeats to have a reading which refers to his works, because a person cannot be read. However, in the second part of the sentence, the pronoun *he* obviously refers to a person, otherwise

we would have used *it* instead, and moreover only something animated can be *dead for more than 50 years*.

Instead of shifting the proper name to a collective, namely his work<sup>98</sup>, after the first indication, or leaving the noun's interpretation open, a predicate transfer solution would suggest a transferred reading for the predicate *widely read*, so that it also refers to people (as the first indicator). Hence, *Yeats* still refers to the person, while *widely read* is enriched to the predicate to be {a person whose books are [*widely read*]}, which enables us to use the pronoun *he*. This is possible because of the salient relation between authors and their work (we all know that works have authors, who created them) and because of the fact that authors acquire a noteworthy property through their works being widely read (e.g. that they become well-known, rich etc.). Hence, in contrast to the other theories, Nunberg fixes the reading of the noun (here a proper name) for the whole sentence and thereby eliminates other readings through the first indication. To avoid a mismatch with the second indicator he does not shift the noun, but he enriches the context.

I have included (171) here in the copredication section even though it involves an additional pronoun because Nunberg uses predicate transfer both for these and other copredication examples not involving a pronoun. Moreover, I think that both phenomena share the same issue, namely having more than one indicator for one nominal form (cf. also Chapter 4).

(172) is such a copredication without a pronoun: Here the proper name *Roth* is assigned the property of being Jewish, which can apply to human beings<sup>99</sup>, while *widely read* would normally modify his works as in the first example. Again, Nunberg uses predicate transfer to create the new property to be {a person whose books are [*widely read*]}, because it is noteworthy for the author. Consequently, we have two properties modifying a person and do not need to shift the proper name's denotation when we add the second predicate *widely read*.

Hence, according to this view, copredication examples would not involve any shift of the noun during the composition of the sentence, as it was the case with Bierwisch's and Pustejovsky's theory, but rather changes in their contexts. I will illustrate this by another example by Nunberg repeated here, which was actually used as a diagnostic for the transfer position, to show that noteworthiness plays a role. It also involves a copredication, although with a DP VP structure instead of coordination.

(162) They [served]<sub>MEAT</sub> [corn-fed]<sub>ANIMAL</sub> chicken.

<sup>98</sup> However, this is only the case if the second conjunct involves the pronoun *he* instead of *it* as in: *Yeats is still widely read even though most of it is out of print*. In the latter case, Nunberg would in fact assume that *Yeats* is shifted to the collective of his works while [*widely read*] maintains its literal meaning and refers to his works.

<sup>99</sup> It can in principle also apply to objects like *Jewish food* or a *Jewish book*, but the latter would always be understood in the way that it is a book by a Jewish author.

The verb *to serve* would require its theme argument to be something which you can serve, in this case the meat of an animal and not the animal itself. However, since the meat itself cannot be corn-fed, only the animal, we have a conflict here as well. Nunberg would assign the mass noun reading to *chicken* thereby referring to its meat for the whole sentence, since he assumes that we enrich the property *corn-fed* here, so that it provides a property of meat, too as we will see below. Consequently, we do not have to change the noun's reading.

In examples (173)–(175), I illustrate analyses of copredication in terms of predicate transfer by stating the enriched predicates. These enrichments are spelled out by myself based on Nunberg's remarks, since his paper only explains the general strategy in short, i.e. that the second predicate is enriched to a property matching the first one.

(173) Yeats is {a person whose books are [still widely read]<sub>WORKS</sub>}<sub>AUTHOR</sub> though [he has been dead for more than 50 years]<sub>AUTHOR</sub>.

(174) Roth is [Jewish]<sub>AUTHOR</sub> and {a person whose books are [still widely read]<sub>WORKS</sub>}<sub>AUTHOR</sub>.

(175) They [served]<sub>MEAT</sub> {meat from [corn-fed]<sub>ANIMAL</sub>}<sub>MEAT</sub> chicken.

As I already mentioned, this procedure represents a totally different approach not only to composition and transfers in general but also to the central phenomenon of this work, namely copredication structures (here with simple nouns). Nunberg introduces shifts that do not necessarily change the reference of the NP or subject. He shows that they can also be applied to copredication, so that there is only one reading determined for the noun in copredication examples in the whole sentence.

In Chapter 7, I will try to apply this strategy to cases with deverbal nominals. However, this new analysis alone still does not account for the unacceptable examples given in Chapter 4: we could also assume that we can adjust one of the indicators there, since there is e.g. a salient relation between events and their results, but in these examples, this transfer is not licensed for some reason. In section 6.4, I have shown that the application of predicate transfer is constrained by noteworthiness, but this was only shown for examples with one indicator by Nunberg. Still, with some modifications for copredication, it might give new insights into some of the unacceptable cases which we were not able to predict while focussing on the noun's lexical structure.

Therefore, my aim for Chapter 7 is to find out which of the cases from Chapter 4 predicate transfer could be useful for and/or whether alterations are necessary in order to make it fruitful for the special case of derived nominals and their readings. I will hence try to apply predicate transfer to three different cases: (i.) examples with one noun and one indicator, (ii.) examples involving anaphoric pronouns accompanied by

indicators selecting a reading different from their antecedent, and (iii.) copredication examples with deverbal nominalizations with special focus on their constraints, since stating the constraints is an issue that we were not able to solve up to now.

## 7. Predicate transfer and deverbal nominals

Nunberg (1995) brought up the consideration that, in a sentence involving a sortal mismatch, we first have to decide which part of the sentence we have to transfer or adjust to the other, whereas, in cases like this, most other theories base their assumptions on the flexibility of the noun as I have shown. A mismatch can exist, for example, between an argument and a predicate, as in the example *I am parked out back*, but also between different predicates applying to the same argument as in copredication. Nunberg developed tests for the transfer position as well as conditions and constraints for applying predicate transfer. In the following, I will examine the applicability of this mechanism to derived nominals and their event-result alternation.

### 7.1 Applying predicate transfer to nominalizations

Nominalizations display a variety of readings as we have seen and there are many ways to disambiguate them in context. When a deverbal nominal is composed with one of these contextual clues it can lead to mismatches with respect to some of the nominalization's readings based on selectional restrictions. The question is: Do deverbal nominals resemble analogous cases with systematic or rather those with situative shifts on simple nouns? I have already observed that their meaning variation is systematic but asymmetric, since the results depend on the event (however, depending on the base verb, not every event has a result), and that they can either refer to participants in the event expressed by the base verb or to different kinds of results. The main concern of this section will be whether predicate transfer is suitable for cases where we only have one modifier or one predicate functioning as the indicator of the nominalization.

Nunberg uses predicate transfer for situative cases like *I am parked out back*, where there is a mismatch between the predicate *parked out back* referring to cars and the pronoun *I* referring to the speaker, i.e. a human being. In addition, Nunberg defines meaning transfer (or “deferred interpretation”) as the phenomenon whereby “expressions can be used to refer to something that isn't explicitly included in the conventional denotation of that expression” (Nunberg 2004: 1). If we look at an example like (176), the question arises whether this also holds for the non-eventive readings of nominalizations, i.e. whether these readings are not part of the conventional denotation and come about by meaning transfer.

- (176) Die Messung ist [auf zwei Stellen genau]<sub>AR</sub>.  
'The measurement is accurate to two decimal places.'

Do we have the same kind of mismatch here as in the *parked out back* example? If this was the case, we would have to assume that the deverbal *-ung* nominal only has the

event as its conventional denotation and that there is a mismatch between this event and the abstract result indicator *auf zwei Stellen genau* ‘accurate to two decimal places’. We would then have to decide whether to shift the nominalization’s reading or to enrich the predicate to an event indicator.

To test this, Nunberg appealed to grammatical congruence (cf. 6.2), that is, he checked whether the number of the noun agreed with the number of the actual intended referent (in this case, this would be the abstract result because of the corresponding indicator) or with the demonstrated thing (this could here be the event as the literal reading of nominalized verbs with *-ung*). However, at first sight it seems to be odd to assume that there was one unique event, e.g. of measuring, that has resulted in several results: since events and their results are dependent, there are presumably always different subevents of measuring if we get several different result values and not only one event. Let us check another example to see whether this observation holds across nominalization forms, as in (177) below.

- (177) Die Absperrungen [sind beschädigt]<sub>RO</sub>.  
 ‘The obstructions of the street are damaged.’

Assuming that we have more than one resultative obstruction object, as in this sentence, the nominalization is congruent with these objects in number. However, there should have been several events that brought them about as well. I do not think that we can get several obstructions out of one obstruction event, at least not without having several subevents, each corresponding to one obstruction. Hence, we cannot decide whether the nominalization’s number depends on the demonstratum (the event) or on the demonstrandum (the result), since there seems to be a correlation between the number of events and their results in the readings of deverbal nominals. In other words, we cannot have a different number for the demonstratum and the demonstrandum as in the *parked out back* example by Nunberg. This test seems only to be applicable to the more context-dependent readings of deverbal nominals, which are analogous to Nunberg’s cases and do e.g. refer to persons: (178) is set in a library context, where the librarian could complain about a customer who has ordered a book by stating this sentence.<sup>100</sup>

- (178) Die Bestellung hat schon wieder [ihren Ausweis vergessen]<sub>AGENT</sub>.  
 ‘The order/reservation has forgotten his/her library card again.’

The nominalization can only be set in the plural as in (179) if there is more than one person referred to with *Bestellung* ‘reservation’ (since he or she has reserved something), who has forgotten his/her card, but not in a situation where there is one person that has made more than one reservation.

<sup>100</sup> I have not used the above example with the *Lungenentzündung* ‘pneumonia’ used for a patient, since it is unlikely that one person has more than one *Lungenentzündung*.

- (179) Die Bestellungen haben schon wieder [ihren Ausweis vergessen]<sub>AGENT</sub>.  
 ‘The orders/reservations have forgotten their library card again.’

This would imply that *Bestellungen* is really shifted to the person, since the nominalization is congruent with the number of persons and not with the number of reservations.

Another test by Nunberg I have already discussed for simple nouns concerns additional predicates that can be conjoined with the sentence. For deverbal nominals, I add a conjunct that applies to events and a conjunct that applies to abstract results to see which of the two leads to an acceptable example, as shown in (180) and (181).

- (180) Die Messung ist [auf zwei Stellen genau]<sub>AR</sub> und war [langwierig]<sub>EV</sub>.  
 ‘The measurement is accurate to two decimal places and was tedious.’
- (181) Die Messung ist [auf zwei Stellen genau]<sub>AR</sub> und (deshalb) nicht [aussagekräftig]<sub>AR</sub>.  
 ‘The measurement is accurate to two decimal places and (therefore) not significant.’

In (180), I added an event modifying predicate which yielded an acceptable example and this would mean that we have to enrich the predicate *auf zwei Stellen genau* ‘accurate to two decimal places’ to a predicate modifying events as well whereas the deverbal nominal preserves its conventional meaning. However, we also get an acceptable example when we add a conjunct referring to an abstract result, as in (181). This would mean, in turn, that the transfer position concerns the NP and that we have to transfer the nominalization from its primary event denotation to an abstract result. Hence, here we can also not judge which one of the two analyses is the right one, except if we test a sentence with context-dependent uses of readings. This is shown in (182) and (183).

- (182) Die Bestellung [hat schon wieder ihren Ausweis vergessen]<sub>AGENT</sub> und ist wie immer [unfreundlich]<sub>AGENT</sub>.  
 ‘The reservation has again forgotten his library card and is unfriendly as ever.’
- (183) ?Die Bestellung [hat schon wieder ihren Ausweis vergessen]<sub>AGENT</sub>, [liegt aber bereit]<sub>RO</sub>.  
 ‘The reservation has again forgotten his library card, but is ready/on hand.’

Here, we can only add a predicate applying to the person, and hence the nominalization must be shifted to this reading, while the predicate retains its standard meaning. Consequently, as far as indicator nominalization combinations are concerned, predicate

transfer is useful to determine a shifting position for situative examples, but not for the more systematic event-result readings, which are focussed in this thesis.

This is also emphasized by the fact that noteworthiness is not significant in cases with only one indicator for a deverbal nominal, presumably because although the event might be the point of origin for shifts to the other readings, it cannot be seen as the only conventional reading for the nominalization (in contrast to a disease used for the patient etc.): If there was the same kind of mismatch between *I* and *parked out back* as between the primary event reading of the nominalization and a result object indicator, we would only be able to create the enriched predicate {has results that [*lie on the table*] } in (184) if the translation acquires a noteworthy property through this.

- (184) Die Übersetzung [liegt auf dem Tisch]<sub>RO</sub>.  
 ‘The translation is on the table.’

It seems to be implausible that this shift is licensed just because it is noteworthy for the translation to lie on the table, since we can conjoin the nominalization with any predicate referring to the result object reading as e.g. *is red, heavy* etc., without paying special attention to its content. Again, this test is only useful for special situation uses: We can only use *Bestellung* ‘reservation’ for a person if this description is noteworthy and useful for the identification or classification of the person, i.e. if it holds in this conversation at the library, but not everywhere else.

Hence, these diagnostics lead to controversial conclusions in the case of non-situative readings of deverbal nominals modified by only one indicator. The reason for this seems to be that the resultative readings available for deverbal nominals do not diverge as much from the conventional event reading as the use of the predicate *parked out back* for a person does.<sup>101</sup> These eventive and resultative readings do not seem to be distinct or independent enough to apply Nunberg’s tests. I have often hinted at the close relation between the event and result readings: Their interpretation in context rather seems to be a case of disambiguation or selection out of a set of readings principally available for the noun, than a use that is not consistent with any conventional denotation of it as e.g. in the case of using the name of a disease to refer to the patient.

In fact, we also find a case in Nunberg’s work which addresses more systematic shifts and which he uses to explain that there are actually examples in which we cannot decide which position is transferred. He introduces an example with a proper name which can be used for a human being, but, in the case of an author or the like, also for his/her works, as in (185) (cf. Nunberg 2004: 358).

<sup>101</sup> However, we can also use nominalizations in “special situation uses” as we have seen, e.g. if we use *Vorbestellung* ‘pre-order’ for the person who pre-ordered something, and for these examples, Nunberg’s tests can be used. However, these readings and uses are not the central phenomenon of this study, since they do not differ considerably from similar simple noun uses.

(185) Stevens is challenging.

Nunberg assumes that we can either transfer *is challenging* to a predicate applying to authors, since they acquire a noteworthy property through their works being challenging. Or one could transfer the proper name to a mass noun referring to his works so that the sentence would rather express something about these works themselves. This shows, that Nunberg's predicate transfer tests might not be designed for systematic cases, at least not if they only involve one indicator.

Examples like (185) are even more systematic than e.g. the event-result alternation of nominalizations, since this alternation does not hold for all *-ung* nominalizations: we do not find a result for every event (e.g. *Beschleunigung* 'acceleration'), but we can do the shift in (185) with every proper name of an author or artist of any kind without a special context and do not recognize this use as extraordinary. The same holds for the general principle of grinding, i.e. when we derive a mass noun out of a count noun, as in the chicken example above, where *chicken* can refer to the animal or the mass noun meat. Nunberg's diagnostics for the transfer position are not significant here, since I can conjoin predicates that refer to the writer and to the works equally well in this case, as I will show in my own examples (186) and (187).

(186) Stevens is [challenging]<sub>WORKS</sub> and [written in an old-fashioned style]<sub>WORKS</sub>.

(187) Stevens is [challenging]<sub>WORKS</sub>, but still very [down-to-earth]<sub>AUTHOR</sub>.

Hence, in cases which are more systematic and context-independent like, for example, nominalization readings or so-called systematic polysemy (i.e. metonymic shifts like grinding, author for works etc.), Nunberg's coordination test does not sort out one of the possible transfer positions. However, he uses a different kind of diagnostics involving pronouns for examples like these, as we will see in section 7.2.

We can draw the conclusion that Nunberg's predicate transfer does not provide clear-cut conditions for the general procedure of fixing a reading for a deverbal nominal (or for some other systematic cases) in context. However, he deals not only with noun indicator combinations, but also with copredication examples and the mismatch between the two indicators there as we will see in the next section.

## 7.2 Applying predicate transfer to copredication

In this section, I will analyse copredication examples with deverbal nominals by using Nunberg's predicate transfer strategy, as illustrated above in 6.5. I will start with examples involving anaphora and summarize Nunberg's strategy for them again in more

detail in order to show which problems this view poses for deverbal cases, before I turn to other copredication cases.

In Chapter 4, I introduced examples where we have a nominal form accompanied by an event indicator, and an anaphoric pronoun that has this nominal form as its antecedent but does not share its reading as in (188) and (189).

(188) Die Sperrung der Schlossallee [wurde am Montag durchgeführt]<sub>EV</sub>. Sie musste die ganze Woche lang [aufrechterhalten werden]<sub>RS</sub>.

‘The blocking of the Schlossallee was conducted on Monday. It had to be maintained all week.’

(189) Die Übersetzung [hat ein Jahr gedauert]<sub>EV</sub>. Sie [steht nun endlich in den Regalen der Buchläden]<sub>RO</sub>.

‘The translation has taken one year. It is now finally on the shelves of the bookshops.’

Although the second indicator has its own language material, so to speak, and does not appear within the same sentence and although we might need a specific treatment for anaphora, I claim that we have almost the same problem here as with the copredication examples without anaphora: We have two competing indicators for only one nominal form. Nunberg deals with the same phenomenon involving non-derived nouns by making use of predicate transfer. Sortal crossings between antecedent and anaphor are in this case resolved by adjusting one indicator to the requirements of the other (Nunberg 1995: 124) as shown in his example below (190).

(190) Yeats is still widely read though he has been dead for more than 50 years.

I have already discussed the analysis of this example in section 6.5, according to which the proper name retained its meaning as referring to a human being, while the predicate *widely read* was transferred to a predicate referring to persons, so that it matches the second indicator *has been dead* (...), which applies to the anaphoric pronoun. Nunberg assumes that the first indicator has to be adjusted and not the second, since we can use the anaphoric pronoun *he*. He suggests an alternative analysis if we substitute the anaphor *he* by *it* as in (191).

(191) Yeats is still widely read even though most of it is out of print.

Nunberg claims that *Yeats* is transferred to a mass term referring to his works here while the predicate *widely read* remains an indicator for these works, because we use the pronoun *it* to refer back to it and the indicator *is out of print*, which refers to the works as well. Although we do not have a copredication in (191), since both predicates indicate a works reading, this example is needed to understand Nunberg’s general strategy.

In both cases, predicate transfer is used, though in different positions, and one of the positions is enriched to avoid sortal mismatches (*Yeats* or *widely read*). Hence, according to Nunberg, the possibility of using certain anaphoric pronouns tells us which position is concerned in these cases. However, this diagnostic method does not help us to decide which part has to be adjusted in examples with nominalizations, since we would use the same pronoun for an event and a result reading, as shown here in (192).

- (192) Die Übersetzung [hat ein Jahr gedauert]<sub>EV</sub>, ...  
 a. aber **sie** [steht nun endlich in den Regalen der Buchläden]<sub>RO</sub>  
 b. also war **sie** [langwierig]<sub>EV</sub>.  
 ‘The translation has taken one year...  
 a. but **it** is finally on the shelves of the bookshops now.  
 b. hence **it** was tedious.’

Furthermore, the dependence on the pronoun gender seems to violate the incremental and linear view on specification and composition I have assumed in this thesis: This would mean that the first indicator does not necessarily determine the reading of the noun in Nunberg’s cases, but that the interpretation of the noun is postponed to the second part of the sentence where the type of anaphoric pronoun determines the reading. Since this view is not compatible with an incremental and linear model of specification and does not work for deverbal nominal readings, I will modify it to account for the cases discussed here. I will then show that Nunberg sticks to incrementality in copredication examples without anaphors as well.

For copredication with a deverbal nominal and an anaphoric pronoun, I claim that the first indicator determines the noun’s reading for the whole sentence, while the second indicator accompanying the anaphoric pronoun has to be adjusted to the requirements of the first one. For (189) that means that the indicator *hat ein Jahr gedauert* ‘has taken one year’ fixes the event reading for the nominalization and the result indicator *steht in den Regalen der Buchläden* ‘is on the shelves of the bookshops now’ will be enriched to an indicator that applies to events as well, as illustrated in (193).

- (193) Die Übersetzung [hat ein Jahr gedauert]<sub>EV</sub>. Sie {hat ein Resultat, das [nun endlich in den Regalen der Buchläden steht]<sub>RO</sub>}<sub>EV</sub>.  
 ‘The translation has taken one year. It has a result that is finally on the shelves of the bookshops now.’

The result object indicator would hence be enriched to a predicate following the pattern [to have a result that...] which can be said of events, so that we actually have two event indicators and the same reading for the nominalization and the anaphor. As we will see in a minute, a similar account is proposed for copredication examples without anaphora.

As I have shown in 6.5, Nunberg uses predicate transfer for copredication examples with simple nouns: He analysed the example *Roth is Jewish and widely read* involving a proper name as referring to a person or to his books since *Roth* is an author and there is a salient relation between authors and their works. However, according to Nunberg, in this example we have to decide which reading will be determined for the nominal for the whole sentence. His strategy is identical to the incremental one I proposed for anaphora cases: the second indicator is adjusted or enriched so that we have two indicators for the same reading. I have shown this in 6.5 with his example *Roth is Jewish and widely read*. According to this view, the sentence is composed incrementally, since the first indicator decides which reading the noun will get and fixes this reading for the whole sentence. These examples are actually quite similar to copredication examples with deverbal nominals, as illustrated in (194).

- (194) Die Absperrung [erwies sich als kompliziert]<sub>EV</sub> und [war instabil]<sub>RO</sub>.  
 ‘The obstruction turned out to be complicated and was unstable.’

Before I turn to the analysis of such copredications, I will show that the predicate transfer analysis can account for different copredication structures, i.e. not only for coordination.<sup>102</sup> Nunberg also gives copredication examples with a DP VP structure, as in (162) repeated here (indication marked by myself).

- (162) They [served]<sub>MEAT</sub> [corn-fed]<sub>ANIMAL</sub> chicken.

We also find this structure with deverbal nominal copredications, where we have one of the indicators as a DP modifier and one in the VP as in (195).

- (195) a. Die [langwierige]<sub>EV</sub> Übersetzung [verkaufte sich millionenfach]<sub>RO</sub>.  
 ‘The tedious translation sold million-fold.’  
 b. Sie [verkauften]<sub>RO</sub> die [langwierige]<sub>EV</sub> Übersetzung millionenfach.  
 ‘They sold the tedious translation million-fold.’

I will now apply predicate transfer to copredications with a deverbal nominal and two competing indicators. The first indicator will tell us whether the nominalization is an event or a result in this sentence, while the second indicator is adjusted to this reading, as shown in (196) and (197).

- (196) Die Absperrung [erwies sich als kompliziert]<sub>EV</sub> und {**ihr Resultat** [war instabil]<sub>RO</sub>}<sub>EV</sub>.  
 ‘The obstruction turned out to be complicated and its result was unstable.’

<sup>102</sup> I will give more possible structures for copredication in 8.2. Predicate transfer is applicable to all of them.

- (197) Die [langwierige]<sub>EV</sub> Übersetzung {**hat ein Resultat**, das sich [millionenfach verkaufte]<sub>RO</sub>}<sub>EV</sub>.  
 ‘The tedious translation has a result that sold million-fold.’

I will henceforth treat examples with anaphoric pronouns and the “pure” copredication examples in an analogous way; that means I assume that we can use predicates applying to events as well for their results, since resultativity provides the salient relation between the two readings here. To be able to do this we create new predicates applying to the other indicated domain (events or results), depending on which reading appears first in the sentence, here within the DP. Since a translation is an object resulting from a translation event, we can create enriched predicates like {*has a result that [sold million-fold]*}, which can be said of events and embeds a result object indicator. Hence, I claim that we do not shift the noun’s reading here or leave it unspecified, but that we instead adjust the context to the requirements posed by the first indicator. I will illustrate this analysis with some more examples with different nominalizations in coordinated and DP VP structures and with different combinations of reading indicators, as shown below in (198) and (199).

- (198) a. Die [wiederholten]<sub>EV</sub> Messungen [belegen]<sub>RO</sub>, dass der Grenzwert nicht überschritten wurde.  
 ‘The repeated measurements show that the critical value was not exceeded.’
- b. Die [wiederholten]<sub>EV</sub> Messungen {haben Resultate, die [belegen]<sub>RO</sub>}<sub>EV</sub>, dass der Grenzwert nicht überschritten wurde.  
 ‘The repeated measurements have results that show that the critical value has not been exceeded.’
- (199) a. Die Beschriftung des Produkts [wurde in letzter Minute handschriftlich durchgeführt]<sub>EV</sub> und [ist schwer lesbar]<sub>RO</sub>.  
 ‘The labelling of the product was conducted handwritten at the last moment and is hard to read.’
- b. Die Beschriftung des Produkts [wurde in letzter Minute handschriftlich durchgeführt]<sub>EV</sub> und {hat ein Resultat, das [schwer lesbar ist]<sub>RO</sub>}<sub>EV</sub>.  
 ‘The labelling of the product was done by hand at the last moment and has a result that is hard to read.’

The same procedure that I applied to events and result object readings in copredication here can be assumed for examples involving result state or abstract result indicators, as in (200) and (201).

- (200) a. Die [sofortige]<sub>EV</sub> Sperrung der A8 wurde heute morgen wieder [aufgehoben]<sub>RS</sub>.  
 ‘The immediate blocking of the A8 was lifted again this morning.’
- b. Die [sofortige]<sub>EV</sub> Sperrung der A8 {**hatte einen Zustand zur Folge**, der heute Morgen wieder [aufgehoben]<sub>RS</sub> wurde}<sub>EV</sub>.  
 ‘The immediate blocking of the A8 led to a state that was lifted this morning.’
- (201) a. Die [hastige]<sub>EV</sub> Auflistung [weist einige Fehler auf]<sub>AR</sub>.  
 ‘The hasty listing shows some faults.’
- b. Die [hastige]<sub>EV</sub> Auflistung {**hat ein Ergebnis**, das [einige Fehler aufweist]<sub>AR</sub>}<sub>EV</sub>.  
 ‘The hasty listing has a result that shows some faults.’

Considering this collection of examples, it might seem as if I always assume an event reading as the only available reading for the nominalization in copredication examples. However, since for me the incremental process of specification is crucial, I should emphasize that the first indicator determines the nominalization’s reading no matter what reading that is: We can also have examples where we first express something about a result object and then about its event.<sup>103</sup> In these cases, the event indicator is adjusted to apply to results as well. This is exemplified in an example from section 4.2, repeated here as (202), where we have three indicators, and in (203) and (204). The b. examples represent the enriched predicate versions.

- (202) Nur wenn man die genaue Bezeichnung des Videosystems kennt, kann man abschließend sagen,
- a. ob die [vorliegende]<sub>RO</sub> Messung [regelmäßig durchgeführt wurde]<sub>EV</sub> und somit [verwertbar]<sub>RO</sub> wäre.  
 ‘You can only tell whether the measurement at hand was conducted regularly and is hence viable if you know the precise name of the video system.’
- b. ob die [vorliegende]<sub>RO</sub> Messung {**das Ergebnis einer Handlung ist**, die [regelmäßig durchgeführt wurde]<sub>EV</sub>}<sub>RO</sub> und somit [verwertbar]<sub>RO</sub> wäre.  
 ‘...whether the measurement at hand is the result of an event that was conducted regularly and is hence viable.’

<sup>103</sup> This would be excluded from Hamm & Solstad (2009), cf. section 5.3, since the result object would not have an event included in its representation, which we could then “reambiguate”.

- (203) a. Die [verrückte]<sub>RO</sub> Verpackung [hatte ein Kind übernommen]<sub>EV</sub>.<sup>104</sup>  
 ‘The crazy packaging was undertaken by a child.’
- b. Die [verrückte]<sub>RO</sub> Verpackung {**kam durch ein Ereignis zustande**  
 [das ein Kind übernommen hatte]<sub>EV</sub>}<sub>RO</sub>.  
 ‘The crazy packaging came about by an event a child had undertaken.’
- (204) a. Die [elegante]<sub>AR</sub> Übersetzung [kostete ihn Nerven]<sub>EV</sub>.  
 ‘The elegant translation cost him a lot of nerve.’
- b. Die [elegante]<sub>AR</sub> Übersetzung {**kam durch ein Ereignis zustande**,  
 das ihn [Nerven kostete]<sub>EV</sub>}<sub>AR</sub>.  
 ‘The elegant translation came about by an event that cost him a lot of  
 nerve.’

This means that the salient relation, which enables us to apply a result predicate for an event, is bidirectional for deverbal nominals, that is, we can also use predicates normally applying to events for the results of these events. This is not the case for Nunberg’s situative predicate transfer examples: Indeed, we can e.g. ascribe a property normally applying to a car as *be parked out back* or *have a flat tire* to its driver, but we cannot reverse this and apply a driver property to the car as in (205).

- (205) ??Er/Es hat heute schlechte Laune/hat es eilig/fährt vorsichtig.  
 ‘He/It is in a bad mood today/is in a hurry/drives carefully.’

One reason could be that the car does not acquire any noteworthy properties here: What goes on with the driver normally has no direct impact on his car. In contrast, events and their results are mutually interrelated and can “borrow” their predicates to the respective other domains by enriching them with well defined extensions, such as [*has a result*] or [*came about by an event*].

To assume predicate transfer for copredication examples implies that we only have one reading for the nominalization per sentence. Moreover, I suppose that if we use an anaphoric pronoun in the next sentence, which is accompanied by a conflicting indicator, the antecedent’s reading will also be preserved. The idea is hence that in these examples there might not really be two readings for the nominalization involved, but only one to which we can apply different kinds of predicates because there is a salient relation between their bearers. This is possible then, because events and results are closely related and we can hence ascribe properties to the former that do actually apply to the latter and vice versa. Hence, we have an alternative analysis for copredication examples with deverbal nominals, which in contrast to other theories neither leaves the

<sup>104</sup> Gloss for (203):

*Die verrückte Verpackung hatte ein Kind übernommen.*

The crazy packaging had a child undertaken

interpretation of the noun open on the sentence level nor shifts the reading of the noun nor inserts templates or operators into its lexical structure during the composition of the sentence.

However, we still have to account for exceptions concerning copredication mentioned in Chapter 4, since up to now, the only prerequisite for an analysis of copredication in terms of predicate transfer is that there exists a salient relation between the two reading indicator domains. If we look at the following examples, some of which I have already mentioned as counterexamples, the question arises why we are not able to adjust the second indicator to match the requirements of the first in these sentences. In other words, why can't we ascribe these result properties to the corresponding event in (91), (206) and (207)?

- (91) ?Die Absperrung [aus Holz]<sub>RO</sub> [dauerte ewig]<sub>EV</sub>.  
'The obstruction made of wood took for ever.'
- (206) ?Die Messung ist [mühsam]<sub>EV</sub> und [auf eine Stelle genau]<sub>RO</sub>.  
'The measurement is troublesome and accurate to one decimal place.'
- (207) ?Die [abblätternde]<sub>RO</sub> Bemalung [war mit roter Farbe durchgeführt worden]<sub>EV</sub>.  
'The scaly painting has been done with red paint.'

In these cases the predicate transfer between event and result predicates should also be licensed as in the above examples as shown, but is for some reason blocked e.g. in (208), a fact that will be addressed in greater detail in Chapter 8.

- (208) ?Die Absperrung [aus Holz]<sub>RO</sub> {kam durch ein Ereignis zustande, das [zwei Stunden dauerte]<sub>EV</sub> }<sub>RO</sub>.  
'The obstruction made of wood came about by an event that took two hours.'

Another question is why the relation between an event and the means to carry it out seems to be not as salient as the one between an event and a result. Otherwise, examples like (89) should be fine and should license predicate transfer from a means predicate to an event predicate.

- (89) ?Die [regelmäßige]<sub>EV</sub> Lüftung der Kinderzimmer ist wichtig, aber [kaputt]<sub>MEANS</sub>.  
'The regular airing/air conditioning of the nursery is important, but damaged.'

Nunberg states one additional, more context dependent constraint on predicate transfer, namely noteworthiness, but he uses this constraint to solve mismatches between a

modifier or predicate and a simple noun, that is, for cases with only one indicator as e.g. *I am parked out back*. As I have shown in 6.1, for the combination between an event or result indicator and a nominalization, noteworthiness does not play a role, since we can combine all sorts of result indicators with the nominalizations without fulfilling the noteworthiness requirement. Take, for example, *die Übersetzung ist fehlerhaft/gut/rot/liegt auf dem Tisch/ist zerfleddert* ‘The translation is faulty/good/red/lies on the table/is tattered’. Nunberg does not mention specific constraints on copredication, where we rather have a mismatch between the second indicator and the first indicator, which already imposed its sortal requirements on the noun.

Hence, I have to modify and advance Nunberg’s noteworthiness constraint in the following to be able to predict acceptable copredication sentences, especially as far as nominalizations are concerned: Deverbal nominal readings also differ from the simple nouns used in Nunberg’s copredication examples concerning their distribution, since they are dependent on the event. This might also play a role for the conveyance of Nunberg’s theory to deverbal nominals. Moreover, in the next chapter I will show that we need additional clear-cut constraints to predict the right examples for copredication.

As I have shown in Chapter 5 and 6, the theories I have dealt with have different strategies to solve copredication, but none of them can account for the whole variety of exceptions for copredication exemplified in 4.2. In Chapter 8, I will now establish a comprehensive picture of different aspects influencing the acceptability of copredication with deverbal nominals.



## 8. Constraints on copredication

In the preceding chapter, I introduced a new predicate transfer analysis for copredication examples with deverbal nominal, which adapted Nunberg's correspondent notion. I have used this general mechanism to shift the meaning of the second indicator in these examples instead of applying to the noun itself. However, my procedure will only be superior to accounts that focus on the noun's flexibility, if it can be constrained in a straightforward way in order to only predict acceptable copredication examples. To accomplish this, I will adapt existing general constraints on predicate transfer, such as Nunberg's notion of noteworthiness, or on copredication with simple nouns and add special ones to specifically explain copredication with deverbal nominals. This will help to understand how we use deverbal nominals in context, how their readings are distributed and also to show the conditions under which copredication can function as an ambiguity test in the sense of Cruse (2000).

As I will show in more detail now, copredications are not at all unconstrained and can be odd for different reasons. In section 8.1 I will start with examples that are unacceptable because of the relation and combination of two indicator types. In 8.2 I will look into different structures in which copredications can occur and into how structural aspects – in addition to semantic and pragmatic factors – influence the coherence of such examples. Lastly, I will establish new pragmatic constraints on copredication in 8.3 based on Nunberg's general notion of notworthiness and discourse coherence concepts.

### 8.1 *Reading indicator constraints*

In Chapter 5, I pointed out that copredication and its failing is often used as a test environment for the autonomy of different readings of a word in the sense of Cruse (2000). He assumes a “continuous scale of degrees of distinctness on which two different interpretations of a word may fall” (Cruse 2001: 36) and argues that if the readings of a noun lead to odd copredication examples, these readings must be autonomous and antagonistic (if this is the case, they are so-called “senses”). They are autonomous, if they for example have distinct sets of sense relations or are truth-conditionally independent (for the latter cf. also footnote 63, page 78). On top of that, they can be antagonistic, if “adopting one construal of the meaning of a word has the effect of inhibiting or suppressing the other possibilities” (ibid.: 38), which makes them odd in a copredication where another reading seems to be indicated that would then not be available anymore. Hence, copredication differentiates the relations between the readings of different lexical items. Further, the choice of readings seems to be decisive for the acceptability of copredication as I will show, since some combinations license it while others fail, i.e. the readings of a word can stand in different relations to each

other. The problem for deverbal *-ung* nominals that remains to be solved is which of their readings are antagonistic and hence constrain copredication, and which examples are odd for other reasons.

Since an *-ung* nominal can refer to such different things as events, abstract and material objects, the relation between two *-ung* readings might vary and influence the behaviour in copredication, cf. the repeated example (89) and (209)–(210). Hence, copredication is not generally available for *-ung* nominals, but depends at least on the specific reading indicators involved.<sup>105</sup>

- (89) ??Die [regelmäßige]<sub>EV</sub> Lüftung der Kinderzimmer ist wichtig, aber [kaputt]<sub>MEANS</sub>.  
‘The regular ventilation of the nursery is important, but broken.’
- (209) ??Die Verwaltung ist [mühselig]<sub>EV</sub> und [oft gestresst]<sub>AGENT/COLLECTIVE</sub>.  
‘The administration is troublesome and often stressed.’
- (210) ??Die teure Reinigung [der Kleider]<sub>EV</sub> [liegt am Kurfürstendamm]<sub>LOC</sub>.  
‘The expensive dry cleaning of the clothes is located at Kurfürstendamm.’

These reading indicator combinations must differ in some respect from the ones in examples (211)–(213), which are acceptable. A theory on copredication should explain why some reading indicators are not compatible or antagonistic and others do not lead to a mismatch, although the readings are all related to the event in a way.

- (211) Die [gestern erfolgte]<sub>EV</sub> Sperrung der Foren [wird bald wieder aufgehoben]<sub>RS</sub>.<sup>106</sup>  
‘The blocking of the forums carried out yesterday will soon be lifted again.’
- (212) Die Übersetzung [hat ein Jahr gedauert]<sub>EV</sub> und kann nun endlich [gedruckt werden]<sub>AR</sub>.  
‘The translation has taken one year and can finally be printed now.’
- (213) Der Redakteur hat die [fehlerhafte]<sub>AR</sub> Bekanntmachung [in den Mülleimer geworfen]<sub>RO</sub>.  
‘The editor has thrown the faulty announcement in the dustbin.’

<sup>105</sup> I say that the acceptability depends on the indicators of the readings involved rather than on the readings themselves, since according to my analysis of copredication (cf. 6.2), there is only one reading available for the nominal. Moreover, I will mark these examples with two question marks from now on, since the constraints I will introduce are not as strong, as we will see in the next sections.

<sup>106</sup> Gloss for example (211):

Die [gestern erfolgte]<sub>EV</sub> Sperrung der Foren [wird bald wieder aufgehoben]<sub>RS</sub>.  
the yesterday carried out blocking of the forums will soon again lifted

In Chapter 5, I showed that we cannot use Bierwisch's representations to explain this differing behaviour of the indicated readings, since he uses the same form of inserted template for results, means, locations etc. and only excludes generic readings from copredication. Pustejovsky has different coercion mechanisms to arrive at these readings (dot object, qualia, introduction), but they do not clearly imply acceptability or unacceptability for copredications involving them.

Since I claim that there is only one reading for the nominalizations in copredication examples, the question is which reading indicators can be enriched in copredication, e.g. to a second event indicator, and which cannot. Nunberg (2004) has stated the condition that there must be a salient relation between the bearers of the two predicates and for deverbal nominals. This means that although all their readings are related to the event, as we have seen, not every relation is salient and hence licenses predicate transfer. If we look at examples (89) and (209)–(210) above, it becomes clear that means, agent/collective and location indicators are not compatible with an event. The question is then what distinguishes the reading categories they belong to from the others for which copredication is possible, or, in other words, why the relation between them and the event is not salient.

To answer this question, I have proposed a list of characteristic features for the readings in Chapter 2, Table 3, so that I am now able to compare them and find possible reasons and generalisations for the unacceptability of some cases. This feature strategy is along the same lines of approaches like Lieber (2004), who decomposes lexical units into semantic atoms in order to be able to describe their semantics. It might be disputable whether these features are the only relevant ones, but for my purposes, namely the description of the ready-made<sup>107</sup> readings, they mirror intuitions on what distinguishes them from each other and to which extent they differ: The features [duration], [dynamic] and [immaterial] were verified to correlate with the selectional restrictions of reading indicators in Chapter 3. Moreover, I have added the features [resultative], [volitional] and [cause event] to be able to distinguish all considered categories.<sup>108</sup>

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<sup>107</sup> I mentioned in Chapter 2.1 that I do not consider their underlying verb semantics or their internal structure, but instead focus on the nominal and its available readings in context.

<sup>108</sup> Besides, there should be languages that make a morphological distinction between the categories covered by *-ung* in German: French *-ment*, for example, tends to express the stative readings, while *-age* rather focuses on the event. I will come back to these language-specific differences in the conclusion.

	Event	Result State	Abstract Result	Result Object	Means	Agent/ Collective	Location
duration	+	+	–	–	–	–	–
dynamic	+	–	–	–	–	–	–
immaterial	+	+	+	–	–	–	–
resultative	–	+	+	+	–	–	–
volitional	–	–	–	–	–	+	–
cause event	–	–	–	–	+	+	–

Table 3. Categories for *-ung* nominals

The classification in Table 3 is not a thematic role grid, but rather an ontology for the readings of *-ung* nominals: The features characterize, but also distinguish, the available reading categories with regard to a scale of “distance” from the event. For example, an event and a result state differ in that the event is dynamic and the state is not while both have duration and are immaterial.<sup>109</sup> Abstract results still share one event feature, namely being immaterial, while, starting from the result object, the readings to the right do not have any features in common with the event. To view this table as a scale leads to the description of a category like location only by negative features: This is an intended side-effect because the event is the point of origin for deverbal nominals and represents the reference point here.

Moreover, I introduce additional features here to distinguish the readings among themselves: Result objects and means are both material and can hence be combined with extensional verbs as *kiss* or *touch*, but only the latter is involved in the event itself, while the former comes about by it and is hence resultative. The difference between pre-existent<sup>110</sup> and resultative entities actually distinguishes two bigger groups of readings, namely results on the one hand and participants in the event on the other.

Among the participants, there are two reading categories that actually cause the event, namely agents or collectives, which are volitional, and also the means, which cause the event together with a (volitional) agent. This feature is inspired by Reinhart’s (2002) theta system, but specifies her “cause change” feature towards the event. As a result object can also cause something (e.g. the street to be blocked), but it does not cause the event itself, it is crucial here to distinguish it not only from result objects, but also from locations.

The system in Table 3 will contribute to prove that copredication is not a characteristic of specific nominals in general, but is licensed by much more complex factors. Based on Table 3, I will now show which characteristics license copredication: If we compare

<sup>109</sup> I have chosen “immaterial” instead of Lieber’s (2004) “material” here because it is characteristic for the most common reading, the event and should therefore not be described as a lack here.

<sup>110</sup> In section 2.2, I showed that some subtypes of result objects actually already exist before the event is carried out, but they are pre-existent in another form (e.g. in the case of *Absperrung* ‘obstruction’ and *Lieferung* ‘delivery’), while the event casts them into their new form.

two readings that lead to unacceptable examples as e.g. event and means in (89), we recognize that they do not share a positive feature: Events have duration and are immaterial, for example, whereas means are material and do not have duration. The same holds for example (209) involving an event and a collective indicator: the only positive features that collectives have in the grid in Table 3 concern volition and cause event – both (positive) features do not apply to events.

With regard to event nominals, this positive feature sharing constraint predicts that if the first indicator in a copredication example fixes the nominalization to refer to an event, we cannot use a means, agentive/collective or location indicator to apply it to this event as well. This is shown in (89) and (209)–(210). The relation between the latter readings and the event is that they participate in the event, but this relation does not license predicate transfer e.g. from a means indicator to an event indicator.

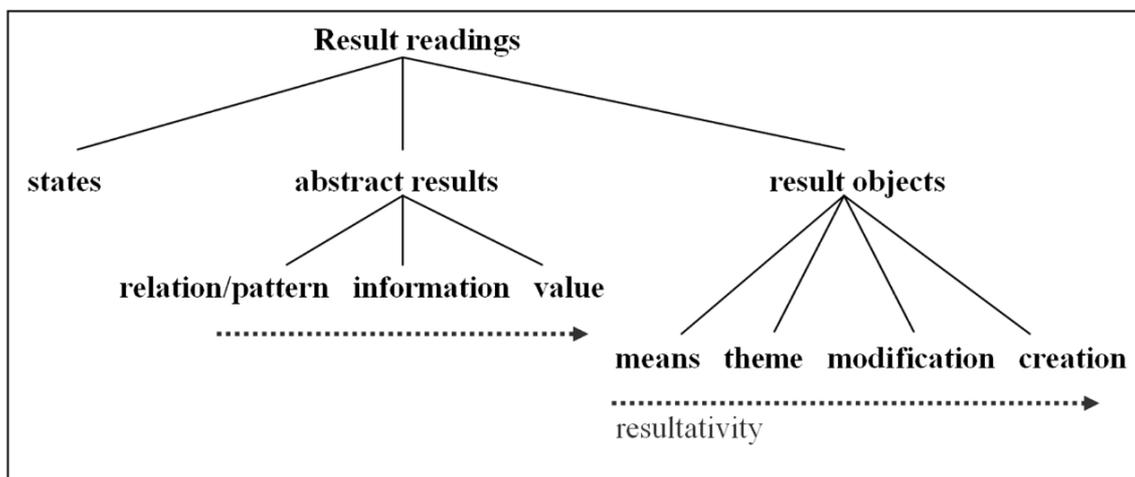
However, this constraint would also predict that we cannot combine events and result object indicators: Result objects are material, they do not have duration and are also not dynamic, and hence they do not share any positive features with the event as the case was with the pre-existent participant readings. What distinguishes result object readings from these readings is that they are not pre-existent (in this form, cf. foot note 110 and section 2.2), but result from the carrying out of the event. This resultative relation can compensate for the lack of a shared positive feature and enables us to apply predicate transfer even between two such different categories as events and objects. This is shown in example (214).

- (214) Die [komplizierte]<sub>EV</sub><sup>111</sup> Spezialanfertigung [ist nicht umtauschbar]<sub>RO</sub>.  
 ‘The complicated custom product<sup>112</sup> is nonreturnable.’

A custom product or fabrication really is created in the course of the event and is not pre-existent, not even in a different form. However, in section 2.2 I demonstrated that there are different subtypes of the result object category, of which created objects are only one (albeit the most resultative) form as illustrated again in Figure 1.

<sup>111</sup> Though it might not seem to be the perfect event indicator at first sight, I am of the opinion, that *kompliziert* ‘complicated’ always refers to events related to the noun they modify: a complicated task is complicated to solve, a complicated machine is complicated to handle etc.

<sup>112</sup> Literally: ‘special fabrication’

Figure 1. Result readings for *-ung* nominals

Since the resultative relation is so strong that predicate transfer between events and objects is only licensed if it is given (e.g. pure means are also objects, but do not come about by the event), it is important to check whether the level or degree of resultativity plays a role for copredication. Examples (215)–(217) involve result objects of the following types: modification, theme and means.

- (215) Die Übersetzung [hat zwei Jahre gedauert]<sub>EV</sub> und [ist jetzt für 20 Euro im Buchhandel erhältlich]<sub>RO(modification)</sub>.  
 ‘The translation took two years and is now available in book shops for 20 euros.’
- (216) Die Ausgrabung [wurde gestern abgeschlossen]<sub>EV</sub> und [ist ab nächsten Monat im Pergamon Museum zu sehen]<sub>RO(theme)</sub>.  
 ‘The excavation was finished yesterday and will be on display in the Pergamon museum starting next month.’
- (217) Die [hektische]<sub>EV</sub> Verpackung [sieht schlampig aus]<sub>RO(means)</sub>.  
 ‘The hectic wrapping looks sloppy.’

All these examples involving result objects of different kinds are acceptable, though to a different extent: modificational result objects as in (215) are fine in copredication, themes as in (216) are also not unusual, but resultative means as in (217) are not totally accepted by all native speakers. This is not surprising considering that the resultative feature is crucial for the licensing of predicate transfer with objects: since the object does not share any positive feature with the event, it is only acceptable in copredication with it if it results from said event. As claimed in 2.2, this resultativity can be given to different degrees and the more resultative we conceive an object to be, the more acceptable the copredication will accordingly be. Still, copredication examples with event and resultative means with a low degree of resultativity, as in (217), are much

better than events combined with pure means, which are objects that do not result from the event, as in (218).

- (218) ??Die [ständige]<sub>EV</sub> Heizung der Räume [geht oft kaputt]<sub>MEANS</sub>.  
 ‘The constant heating of the rooms is often broken.’

It follows that the continuum of resultativity I have described for result object readings (cf. section 2.2) is mirrored in copredication: event nominals and object indicators can only appear in a copredication if the object results in some way from this event, and, the more resultative this object appears to be, the easier it is to accept the copredication.

The observations about the different categories made so far again hint at the fact that Table 3 is not only a grid, but also a scale of similarity: the farther on the right the categories are, the more they differ from the event. It follows that the acceptability of copredication examples where an event is combined with one of them depends on their position on the scale. The boundary for acceptable event copredications is the (pure) means category: indicators for resultative means as *Verpackung* ‘wrapping’, *Füllung* ‘filling’ etc. (cf. section 2.2 for more details) can still undergo predicate transfer to event indicators, while indicated pure means as *Heizung* ‘heating’ are definitely odd in combination with events. Hence, shared features and resultativity play a role for copredication, as stated in Constraint 1.

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**Constraint 1**

Copredication requires positive feature sharing and/or a resultative relation between the indicated reading categories.

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One could object that we do not need positive feature sharing for copredication then, but only a resultative feature for the second indicated reading. Still, positive feature sharing has additional effects: the degree of resultativity does not play a role for abstract results, because they are not only resultative, but also share the immaterial feature with the event, as becomes obvious in (219)–(221), which are equally acceptable.<sup>113</sup>

- (219) Die [unvorsichtige]<sub>EV</sub> Messung war [nur auf eine Stelle genau]<sub>AR(value)</sub>.  
 ‘The negligent measurement was only accurate two one decimal place.’
- (220) Die [langwierige]<sub>EV</sub> Übersetzung hat [keine Fehler mehr]<sub>AR(info)</sub>.  
 ‘The tedious translation has no faults left.’
- (221) Die [visionäre]<sub>AR(pattern)</sub> Bebauung ist [gestern abgeschlossen worden]<sub>EV</sub>.  
 ‘The visionary construction was completed yesterday.’

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<sup>113</sup> In 2.2 (Figure 1), I have assumed that values, for example, are more resultative than informational objects as translation, since they really come into existence through the measuring event.

Since abstract results have additional factors that support copredication, it is sufficient if they are resultative at all, whereas the degree of resultativity is only decisive for result objects, which do not share any feature with the event.

Moreover, up to now I have only shown which indicators can be combined with an event reading and why, but for a full picture, combinations between say a result state and an agent or collective indicator should also be considered. Examples (222)–(228) will show whether two reading indicators out of the non-event categories can be combined in a copredication. First, I will try to combine different results, then different participants, and finally a result with a participant.

### Results:

- (222) Die [bestehende]<sub>RS</sub> Verhüllung des Reichstags [muss vorzeitig abgenommen werden]<sub>RO</sub>.<sup>114</sup>  
‘The existing wrapping of the *Reichstag* has to be removed ahead of time.’
- (223) Die Übersetzung [auf dem Tisch]<sub>RO</sub> [ist voller Fehler]<sub>AR</sub>.  
‘The translation on the table is full of flaws.’
- (224) Die Bepflanzung im Neubaugebiet [wurde lange diskutiert]<sub>AR</sub> und [besteht nun seit einem Jahr]<sub>RS</sub>  
‘The planting in the development area was discussed for a long time and exists for one year now.’

### Participants:

- (225) ??Die Fernsteuerung<sup>115</sup> [ist immer übermüdet]<sub>AGENT</sub> und [geht deshalb oft kaputt]<sub>MEANS</sub>.  
‘The remote-control is always tired and therefore often gets damaged.’
- (226) ??Der Chef [ist in]<sub>LOC</sub> der Fertigung, welche gerade [Pause macht]<sub>COLLECTIVE</sub>.  
‘The chef is in the fabrication, which is taking a break right now.’

### Result and participant:

- (227) ??Die Verletzung, die [sehr lange dauerte]<sub>RS</sub>, [beschwerte sich]<sub>AGENT</sub>.  
‘The injury, which lasted very long, complained.’

<sup>114</sup> This example might be slightly worse than the other acceptable ones, again for involving a resultative means, which is judged worse than other result objects as we have seen in this section, but it is still much better than the examples marked with question marks.

<sup>115</sup> I marked (227) with two question marks, even though it sounds worse than (228), for example. The same holds for (225). One reason is that these agent readings are very context dependent and not as conventionalized as the agentive readings of *Verwaltung* ‘administration’, *Bedienung* ‘service’ or *Leitung* ‘management’, which I could not use instead because they do not have a result state reading.

- (228) ??Die Verwaltung [ist lückenlos]<sub>AR</sub> und deshalb [schon im Urlaub]<sub>COLLECTIVE</sub>.  
 ‘The administration is complete/seamless and therefore already on vacation.’

These examples show that we cannot copredicate result reading indicators and participant reading indicators (i.e. for means, agent/collective and location), since they do not share positive features. The resultative feature does not play a role here and shows that we need Constraint 1. However, we can apply indicators for readings belonging to the resultative group to other readings in this group since they share positive features, for example, the resultative one.

In contrast, we cannot use participant indicators for other participant readings, since they only share negative features. One exception concerns the categories means and agent/collective: they share the positive feature of “cause event” and hence should be fine in copredications, but they are not, as (225) shows. The reason for this might be that they are both involved in causing the event, but in different ways: The means can only cause an event together with the agent<sup>116</sup> and hence we might not be able to ascribe properties of the causing agent and the causing means to the nominalization at the same time. Constraint 1’ states this exception and particularises Constraint 1.

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### **Constraint 1’**

Different causers of the event cannot be copredicated

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Table 11 summarizes the possible reading indicator combinations for *-ung* nominals in copredication based on Table 3 and Constraint 1 and 1’.

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<sup>116</sup> This is in analogy to an observation by Tanja Reinhart in her 2002-paper on theta roles: she shows that instruments can only cause change together with an agent, while pure causes do not have an agent. In my opinion, this dependency on an agent is also gradual (cf. section 2.2): a pure means has to be switched on, or plugged in (*Leitung* ‘wire’, lit. :‘circuit’) etc., but then it works independently, while a resultative means (*Zahnfüllung* ‘tooth filling’, *Verpackung* ‘wrapping’ etc.) really needs a very specific effort by the agent to fulfil its function and does not actively fill or wrap something, in other words, it does not cause its event.

	EV	RS	AR	RO	MEANS	AG/COLL	LOC
EV	✗ <sup>117</sup>	✓	✓	✓	—	—	—
RS	✓	✗	✓	✓	—	—	—
AR	✓	✓	✗	✓	—	—	—
RO	✓	✓	✓	✗	—	—	—
MEANS	—	—	—	—	✗	—	—
AG/COLL	—	—	—	—	—	✗	—
LOC	—	—	—	—	—	—	✗

Table 11. Reading indicator combinations

However, even if we have two combinable reading indicators according to Table 11 (based on constraint 1), we do not always get fully acceptable examples, as shown in (229), for example.

- (229) ?Die [gute]<sup>118</sup><sub>AR</sub> Mischung der Farben [erfordert große Sorgfalt]<sub>EV</sub>.  
 ‘The good mixture of the colors requires great care.’

The event reading is rather uncommon for *Mischung* ‘mixture’ (maybe blocked by the prefixed *Vermischung* ‘ver-mixture’). Independent of the reading combination, one of the readings indicated by the two predicates can be so common for this nominalization to the extent that it might almost block another reading. The currency of both readings is hence a prerequisite for copredication.

For a full picture, I will add two readings that I did not consider in this work so far, since they are not specific for deverbal nominals and cannot appear in copredication, namely generic and fact readings. I repeat example (113) by Bierwisch (1983) here, to show that generic (here called “principle”) readings come with a general restriction for copredication<sup>119</sup>, which also holds true for deverbal nominals: In (230) we have a generic reading of *Messung* ‘measurement’ which is said to be important in general (therefore the theme does not have a definite determiner) and cannot be combined with another non-generic reading.

<sup>117</sup> ✗: two indicators of the same category can be combined, but this is not copredication in my understanding of the term, since there is no sortal conflict involved: *Die [wertvolle]<sub>RO</sub> Ausgrabung [ist im Museum ausgestellt]<sub>RO</sub>* ‘the precious excavation is on display at the museum’.

<sup>118</sup> If we would check what kind of indicator *gut* ‘good’ is by considering its collocations in a corpus, as I did for some indicators in Chapter 3, we would presumably find all kinds of noun readings (cf. Pustejovsky 1995). Still, in combination with the noun *Mischung* ‘mixture’ I think good modifies the result reading, since a good mixture depends on the amount of the different ingredients and does not focus on the good conduction of the event (in this latter case I would rather use *Vermischung* ‘intermixture’).

<sup>119</sup> However, there seem to be exceptions if we use a pronoun as for example in *Dogs are intelligent. They know how to open my back-door*. Still, it is not clear how these examples are constrained, for example by ordering and coherence.

- (113) ??Die Schule, die [aus der Geschichte Europas nicht wegzudenken ist]<sub>PRINCIPLE</sub>, [langweilt ihn nur gelegentlich]<sub>EVENT</sub>/[liegt neben dem Sportplatz]<sub>BUILDING</sub>/[hat einen größeren Betrag gestiftet]<sub>INSTITUTION</sub>.  
 ‘(The) school without which European history would not be the same only bores him from time to time/lies next to the sports field/has donated a major amount.’
- (230) ??Die Messung von Strahlung [ist wichtig]<sub>GENERIC</sub> und [diesmal sehr genau]<sub>AR</sub>/und [wurde gestern durchgeführt]<sub>EV</sub>.  
 ‘The measurement of radiation is important and very precise this time/and was conducted yesterday.’

In (231) we have a fact reading (the fact that the proposal was rejected made me wonder), which also cannot be combined with a result reading (for example), assuming that we wonder about the rejection itself not just about its lying there.

- (231) ??Die[auf dem Tisch liegende]<sub>RO</sub> Ablehnung[hat mich gewundert]<sub>FACT</sub>.<sup>120</sup>  
 ‘The rejection that lies on the table made me wonder.’

Melloni (2007: 117–118, based on observations in Asher 1993 and Pustejovsky 1995) assumes that factive readings are not lexically available readings (which is why I will not deal with them), but sense extensions made possible by the vagueness of action nominals and coerced by factive predicates such as *hat mich gewundert* ‘made me wonder’ here (we could paraphrase this by saying “The fact that I got this rejection, which lies on table made me wonder”). Nevertheless, she claims that they can appear in copredication, which seems at least to be true for combinations with event readings, as in (232), since they are very similar, for example, in argument structure.

- (232) Er [informierte mich über]<sub>FACT</sub> die Schließung, welche [gestern stattfand]<sub>EV</sub>.  
 ‘He informed me of the closing, which took place yesterday.’

In the next sections I will show that there are additional factors that support or complicate copredication, even if we deal with two compatible reading indicators according to Table 11.

<sup>120</sup> Gloss for example (231). :

??Die [auf dem Tisch liegende]<sub>RO</sub> Ablehnung [hat mich gewundert]<sub>FACT</sub>  
 ??The on the table lying rejection has me wondered

## 8.2 Structural constraints

According to Table 11, we should be able to combine different result types, for example, an abstract result nominal reading of the nominalization *Messung* ‘measurement’ with a result object indicator as in (233).

- (233) ?Die Messung [ist nur auf eine Stelle genau]<sub>AR</sub> und [liegt im Müll]<sub>RO</sub>.  
 ‘The measurement is only accurate to one decimal place and is in the trash.’

However, this example is odd, although I would certainly judge it better than the marked examples in 8.1 (which included incompatible readings). It is a perfectly well-formed sentence that includes a deverbal nominal and two indicators, one indicating an abstract result reading and one indicating a result object reading, just like other examples from 8.1, for example (223), which were acceptable. How is it then possible, that (233) is rather odd? One thing that comes to mind is the structure of the sentence: we have coordination here. But how can this structural difference lead to a less acceptable, but well-formed copredication? In this section, I will try to state this question precisely.

First of all, I will give a descriptive overview on the influence of a copredication’s structure on its acceptability. As we will see, there are different constructions in which the two indicators can be positioned: they can appear as an adjective, as a VP, within a relative clause or applying to a pronoun. Further, these options can be combined in different ways. In (233), repeated here, we have a coordination structure of two VPs (the indicators are marked with indices here). In (234)–(236) I exemplify other possible constructions with the same nominalization and the same indicators to see whether they differ in acceptability.

- (233) **DP VP<sub>Ind1</sub> and VP<sub>Ind2</sub>**  
 ?Die Messung [ist nur auf eine Stelle genau]<sub>AR</sub> und [liegt im Müll]<sub>RO</sub>.  
 ‘The measurement is only accurate to one decimal place and lies in the trash.’
- (234) **Det Adj<sub>Ind1</sub> N VP<sub>Ind2</sub>**  
 Die [nur auf eine Stelle genaue]<sub>AR</sub> Messung [liegt im Müll]<sub>RO</sub>.  
 ‘The measurement only accurate to one decimal place lies in the trash.’
- (235) **Det. N RC<sub>Ind1</sub> VP<sub>Ind2</sub><sup>121</sup>**  
 Die Messung, die [nur auf eine Stelle genau ist]<sub>AR</sub>, [liegt im Müll]<sub>RO</sub>.  
 ‘The measurement that is only accurate to one decimal place lies in the trash.’

<sup>121</sup> I will still call all of these structures copredication, since they all pose the same problem: one nominal form has two reading indicators.

- (236) **DP<sub>i</sub> VP<sub>Ind1</sub>. Pronoun<sub>i</sub> VP<sub>Ind2</sub>**  
 Die Messung [ist nur auf eine Stelle genau]<sub>AR</sub>. Sie [liegt im Müll]<sub>RO</sub>.  
 ‘The measurement is only accurate to one decimal place. It lies in the trash.’

As suggested by the question mark in (233), I consider this construction the least acceptable, while the others are fine with a subtle preference for the pronoun structure in (236)<sup>122</sup>, where the second indicator has its own language material to apply to. I will consider this latter structure only for the sake of completeness and as a comparison element, since I won’t be able to give a specific account for anaphora here. As I show in this section, the acceptability of copredication examples with deverbal nominals does not only depend on the reading indicators involved (cf. section 8.1), but also on the placement of the indicators within the sentence structure; the same two indicators for a specific nominalization can be combined in different structures, as in (233)–(236), which are not necessarily equally acceptable.

I assume that reintroduction with a pronoun makes it easier to use another competing indicator indirectly also referring to its coreferent, the deverbal nominal, as in (236), since the two indicators appear in different sentences. Moreover, the subordination of one indicator through the use of a relative clause as in (235) also supports copredication since the relative pronoun introduces the discourse referent again, so to speak, in a manner similar to the pronoun, and hence adds to the separation of the two indicators. Thereby, the distinction between restrictive and non-restrictive relative clauses does not make a difference with respect to acceptability, as examples (237) and (238) show.

- (237) Jede Messung, [die nur auf eine Stelle genau ist]<sub>AR</sub>, kann [weggeworfen werden]<sub>RO</sub>.  
 ‘Every measurement that is only accurate to one decimal place can be thrown away.’
- (238) Ich habe die Messung [weggeworfen]<sub>RO</sub>, welche (übrigens) [nur auf eine Stelle genau ist]<sub>AR</sub>.  
 ‘I have thrown away the measurement, which is only accurate to one decimal place (by the way).’

Subordination seems to be generally preferred over coordinated conjunction in copredication, since it can also be found for simple nouns, as we have seen in Bierwisch’s (1989) examples (114) and (107) repeated here.

- (114) ?Die Schule liegt neben dem Sportplatz und hat einen größeren Betrag gestiftet.  
 ‘The school lies next to the sports field and has donated a major amount.’

<sup>122</sup> In pro drop languages this structure might even be more similar to the other copredication structures.

- (107) Die Schule, die neben dem Sportplatz liegt, hat einen größeren Betrag gestiftet.  
 ‘The school that lies next to the sports field has donated a major amount.’

The parallelism effect of two reading indicators in a sentence created by coordination structures (cf. (114) and (233) above) is marked with regard to copredication, although it might not be totally unacceptable, compared, for example, to examples with incompatible readings as in 8.1. Besides, we can have other, worse coordinating structures, e.g. when we coordinate two NPs as in (53)<sup>123</sup> or two adjectives as in (239), which emphasizes their general markedness.<sup>124</sup>

- (53) **[[Det Adj<sub>Ind1</sub> N and NP] VP]**  
 ?Die [bunte]<sub>RO</sub> Verpackung und [Versendung]<sub>EV</sub> der Pakete ist wichtig.  
 ‘The colourful wrapping and sending of the packages is important.’
- (239) **Det Adj<sub>Ind1</sub> Adj<sub>Ind2</sub> N VP**  
 ?Die [rechtzeitige]<sub>EV</sub>, [sicher verpackte]<sub>RO</sub> Lieferung ist wichtig.  
 ‘The punctual safely wrapped delivery is important’

However, conjunctions are not generally odd with copredication, since embedding one indicator under a subordinating conjunction is acceptable, as shown in (240) and (241), but this presumably also depends on the anaphoric pronoun introduced here.

- (240) Obwohl die Messung [auf drei Stellen genau ist]<sub>AR</sub>, [liegt **sie** im Müll]<sub>RO</sub>.  
 ‘Although the measurement is accurate to three decimal places, it lies in the trash.’
- (241) Die Messung [ist auf drei Stellen genau]<sub>AR</sub>, aber **sie** [liegt im Müll]<sub>RO</sub>.  
 ‘The measurement is accurate to three decimal places, but it lies in the trash.’

Moreover, we find acceptable structures, such as (234) repeated here, where we have one indicator in the form of an adjective and another as a VP, but no subordination or anaphor preventing parallelism.

<sup>123</sup> I have used this example in 3.2 to show that if one of the conjuncts in this structure can only have one reading as *Versendung* ‘sending’ (event), it can be seen as an indicator for the second nominal, which must share its reading. Hence, this is also a copredication, although with a nominal kind of indicator.

<sup>124</sup> If we use two indicators of the same structure, we have to add a third one to complete the sentence. I chose a neutral one like *ist wichtig* ‘is important’, which could refer to both readings since I want to focus on the conflict between the other two indicators. Moreover, the examples I have discussed in this chapter so far were congruent with my assumption, that the interpretation of the deverbal nominal is fixed linearly, i.e. the first indicator decides on the reading for the whole sentence, and inside out, for example first within the DP. To have two indicators in front of the noun they modify opens up new questions between syntax and processing that I cannot fully solve here.

- (234) **Det Adj<sub>Ind1</sub> N VP<sub>Ind2</sub>**  
 Die [nur auf eine Stelle genaue]<sub>AR</sub> Messung [liegt im Müll]<sub>RO</sub>.  
 ‘The measurement only accurate to one decimal place lies in the trash.’

The fact that we have two different indicator forms, an adjective and a verb phrase here, seems to support copredication here and makes sure that the two indicators are not too close. In contrast, when we have two adjectives as in (239) or other coordinations, for example of two VPs as in (233), copredication is odd. Consequently, two different indicator forms should be used, for example a verb phrase and a relative clause, a verb phrase and a pronoun etc.

After having checked these possibilities, I conclude that there are cases where the structure in which the two indicators for different kinds of readings appear plays a role for the acceptability of copredication: We prefer to keep different indicators apart in copredication, e.g. by subordination, as stated in Constraint 2a. Moreover, we should use two different forms for the indicators, e.g. an adjective and a verb within a relative clause, as stated in 2b.

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**Constraint 2a**

Coordinated conjunction between the competing indicators impedes copredication

**Constraint 2b**

Competing indicators should appear in different forms

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In fact, if copredication examples adhere to these constraints, they appear to be more cohesive than if they do not, so that we accept the apparent mismatch between indicators more easily.

However, it is important to note that avoiding coordination or using different forms only supports copredication if the two reading indicators are compatible according to Table 11. This becomes obvious if we reinvestigate the examples from section 8.1 for their structure. The coordinated example (228), repeated below, remains unacceptable if we use two different indicator forms as in (242). As we have seen, other examples with incompatible readings are also odd even though they use subordination, as in (227), also repeated below.

- (228) ??Die Verwaltung [ist lückenlos]<sub>AR</sub> und deshalb [schon im Urlaub]<sub>COLLECTIVE</sub>.  
 ‘The administration is complete/seamless and therefore already on vacation.’

- (242) ??Die [lückenlose]<sub>AR</sub> Verwaltung [ist schon im Urlaub]<sub>COLLECTIVE</sub>.  
‘The complete/seamless administration is already on vacation.’
- (227) ??Die Verletzung, welche [sehr lange dauerte]<sub>RS</sub>, [beschwerte sich]<sub>AGENT</sub>.  
‘The injury, which took very long, complained.’

The anaphoric pronoun structure seems to be the most flexible one, but still it is not unconstrained,<sup>125</sup> since examples violating Constraint 1 remain odd if we add an anaphor (cf. (243)) – a fact that could be interesting for anaphora theories. Accordingly, Constraint 2a and 2b are only relevant for compatible reading indicators.

- (243) Die Verwaltung war [lückenlos]<sub>AR</sub>. #Sie [ist schon im Urlaub]<sub>COLLECTIVE</sub>.  
‘The administration was complete/seamless. It is already on vacation.’

Constraint 2a is a general constraint that also plays a role for competing readings of simple nouns as *school*, but there are aspects concerning (temporal) structure which especially hold for deverbal nominals and which I will discuss now. Up to now, I have only looked at result combinations, which can be present simultaneously, but should not appear to be parallel. In copredications with a fixed event and a result indicator applying to it, coordination brings in another aspect, namely coexistence. The coordination of event and result indicators accompanied by present tense forms is not only less acceptable, but impossible, since the result cannot simultaneously exist with its event. This is shown in (244) and (245) (this is in contrast to abstract results and result objects, which are a conceptual unit and can coexist).

- (244) ??Die Messung ist [mühsam]<sub>EV</sub> und [auf drei Stellen genau]<sub>RO</sub>.  
‘The measurement is cumbersome and accurate to three decimal places.’
- (245) ??Die Ausgrabung der antiken Krüge ist [kompliziert]<sub>EV</sub> und [im Museum ausgestellt]<sub>RO</sub>.  
‘The excavation of the ancient jugs is complicated and exhibited at the museum.’

If we say that a measurement is cumbersome or that an excavation is complicated, it cannot be finished yet and hence we cannot say how accurate the result of the measurement is at this point or that the result of the excavation is exhibited somewhere. Hence, it is not only parallelism (due to coordination) that makes these examples odd, but primarily coexistence, that is, subordinated and pronoun structures as in (246) and (247) cannot license examples like these even though they involve compatible indicators.

<sup>125</sup> The pronoun structure is also constrained as far as reading combinations with generic readings are concerned. For an account to type shifting anaphora and genericity see ter Meulen (1995).

- (246) ??Die Messung, welche [mühsam ist]<sub>EV</sub>, ist [auf drei Stellen genau]<sub>AR</sub>.  
‘The measurement, which is troublesome, is accurate to three decimal places.’
- (247) Die Messung [ist mühsam]<sub>EV</sub>. #Sie ist [auf drei Stellen genau]<sub>AR</sub>.  
‘The measurement is troublesome. It is accurate to three decimal places.’

However, this constraint concerning coexistence with the event does not hold for all results, since, as I have shown in section 2.2 (and 8.1), there are different amounts of resultativity involved, which is in turn related to their status as being pre-existent in a different form or created. A result state<sup>126</sup> or an abstract result value (as in the measurement example above) cannot coexist with the event, and the same holds for the pattern reading of abstract results e.g. of *Bepflanzung* ‘planting’ or *Einrichtung* ‘arrangement’. However, if we look at result objects, there are differences depending on the type as shown in examples (248)–(251).

- (248) **Creation:**  
??Die Spezialanfertigung, welche [kompliziert ist]<sub>EV</sub>, [ist perfekt]<sub>RO</sub>.  
‘The special fabrication, which is complicated, is perfect.’
- (249) **Resultative theme:**  
Die Lieferung, die [gerade durch einen erfahrenen Lieferanten erfolgt]<sub>EV</sub>, ist [sorgfältig verpackt]<sub>RO</sub>.  
‘The delivery, which is currently being carried out by an experienced distributor, has been diligently wrapped.’
- (250) **Resultative means:**  
Die Absperrung, die [aus 100 Teilen besteht]<sub>RO</sub>, [dauert schon den ganzen Vormittag]<sub>EV</sub>.  
‘The obstruction, which consists of 100 parts, already takes the whole morning.’
- (251) **Modification:**  
Die Übersetzung, die sehr [langwierig]<sub>EV</sub> ist, [liegt noch auf meinem Schreibtisch]<sub>RO</sub>.  
‘The translation, which is very tedious, is still lying on my table.’

Hence, there are results that allow coexistence with the event suggested by two indicators in the present tense, since they only require the event to have started (but not to have finished) for them to exist in their new form (as e.g. *Lieferung* ‘delivery’), while others are really created by the event and require it to be finished first (as result states,

<sup>126</sup> The state of being obstructed can only exist, if the event of obstructing is completed as in: ??Die Absperrung [ist mühsam]<sub>EV</sub> und [besteht seit heute]<sub>RS</sub> ‘the measurement is troublesome and exists since today.’

values, relations, created result objects). The two remaining subcategories of result objects, namely resultative means and modifications, are more complicated to classify with respect to coexistence with the event. In examples like (250), it seems that resultative means can coexist with their event, but, actually, they can only fulfil their function if the event is completed, which can be proven by the unacceptability of (252).

- (252) Die Absperrung [wird gerade unter Protest durchgeführt]<sub>EV</sub>. #Sie [hält die Demonstranten zurück]<sub>RO</sub>.  
 ‘The obstruction is conducted under protest right now. It holds back the protesters.’

However, the 100 parts of the object mentioned in (250)<sup>127</sup> identifies the obstruction object as an incremental theme (as in the sense of Dowty (1991)), so that we have different subevents corresponding to parts of the object: If we have constructed 50 parts, it is half done, and so forth. The same holds for modifications (or representations) like *Übersetzung* ‘translation’, assuming that the translated text consist of more than one word. In such cases, it is only required that the subevent corresponding to the part of the source text or obstruction is completed for it to exist, but not the completion of the event as a whole. Hence, the (partial) result object of the event can coexist with an unfinished subevent (i.e. with the remaining translation or obstruction interval), but obviously not with the completed subevent that brought it about.<sup>128</sup>

The coexistence constraint also holds for these examples in principle, but it is not necessarily the case that the indicators have to be temporally disjoint, since we will, for example, always interpret the translation on the table as the already translated part (or even the source text) and the mentioned event as the remaining, not coexistent, interval of this event. In copredications of events with these readings, it depends on the context whether two indicators in the present tense can accompany the nominalization.<sup>129</sup>

Hence, the subordination of one indicator only supports copredication if the referents of the two readings can, in principle, coexist (cf. (246) and (247)). However, there is one structure that does not make tense explicit. If we place an event indicator adjective into a DP with the nominalization, we do not have to determine whether the event is already finished or not: [*die mühsame Messung*] ‘the troublesome measurement’ could mean, that it has been troublesome as in (253) or that it still is as in (254).

<sup>127</sup>As I have mentioned in section 2.2, it is not absolutely clear whether nominals like *Absperrung* ‘obstruction’ can really refer to their unconstructed parts. This should be clarified, e.g. by a questionnaire, in future studies.

<sup>128</sup>The same holds for the corresponding abstract result, i.e. only the already translated part can coexist with the remaining subevent: *Die Übersetzung, welche viele Fehler hat, dauert lange* ‘the translation, which has many faults, takes a long time’.

<sup>129</sup>There are cases where the whole event is required to be finished even if we have a modification result object: *?Die Übersetzung, welche noch nicht abgeschlossen ist, verkauft sich gut* ‘the translation, which is not yet finished, sells well.’ (only the whole object can sell well)

- (253) Die [mühsame]<sub>EV</sub> Messung (von gestern) [steckt mir noch in den Knochen]<sub>EV</sub>.  
 ‘The cumbersome measurement (from yesterday) is still troubling me’  
 (literally: ‘still sticks in my bones’)  
 ⇒ finished
- (254) Die [mühsame]<sub>EV</sub> Messung [ist immer noch nicht abgeschlossen]<sub>EV</sub>.  
 ‘The cumbersome measurement is still not finished.’  
 ⇒ not finished

However, in copredications such as (255) and (256), we have to interpret the adjective as modifying an event in the past (although the adjectival modification does not determine a tense *per se*), since event and result cannot coexist.

- (255) Die [mühsame]<sub>EV</sub> Messung ist [auf fünf Stellen genau]<sub>RO</sub>.  
 ‘The cumbersome measurement is accurate to five decimal places.’
- (256) Die [komplizierte]<sub>EV</sub> Ausgrabung ist [im Museum ausgestellt]<sub>RO</sub>.  
 ‘The complicated excavation is exhibited in the museum.’

The same holds for examples with two indicators set in the past, since then it is not necessarily the case that the event and the result coexisted then, as shown in (257) and (258). Again we cannot interpret the event and the result as simultaneous.

- (257) Die Messung war [mühsam]<sub>EV</sub> und [auf drei Stellen genau]<sub>AR</sub>.  
 ‘The measurement was troublesome and accurate to three decimal places.’
- (258) Die Ausgrabung war [kompliziert]<sub>EV</sub> und wurde [im Museum ausgestellt]<sub>RO</sub>.<sup>130</sup>  
 ‘The excavation was complicated and was exhibited in the museum.’

Hence, a coordination structure with an event and a result does not necessarily suggest coexistence, especially if we coordinate competing indicators for deverbal nominals that are temporally disjoint as in (259).<sup>131</sup>

- (259) Die Übersetzung [hat ein Jahr gedauert]<sub>EV</sub> und kann nun [gedruckt werden]<sub>AR</sub>.  
 ‘The translation has taken one year and can finally be printed now.’

<sup>130</sup> One could claim that the present tense version is fine with a passive: *Die Ausgrabung ist kompliziert und wird im Museum ausgestellt* ‘The excavation is complicated and is exhibited at the museum’. However, I think this is so, because the present and future passive share the same form, i.e. *wird* will be interpreted as future and consequently as being non-simultaneous.

<sup>131</sup> In this case, the indicators have to be temporally disjoint even though the result is incremental, since only the translation result as a whole will be printed.

Here, the event is set in the past, while the result indicator also applying to it is set in the present. In these cases, the different tenses (and the discourse particle *nun* ‘now’) avoid parallelism and the coordination is interpreted as a sequence rather than as parallel (cf. also 8.3). Hence, coordination structures are acceptable if they establish a sequence in time for events and results, but the additional subordination of one indicator can still improve them, as examples (260)–(263) show.

- (260) Die Beklebung der Schubladen [wurde von Schülern durchgeführt]<sub>EV</sub> und [besteht schon seit zwei Jahren fort]<sub>RS</sub>.  
‘The pasting of the drawers was done by pupils and has already persisted for two years now.’
- (261) Die Beklebung der Schubladen, [die von Schülern durchgeführt wurde]<sub>EV</sub>, [besteht schon seit zwei Jahren fort]<sub>RS</sub>.  
‘The pasting of the drawers, which was done by pupils, has already persisted for two years now.’
- (262) Die Übersetzung war [sehr frei geschehen]<sub>EV</sub> und (war) [voller Bilder aus der Religion und Weltanschauung des alten Japan]<sub>RO</sub>.  
‘The translation is very freely done and (was) full of pictures of the religion and world view of ancient Japan.’
- (263) Die Übersetzung, [sehr frei geschehen]<sub>EV</sub>, war [voller Bilder aus der Religion und Weltanschauung des alten Japan]<sub>RO</sub>.<sup>132</sup>  
‘The translation, very freely done, was full of pictures of the religion and world view of ancient Japan.’

We have thus two similar structural aspects that play a role for copredication: We prefer to avoid parallelism in discourse, especially with readings that can coexist, and we have to avoid temporal parallelism if it is logically impossible. Constraint 2c concerns temporal structure and holds especially for event-result pairs.

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### Constraint 2c

In event-result combinations, one indicator has to be temporally disjoint if the result comes about by the completed event<sup>133</sup>

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With regard to this constraint, deverbal nominals differ from copredications with simple nouns although they display a similar meaning variation, since they lack a resultative relation. We could, for example, set the well-known *lunch* example by Asher & Pustejovsky (2005) into the present without making it unacceptable, because the meal and the event of eating it coexist (cf. (264)).

<sup>132</sup> Taken from the *cosmas* corpus: A97/SEP.22787 St. Galler Tagblatt, 08.09.1997, Ressort: TB-OT

<sup>133</sup> This is always the case for result states, abstract result values and relations, created result objects and, under certain conditions mentioned above, also for resultative means and modifications.

(264) Lunch is [delicious]<sub>MEAL</sub>, but [takes forever]<sub>EVENT</sub>.

Although results come about by events and hence temporally succeed them, the order of event and result indicators can be reversed in discourse, in other words, the event must take place before but does not always have to be mentioned before the result. As seen in many examples in this study, it does not make a difference in acceptability whether we first introduce the event or the result in a sentence<sup>134</sup>, and predicate transfer can be assumed for both directions (cf. Chapter 8.2) as in (265)–(268).

(265) 1514 [überreichte]<sub>RO</sub> er Louis XII die [schwierige]<sub>EV</sub> Übersetzung von Texten des Thukydides.

‘In 1514 he gave Louis XII the difficult translation of texts by Thucydides.’

(266) Nur wenn man die genaue Bezeichnung des Videosystems kennt, kann man abschließend sagen, ob die [vorliegende]<sub>RO</sub> Messung [regelmäßig]<sub>EV</sub> durchgeführt wurde und somit verwertbar wäre.

‘You can only tell whether the present measurement was conducted regularly and is hence usable, if you know the precise name of the video system.’

(267) Die Lieferung [liegt schon auf deinem Tisch]<sub>RO</sub>. Sie [hat nur einen Tag gedauert]<sub>EV</sub>.

‘The delivery is already on your table. It has only taken one day.’

(268) Die Übersetzung, [die man jetzt endlich kaufen kann]<sub>RO</sub>, hat ganze [6 Monate gedauert]<sub>EV</sub>.

‘The translation, which one can finally buy now, took 6 whole months.’

Hence, Constraint 2c should not be misunderstood as requiring the event to precede the result in discourse. Obviously, the event precedes the result in time and that is why we have to temporally disjoin them, but still we can reverse the order in talking about them. One reason for this might be that it is the result that entails a corresponding event rather than the other way round: not every event has a result the nominalization can refer to. Hence, if we come across a deverbal nominal indicated to be a result, we can be sure that there has been an event that brought it about and that the nominalization can refer to it.<sup>135</sup> However, as (269)–(271) show, the implications differ slightly, depending again on the types of results.

<sup>134</sup> For a different stance on this point see Hamm & Solstad (2009). Empirical studies in Weiland (2009), Weiland et al. (2010) and Featherston et al. (submitted) show that this order sometimes is judged slightly worse, but that it is not unacceptable.

<sup>135</sup> As pointed out in 2.1, the fact that an event has a certain result in the world does not necessarily mean that we can refer to it. However, if there is a result reading we can be sure that there was an event to which the nominal can also refer.

- (269) Die Messung [liegt auf dem Tisch]<sub>RO</sub>/[ist auf zwei Stellen genau]<sub>AR</sub>  
 → Die Messung [ist abgeschlossen]<sub>EV</sub>.  
 ‘The measurement is on the table/is accurate to two decimal places  
 → The measurement is finished.’
- (270) Wenn die Messung auf dem Tisch liegt/auf 2 Stellen genau ist, dann ist die  
 Messung abgeschlossen.  
 ‘If the measurement is on the table/is accurate to two decimal places, then  
 the measurement is finished.’
- (271) Die Übersetzung [liegt auf dem Tisch]<sub>RO</sub>/[ist fehlerhaft]<sub>AR</sub>.  
 ⇔ Die Übersetzung [ist abgeschlossen]<sub>EV</sub>.  
 → Ein korrespondierendes Teilereignis ist abgeschlossen.  
 ‘The translation is on the table/is faulty.  
 ⇔ The translation is finished.  
 → A corresponding subevent is finished.’

Hence, a result always entails that there has been an event, but not necessarily that the whole event was completed, while an event does not entail a result which can be the nominal’s referent, since there are events that do not have a result reading.

Native speakers of English might also wonder whether the use of simple past in contrast to present perfect plays a role for the reversibility of indicators. German has the synthetic “Präteritum” and the analytic “Perfekt” tense, but they do not display the same characteristics as in English<sup>136</sup>: The “Präteritum” is pretty uncommon in general except as narration tense for novels etc. It is also not preferred for cases where the relevance for the utterance time should be emphasized, but this tendency is not as strict as in English: Accordingly, examples (272)–(275) are all acceptable, but the perfect tense is generally preferred, since it is much more common.

- (272) Die Lieferung [dauerte nur einen Tag]<sub>EV</sub> und [liegt schon auf deinem  
 Tisch]<sub>RO</sub>.  
 ‘The delivery took only one day and is already on your table.’
- (273) Die Lieferung [liegt schon auf deinem Tisch]<sub>RO</sub> und [dauerte nur einen  
 Tag]<sub>EV</sub>.  
 ‘The delivery is already on your table and took only one day.’

<sup>136</sup> For English, we would expect that the present perfect (referring to a state) is much more reversible than a simple past (I owe this observation to Alice ter Meulen). This should be checked with native speakers.

- (274) Die Lieferung [liegt schon auf deinem Tisch]<sub>RO</sub> und [hat nur einen Tag gedauert]<sub>EV</sub>.  
‘The delivery is already on your table and has taken only one day.’
- (275) Die Übersetzung [dauerte ein Jahr]<sub>EV</sub> und [kann jetzt gedruckt werden]<sub>AR</sub>.  
‘The translation took one year and can be printed now.’

In this section, I have shown that there are additional structural constraints which are relevant for the acceptability of copredication, since they reduce cohesion, namely the parallelism effect due to coordination, lack of distance between the indicators and temporal structure or coexistence. 2a and 2c are soft constraints, since they can improve examples with compatible indicator combinations but cannot license predicate transfer for other indicators restricted by Constraint 1. 2b is a hard constraint like 1, but is specific for event-result indicator combinations. In the next section, I will introduce examples that suggest an additional (third) constraint, since they satisfy the conditions concerning structure and readings involved. Other structural factors such as the order of the different indicators do however not make a difference as I have shown. From the syntax of cohesion and constraints on the semantic side, which concern the combination of readings, I will turn to different pragmatic factors that make a copredication coherent and therefore acceptable in section 8.3.

### *8.3 Predicate coherence*

In the preceding two sections, I have shown that we cannot simply apply predicate transfer in copredication environments whenever we need to solve a mismatch between two indicators, but that the acceptability of copredication depends on the reading indicators involved and their position within the sentence: In short, I have shown that the two readings indicated should not be too semantically different and their indicators should be structurally (and in some cases temporally) disjoint. However, the unacceptability of examples (91) and (207) from Chapter 4 and 6 cannot be predicted by these constraints, since they involve event and result indicators which are temporally and structurally disjoint, so that they do not violate Constraints 1 and 2.

- (91) ?Die Absperrung [aus Holz]<sub>RO</sub> [dauerte ewig]<sub>EV</sub>.  
‘The obstruction made of wood took for ever.’
- (207) ?Die [abblätternde]<sub>RO</sub> Bemalung [war mit roter Farbe durchgeführt worden]<sub>EV</sub>.  
‘The scaly painting has been done with red paint.’

I have shown in section 6.1 that Nunberg’s original constraint on predicate transfer, namely the notion of noteworthiness that he assumes to exist between a newly derived predicate and a noun (cf. Chapter 5), does not constrain (single) indicator-noun

combinations with deverbal nominals. Nunberg deals with cases such as *I am parked out back*, which he assumes to be acceptable since the information contained in the predicate is noteworthy to characterise or identify the bearer, here the driver, even if the predicate actually modifies cars. For deverbal nominals I have shown that we can combine them with all kinds of predicates indicating events, objects etc. without having to consider noteworthiness, since these readings are more conventional than the car readings is for the driver noun.

Moreover, since noteworthiness is a relation between a noun and a new, enriched predicate, it is not introduced to explain copredication cases, which differ in that they involve two indicators for example. However, in my opinion, a pragmatic principle like noteworthiness is a crucial means to explain why and when we can solve sortal mismatches and when we cannot, since this can obviously not only be explained by structural means and the readings involved. In this section, I will show how we can advance the general concept of noteworthiness<sup>137</sup> to make the relations licensing predicate transfer more transparent (in copredication with deverbal nominals) and where they are established.

If an *-ung* nominal is indicated to be an event by the selectional restrictions of a predicate, this predicate will not only tell us that the nominalization should be interpreted as an event, but it also adds properties to the event, for example, that it was tedious, that it took a long time or was finished. These properties can lead to inferences about states and abstract or physical objects that result from these events, since these results might acquire specific properties from the characteristics of the event. Let us consider an acceptable example (50) from section 3.1, where this should be the case.

- (50) Die [langwierige]<sub>EV</sub> Übersetzung [brachte mir viel Geld ein]<sub>RO</sub>.<sup>138</sup>  
 ‘The tedious translation earned me a lot of money.’

The nominalization *Übersetzung* ‘translation’ is here indicated to be an event that is tedious and has a result that is worth a lot of money. These two properties are not independent, however: One possible correlation between these pieces of information is that the result object may have sold well because the event that brought it about was tedious (and could not have been done by everyone). Hence, in copredication cases there is not only a relation between the particular indicator and the noun (as with noteworthiness), but also between the two indicators and the properties they assign to their bearers themselves.

I claim that a pragmatic notion similar to noteworthiness should be assumed for copredication with deverbal nominals as well.<sup>139</sup> Since it exists between other parts of

<sup>137</sup> “A property is noteworthy if it offers a useful way of classifying its bearer relative to the immediate conversational interests” (Nunberg 1995: 114).

<sup>138</sup> In 3.1 I have shown that the second indicator does not only allow result objects, but here, I will assume a context where it is really the selling of the book that earns me money.

the sentence than noteworthiness in Nunberg's account, namely between the different indicators themselves as shown for (50), I will modify and extend it in this section. Hence, in addition to the category combination of the reading indicators (cf. 8.1), the relation between semantic contents plays a role for the acceptability of the copredication: there must be a reason why we use a specific, enriched event indicator (for example) for a specific result object. Before I clarify this vague relation, I will look at the unacceptable examples from above to find out whether the relation between the indicators differs, e.g. in (91).

- (91) ?Die Absperrung [aus Holz]<sub>RO</sub> [dauerte ewig]<sub>EV</sub>.  
 'The obstruction made of wood took for ever.'

In the first part of the sentence we obtain the information that the result object of obstructing something consists of a certain material, namely wood. Does this tell us anything about the event which brought it about? And, more specifically, is this property related to the duration of the event that we learn about from the second indicator? I claim that without a very specific context, the material that a result object is made of does not tell us something about the duration of its event (and, likewise, the duration of an event does not tell us something about the result object's material). If this is indeed the reason for the oddness of this example, we should be able to establish the necessary relation by substituting one indicator with a suitable other property. Let us consider a situation where the duration of an event could really correlate with a property that its result has: in the case of an obstruction, we could imagine that the event takes a long time because the result object is difficult to establish in any way, e.g. because it has many parts, as shown in (276).

- (276) Die [aus über 100 Teilen bestehende]<sub>RO</sub> Absperrung [dauerte zwei Stunden]<sub>EV</sub>.  
 'The obstruction consisting of more than 100 parts took two hours.'

In this context, the number of parts that make up the obstruction object is very high and influences the duration of the event of obstructing, since we can assume that it is difficult or at least time consuming to assemble more than 100 parts. Since this characteristic identifies the obstruction as an incremental theme, the amount of parts correlates with the progress of the event, as I have shown in 8.2. In contrast to example (50) (repeated on page 162), a property of the result object (having many parts) explains the property of the event (taking 2 hours) while in (50) the property of the event has explained why its result has earned a lot of money.

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<sup>139</sup> In preliminary work (Brandtner 2008, Brandtner & von Heusinger 2010), I have used the term noteworthiness for copredication as well. As we will see I extend and modify this concept and to avoid confusion with the original concept, I decided to coin an own term as we will see.

In example (207), we learn that the result object of a painting event is flaky and that the corresponding event was done with red paint. The question is whether these properties correlate in a plausible way so that one explains the other, for example:

- (207) ?Die [abblätternde]<sub>RO</sub> Bemalung [war mit roter Farbe durchgeführt worden]<sub>EV</sub>.  
 ‘The flaky painting has been done with red paint.’

Since the specific colour of paint, here red, does not tell us anything about the result of the corresponding painting event (apart from being red), the predicate transfer which would allow us to use an event predicate for a result object is not licensed here. Blue or green paint could lead to a flaky painting as well, so this characteristic does not have to do with its colour. However, we could imagine that if we use old oil paint, which might suffer in quality as it ages, this could lead to a result that peels off easily, as in (277).

- (277) Die [abblätternde]<sub>RO</sub> Bemalung [war mit alten Ölfarben durchgeführt worden]<sub>EV</sub>.  
 ‘The scaly painting was done with old oil paint.’

Here, the semantic content of the event indicator gives us a plausible reason for the constitution of the result mentioned at the beginning. Based on these observations I assume, that just like discourses<sup>140</sup>, copredications are “not simply arbitrary collections of utterances” (Kehler 2004: 241 on discourses), but that there must be a coherent relation between the different properties we assign to the nominalization, especially since the readings of deverbal nominals are dependent on the event. It follows that the different things we state about the noun are interrelated, too.

With respect to predicate transfer, this means we can adjust the competing second indicator to the first one in copredication examples if the property added by this (second) indicator and the characteristics of the nominalization in this context are coherent. For the time being and following Kehler (2004: 241), coherence simply means that we do not state two independent facts here, e.g. that a painting is scaly and a painting is done with old oil paint, but that these facts (must) stand in a (here causal) relationship. The third constraint for copredication with deverbal nominals has thus to do with contextual and pragmatic factors and I will term the corresponding relation predicate coherence, since it exists between the two predicates (or indicators) applying to the nominalizations as stated in Constraint 3a.

<sup>140</sup> In fact, one could claim that copredications are actually discourses that are reduced and could be paraphrased, like, for example: *Die Absperrung besteht aus 100 Teilen. Das Absperrungsereignis hat zwei Stunden gedauert.* ‘The obstruction consists of 100 parts. The obstruction event has taken two hours.’

**Constraint 3a**

The first and the enriched indicator must contribute properties that stand in a coherence relation (predicate coherence)

The term “coherence” might seem just as vague as Nunberg’s “noteworthiness” and in fact they describe similar things (we could as well claim that it is “noteworthy” for a flaky painting that it was done with old oil paint). However, I will not use the term noteworthiness since it originally was claimed to exist between indicator and noun and only describes one direction of transfer between two domains (for example, as shown in 6.2, properties of a driver are not noteworthy for his car). This is not the case for deverbal nominal readings, where the event property can explain the result property, and also vice versa.

Instead, I base my term “predicate coherence” upon an established term in discourse analysis (e.g. in Kehler 2004 and Asher & Lascarides 2003): a “coherence relation”, which can come in different forms, is assumed to exist between sentences as for example in (278) if we continue with the a.-sentence in contrast to b. (both taken from Kehler 2004: 241).

- (278) George W. Bush wanted to satisfy the right wing of his party.
- a. He introduced an initiative to allow government funding for faith-based charitable organizations.
  - b. ?He smirked a lot.

Kehler states, that a coherent rhetorical relation, in this case called “result”, exists between the acceptable pair of sentences and that this relation requires “that a presupposition be satisfied, specifically that government funding for faith-based charities is something that the right wing of Bush’s party wants” (ibid.: 241). He also shows that coherence is used to explain all kinds of linguistic phenomena linked to discourse structure, for example pronominal reference as in (279), where the pronoun will always be assigned the referent that licenses an explanation relation between the two parts of the sentence.

- (279) The city council denied the demonstrators a permit because
- a. they *feared* violence.
  - b. they *advocated* violence.

I will transfer and modify the concept of coherence for copredication cases, for which I assume that the relation does not exist between two sentences, but between the different predicates applying to one nominal form. Consequently, I assume that these predicates do not have to indicate the same reading, but have to assign coherent properties to the nominal. If this assumption is right, it should hold for the acceptable examples (as yet not checked for coherence) from sections 8.1 and 8.2. I will clarify the considerations about predicate coherence by rethinking some of them.

In discussing the examples given so far in this section, I have often used the expressions that a property “explains” something or “gives a reason for” a second property, for example, and with reference to (276), when the property of an object to consist of many parts explains why the event to construct it took a long time. This correlation is similar to Kehler’s discourse coherence relation *cause-effect* (based on Hume 1955), which requires that a “path of implication” (Kehler 2004: 247) can be identified. We can establish this path in different directions and for copredication with deverbal nominals, which means that either the characteristics of the event explain the characteristics of the result or the other way round, as we have seen in examples (276) and (277) repeated here.

(276) Die [aus über 100 Teilen bestehende]<sub>RO</sub> Absperrung [dauerte zwei Stunden]<sub>EV</sub>.

‘The obstruction consisting of more than 100 parts took two hours.’

(277) Die [abblätternde]<sub>RO</sub> Bemalung [war mit alten Ölfarben durchgeführt worden]<sub>EV</sub>.

‘The flaky painting has been done with old oil paint.’

For (276), I assume that the obstruction took two hours (to construct) because the object consists of many parts, but not that the object consists of many parts because the event took two hours. In contrast, in example (277), the characteristics assigned to the event explain the property of the result object, i.e. the painting is falling off because it was done with old oil paint, and not the other way round.

In terms of discourse coherence, *cause-effect* examples where the causing event precedes the caused circumstance are called “result”<sup>141</sup> (Kehler 2004: 247), and if this order is reversed it is called an “explanation” (Kehler 2004 and Asher & Lascarides 2003), where the second sentence provides the reason for the first proposition as in *Max fell. John pushed him*. These *cause-effect* subgroups (result and explanation) differentiate which information comes first in the sentence, the explained or the explaining one. I will further subdivide these two groups for deverbal nominals with respect to the question, whether the result properties explain or motivate the event properties (“result motivated”) or vice versa (“event motivated”). In addition, we have result–result copredications as in (280) and (281), which are necessarily result motivated, but can also vary in their order of the two predications.

(280) Die [durchgestrichene]<sub>RO</sub> Messung ist [ungenau]<sub>AR</sub>.

‘The crossed out measurement is inaccurate.’

<sup>141</sup> I will not use the notion of “narration” from SDRT for these examples, since it only hints at the temporal relation rather than at the additional resultative relation that these copredications involve. However, we find examples where the narration relation is sufficient as we will see.

- (281) Die [ungenau]AR Messung ist [durchgestrichen]RO.  
 ‘The inaccurate measurement is crossed out.’

However, we have to distinguish between two things: the result relation that is built into deverbal *-ung* nominals, i.e. the relation between the event and result readings themselves, and the coherence relation “result” between the two predicates, which corresponds to the result relation assumed between sentences in discourse coherence. On the one hand, one of the coherence relations is already lexically inscribed into the *-ung* and supports copredication in general: As we have seen in 8.1, the resultative feature is crucial for copredication, since it licenses predicate transfer between events and objects that, for example, do not share any other features. This built-in coherence relation also distinguishes *-ung* nominals from other deverbal nominals like *-erei* and *-er*, which categorically do not allow copredication (cf. 2.3), and resultative *-ung* readings from participants — the latter can also never be part of a copredication (cf. 8.1). Accordingly, by drawing on discourse terminology, I can now explain the peculiarity of the resultative feature in the grid in Table 10: Resultativity corresponds to a coherence relation, whereas the other features are characteristics of the categories themselves and correlate with selectional restrictions of the indicators.

On the other hand, we have a predicate coherence relation which can additionally be established between the different predicates that apply to the nominalization as exemplified in this section. Here, it is rather the semantic content of the indicators that establishes a result relation in context; and event properties can result from result properties or vice versa as we have seen. To avoid confusion between these two very similar resultative relations, I will call this predicate coherence relation “consequence”<sup>142</sup>. As a result, we have four combinations for this consequence relation which concern the order (cause or consequence first) and the causing source (event or result motivated), as summarized in Table 12 for event-result pairs.

Causing source	Order	Explanation
<i>Event motivated</i>	<i>Consequence</i>	The event property introduced first motivates the property of the result
<i>Result motivated</i>	<i>Consequence</i>	The result property introduced first motivates the property of the event
<i>Event motivated</i>	<i>Explanation</i>	The event property introduced second explains the property of the result
<i>Result motivated</i>	<i>Explanation</i>	The result property introduced second explains the property of the event

Table 12. Predicate coherence relations of *cause–effect*

<sup>142</sup> I follow Asher & Lascarides (2003) in that they term causation relations between sentences “explanation” if the causing event follows the caused event, but I substitute the relation “result” by “consequence” if they appear in reversed order.

I will show that these relations hold for the acceptable examples in 8.1 and 8.2, e.g. for (255) and (256), and that this fact contributed to the acceptability of these copredications (in addition to the lexical semantics of the indicated readings and the structure they appeared in). A measurement event that is *mühsam* ‘cumbersome’ as in (255) can lead to a precise result due to this characteristic, assuming that five decimal places is a lot, that is, if the predicate coherence is guaranteed by an event motivated consequence. If such a predicate coherence is not given, as I assume for (282), the example becomes less acceptable.

(255) Die [mühsame]<sub>EV</sub> Messung ist [auf fünf Stellen genau]<sub>RO</sub>.  
 ‘The cumbersome measurement is accurate to five decimal places.’

(282) ?Die [unvorsichtige]<sub>EV</sub> Messung ist [auf fünf Stellen genau]<sub>RO</sub>.  
 ‘The careless measurement is accurate to five decimal places.’

For example (256), I assume that the result of the excavation is something special, since the event was so complicated and that something special (i.e. worth extra effort) is also worth being displayed at a museum in contrast to if it were just described as legal, as shown in (283). Hence, the acceptable example is also an event motivated consequence.

(256) Die [komplizierte]<sub>EV</sub> Ausgrabung ist [im Museum ausgestellt]<sub>RO</sub>.  
 ‘The complicated excavation is exhibited in the museum.’

(283) ?Die [legale]<sub>EV</sub> Ausgrabung ist [im Museum ausgestellt]<sub>RO</sub>.  
 ‘The legal excavation is exhibited in the museum.’

In (255) and (256), we cannot paraphrase the sentences by using a *because*-relation, since it will be odd to say that a measurement is accurate *because* it was cumbersome, but as the unacceptable counterparts show, these characteristics of the event still make a difference: I suggest that they “contribute” to the mentioned property of the result or qualify for this property. I have made the assumed predicate coherence relations explicit in the metalanguage by paraphrasing the sentences, e.g. by describing consequences with *because*. However, they can also be expressed explicitly in the object language by discourse particles as e.g. *somit* ‘hence/therefore’, like in (84), which is a real example from Chapter 4.

(84) Nur wenn man die genaue Bezeichnung des Videosystems kennt, kann man abschließend sagen, ob die [vorliegende]<sub>RO</sub> Messung [regelmäßig durchgeführt]<sub>EV</sub> wurde und somit [verwertbar]<sub>AR</sub> wäre.  
 ‘You can only tell whether the measurement at hand was conducted regularly, and is hence viable, if you know the precise name of the video system.’

In (84), the property assigned to the measurement event, namely being conducted regularly, causes its result to be usable and this consequence relation is emphasized by *somit* ‘hence/therefore’.

These coherence relations are based on our expectations about the world and, here, specifically on consequences therein. These expectations can also be violated without making the example incoherent and thereby unacceptable, since the violation itself can correspond to a coherence relation: If we infer something from a proposition, which is not normally the case, this is called “violated expectation” in discourse coherence (Kehler 2004). With regard to copredication, the expectation concerns predicate coherence between an event and/or result indicators if we, for example, assume that a result object that is very well-done took a long time to make. This expectation is violated in example (284), which makes it odd, but it is met in the result motivated consequence in (285).

(284) ?Die [schlecht gemachte]<sub>RO</sub> Fälschung [dauerte lange]<sub>EV</sub>.  
‘The badly done imitation took a long time.’

(285) Die [täuschend echte]<sub>RO</sub> Fälschung [dauerte lange]<sub>EV</sub>.  
‘The deceptively real-looking imitation took a long time.’

However, we can still make example (284) coherent, if we make this violation relation explicit in copredication examples. This can be accomplished by adversative conjunctions like *aber* ‘but’ or concessive conjunctions like *obwohl* ‘although’ or *dennoch/trotzdem* ‘still, yet’ licensing this violation by making it explicit, as in (286)–(288).

(286) Die [schlecht gemachte]<sub>RO</sub> Fälschung [dauerte **trotzdem** lange]<sub>EV</sub>.  
‘The badly done imitation **still** took a long time.’

(287) Die Fälschung [ist schlecht]<sub>RO</sub>, **obwohl** sie [lange gedauert hat]<sub>EV</sub>.  
‘The imitation is badly done, **although** it took a long time.’

(288) Die Fälschung [hat lange gedauert]<sub>EV</sub>, **aber** (sie) ist [schlecht gemacht]<sub>RO</sub>.  
‘The imitation took a long time, **but** (it) is badly done.’

Hence, the subordinating conjunction with *but* is not only structurally preferred (cf. 8.2), but also because it makes a coherence relation explicit, namely the violated expectation. Such a coherence relation between the indicators can also be established for example (50) repeated here, for which I have assumed a correlation between the tediousness of an event and its result being outstanding and hence worth much money (event motivated consequence). This correlation is not given in (289), but the predicate transfer can still be motivated by making the violation explicit as in (290).

- (50) Die [langwierige]<sub>EV</sub> Übersetzung [brachte mir viel Geld ein]<sub>RO</sub>.  
‘The tedious translation earned me a lot of money.’
- (289) ?Die [einfache]<sub>EV</sub> Übersetzung [brachte mir viel Geld ein]<sub>RO</sub>.  
‘The easy translation earned me a lot of money.’
- (290) Die [einfache]<sub>EV</sub> Übersetzung [brachte mir **dennoch** viel Geld ein]<sub>RO</sub>.  
‘The easy translation **still** earned me a lot of money.’

In marked cases like (284) and (289), predicate coherence is not given between the indicators, since they violate our expectations about events and their results in the world and also because they do not establish a coherent violation relation.

Hence, even if examples satisfy Constraint 1 and 2, they can still be odd due to the lack of predicate coherence between their indicators. Conversely, Constraint 3 (predicate coherence) cannot compensate for the violation of Constraint 1 (reading indicators involved), which is another proof that examples like (228) are odd, because they violate Constraint 1, which is more powerful than predicate coherence or structure (cf. section 8.4, where I will weigh the constraints against each other).

- (228) ?Die Verwaltung [ist lückenlos]<sub>AR</sub> und deshalb [schon im Urlaub]<sub>COLLECTIVE</sub>.  
‘The administration is complete/seamless and therefore already on vacation.’

The reason for the administration personnel being already on vacation is given here in the first part of the sentence: Their work did not have any missing parts and hence they did not have to rework something or the like. The causal adverb *deshalb* ‘therefore’ emphasizes the relation between the reason and the consequence. Hence, a lack of predicate coherence cannot be the reason for this example being odd and, like constraint 2, the predicate coherence constraint only plays a role for examples that do not violate the constraint on the combinations of reading indicators.

The following examples in (291) from Asher & Pustejovsky (2000) will however emphasize again that the oddness of certain copredications does not always have to do with the combination of reading indicators (the exclamation mark stands for oddness, indicator marking by myself).

- (291) a. The Sunday newspaper [weighs 5 lbs]<sub>PHYSICAL OBJECT</sub> and [documents in depth the economic news of the week]<sub>INFO</sub>
- b. !The newspaper [was founded in 1878]<sub>ORGANISATION</sub> and [weighs 5 lbs]<sub>PHYSICAL OBJECT</sub>.

In the a. example, we assume a correlation between the “depth” of the information in the articles and the weight of the newspaper, since it is possible that much material is needed to represent all this information. According to Asher & Pustejovsky (2000), the b. example is odd because of the readings involved (physical object and organisation), but if we consider the following example, it becomes obvious that we can establish a coherent relation between the indicators to license predicate transfer as shown in (292).

- (292) The newspaper [was founded in 1878]<sub>ORGANISATION</sub> and is [still typed in Sütterlin]<sub>PHYSICAL OBJECT</sub>.

Since *Sütterlin* is an old type font, the foundation year of the organization explains the layout of the physical object. As we saw in (228) above, in cases with really incompatible readings we cannot improve the example by establishing a coherent relation between the predicates. Therefore, I claim that the differences in acceptability are not due to the readings involved, but depend on predicate coherence here as well<sup>143</sup>, which means we always have to establish a coherent relation and a suitable structure in order to test why an example is odd (cf. 8.4).

Before I come to another predicate coherence relation, I will give a final result motivated consequence example in (293) which shows that we can have the same reading indicators combinations in two sentences, but that it depends on their content, whether predicate coherence is given and whether predicate transfer is hence licensed or not.

- (293) Die [beschädigte]<sub>RO</sub> Plakatierung...  
 a. [musste wiederholt werden]<sub>EV</sub>.  
 b. #[dauerte lange]<sub>EV</sub>.  
 ‘The flawed billposting ...  
 a. had to be repeated.  
 b. #took a long time.’

If we continue the sentence with the a. version, we have a motivation for the second predicate: the billposting has to be repeated because the result is flawed. This is not the case for the b. continuation: Here, the billposting is not flawed because it took a long time nor did it not take a long time because it is flawed, which means that we do not get a consequence or explanation relation.

<sup>143</sup>Asher & Pustejovsky (2000: 7) shortly mention coherence aspects, but do not go into details there. They assume them for the reading combinations themselves, which should then be unacceptable in every context: “we believe that this [the oddness of the newspaper example, RB] has to do with the fact that dot objects make reference to coherence relations that are essential to structuring discourse. And some cases of copredication are incompatible with the discourse structure implicit in the dot object.”

However, another discourse coherence relation that can exist between predicates in copredication is temporal, but not consequential or explanatory. In these cases, we still have the lexically built-in coherence relation (result) between event and result readings, but the equivalent coherence relation between the two indicators is not necessarily given (consequence or explanation). Asher & Lascarides (2003) claim that in a discourse where two events are reported, the event that is mentioned in the first sentence happens before the event in the second one if the two events stand in a rhetoric relation of “narration” (e.g. *Max stood up. John greeted him*) in line with Grice’s maxim “be orderly”. Similarly, in copredications with an event and a result, we can have a narration structure, as e.g. in (294) from the last section: Here, an event is introduced with an indicator in the past tense coordinated with a description of what happens to its result without an explicit consequence relation involved between the indicators.

- (294) Die Übersetzung [hat ein Jahr gedauert]<sub>EV</sub> und kann nun endlich [gedruckt werden]<sub>AR</sub>.  
 ‘The translation has taken one year and can finally be printed now.’

It is clear that the abstract result of the translation came about by the event, but as far as the two predicates are concerned, the duration does not give a reason for (or contribute to) the characteristics of the result: Hence, we cannot paraphrase this sentence by *?The translation has taken one year and can therefore be printed now* or *?The translation can be printed now, because it has taken one year*. Still, examples like these seem coherent, even more so if they involve a personal attitude towards what is happening to the result: The utterance of the event’s duration is motivated in this case by the second statement expressing relief, since there is finally a result that can be printed and thereby, it is considered justified to utter the event’s duration.<sup>144</sup> This is not given in (295), where we do not have a coherent correlation between the two parts, which consequently makes the example odd.

- (295) ?Die Übersetzung [wurde von Paul übernommen]<sub>EV</sub> und kann nun endlich [gedruckt werden]<sub>AR</sub>.  
 ‘The translation was undertaken by Paul and can finally be printed now.’

If we coordinate two temporally disjoint indicators, the copredication is interpreted as involving a narration relation and the coordination with *und* ‘and’ as a sequence (*und dann/jetzt* ‘and then/now’) rather than as parallelism (for example with two result indicators in the present tense). However, I suggest that it is preferred to have a reason why we use the two competing predicates for one nominal form. The expression of an attitude towards what is happening to the result can also improve example (296) to yield the acceptable (297).

<sup>144</sup> The idea of justification is inspired by Sanders (1997), who uses it for examples like *Theo was exhausted, because he was gasping for breath*: Here there is no cause involved, but rather a pragmatic speech act of justifying this utterance.

- (296) ?Die [umständliche]<sub>EV</sub> Bestellung [wiegt 2 kg]<sub>RO</sub>.  
 ‘The cumbersome order weighs 2 kg.’
- (297) Die [umständliche]<sub>EV</sub> Bestellung [wird endlich verschickt]<sub>RO</sub>.  
 ‘The cumbersome order is finally being sent.’

If we know that an order is cumbersome, why should this imply a special weight? The sentence seems to be incoherent in this case. However, in (297), we can similarly not say that the result object was finally sent because it was cumbersome. We rather express something about the characteristics of the event because we want to motivate our attitude (something like impatience) towards what is happening: I express that it is good that the order could finally be sent after all, because the event was cumbersome. In addition to consequences and elaborations, we thus have a third predicate coherence relation named “narration”, which often involves particles justifying the given information.<sup>145</sup> If a copredication with events and results is a narration, it still involves the inherent result relation between these readings, but no *cause-effect* coherence relation established between the indicators. In contrast, a narration relation in discourse is strictly temporal.

What I have shown so far in this section is that predicate coherence plays a crucial role for copredication with deverbal nominals and that it exists between other parts of the sentence than noteworthiness did in Nunberg’s account, namely between the indicators themselves and there not only between the domains they indicate, but between their content. Consequently, copredication cannot only be thought of as being possible because of special lexical entries for these nominalizations or the like, but also depends on pragmatic principles and constraints. Besides, this relation of coherence does not always exist between the specific indicators per se: Coherence is a general principle that can be established between the indicators by different means, but also on other levels, as we will see in the remainder of this section.

In the above examples, we had events with certain properties for which we could use result properties (by applying predicate transfer), but only if they were related by a coherence relation based on the content of the indicators. Coherence can also be conventionalized in lexical semantics, whereby, for example, the result coherence relation is built into the lexical semantics of *-ung* nominals and thus qualifies them for copredication. In addition, there are also conjunctions that make coherence relations explicit because of their meaning, as e.g. in the case of *aber* ‘but’, which can indicate violated expectations or *somit* ‘hence, therefore’, which can indicate consequences.

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<sup>145</sup> Not all discourse coherence relations can be transferred to copredication. I will, for example, not consider “elaboration” and “background” (cf. Asher & Lascarides 2003), since the former describes overlapping events, which does not constitute copredication, and the latter the overlap of an event and a state, which is also not possible for event and result state readings of deverbal nominals (cf. section 8.2).

However, there are not only conjunctions that indicate a coherence relation and deverbal nominals that have a result coherence relation built into their semantics. I assume, that there are certain indicators that can establish coherence between events and results simply based on their semantics: Event indicators, like *sorgfältig* ‘careful’, *aufwendig* ‘elaborate’ and *präzise* ‘precise’, generally have very strong implications for their results independent of a special context, that is, of predicate coherence. If you for example do a measurement or a listing in a precise or careful way, the results will necessarily be precise, too: Hence, we might not even recognize examples like (298) and (299) as copredication.

(298) Die [präzise]<sub>EV</sub> Messung [liegt auf dem Tisch]<sub>RO</sub>.  
‘The precise measurement is on the table.’

(299) Die [sorgfältige]<sub>EV</sub> Auflistung [liegt auf dem Tisch]<sub>RO</sub>.  
‘The careful listing is on the table.’

Still, we can also add predicate coherence by using suitable indicators here, so that event and result properties motivate each other, like in (300) and (301).

(300) Die [präzise]<sub>EV</sub> Messung der Studenten wird im Aufsatz des Professors  
[veröffentlicht]<sub>AR</sub>.  
‘The precise measurement of the students is going to be published in  
the professor’s paper.’

(301) Die [sorgfältige]<sub>EV</sub> Auflistung der Daten ist [zeitaufwendig]<sub>EV</sub> und  
[umfasst viele Seiten]<sub>RO</sub>.  
‘The careful listing of the data is time consuming and comprises many  
pages.’

Moreover, we can wrap something, e.g. a present, elaborately, and then its result, the wrapping, will also be claimed to be elaborate (since it was done in an elaborate way and hence might also look like that), as shown in (302).

(302) Die [aufwendige]<sub>EV</sub> Verpackung [war nach 5 Minuten zerrissen/landete  
schließlich im Müll]<sub>RO</sub>.  
‘The elaborate packaging was damaged after 5 minutes/ended up in the  
trash.’

Other event indicators such as *langwierig* ‘tedious’ can also have implications for their results, which depend on our expectations about the world as in (50) repeated here.

(50) Die [langwierige]<sub>EV</sub> Übersetzung [verkaufte sich millionenfach]<sub>RO</sub>.  
‘The tedious translation sold million-fold.’

The difference between the implications of predicates like *präzise* ‘precise’ and consequence relations (not conventionalized in the semantics of the indicator itself) as in (50) is that the former are not defeasible: We can imagine doing something tedious without accomplishing an outstanding result, but there is no way in which we could e.g. do a measurement in a precise way without its result also being precise, as shown in (303).

- (303) Die Studenten maßen sehr präzise. #Die ungenauen Ergebnisse wurden dann trotzdem im Aufsatz des Professors veröffentlicht.  
 ‘The students were measuring very precisely. #The inaccurate results were then still published in the professor’s paper.’

This behaviour sometimes makes it even hard to judge which readings these predicates actually indicate, since they are conventionally used for both readings: If we e.g. read a phrase like *präzise Messung* ‘precise measurement’ in isolation, both readings would be similarly prominent (whereas *langwierige Übersetzung* ‘tedious translation’ is only seen as an event). However, I assume that they are still event indicators: a wrapping as a result object cannot be elaborate *per se* and the result of a listing cannot be careful in itself.<sup>146</sup> The results could at least look elaborate or accurate without having taken much effort, but they cannot actually be elaborate or accurate: they must have acquired these characteristics through the way they came into being. The same holds for the negative counterparts of such examples, like *schlampig* ‘negligent, sloppy’ or *ungenau* ‘inaccurate’ etc.

As I have shown, these modifiers support predicate transfer between events and their results since they have conventionalized the coherent relation between them, namely that the event properties they denote generally have strong implications for the result. Roßdeutscher & Kamp (2010: 15–16) claim that there are examples “where the adjective must be analysed as a predicate of the event even when the nominalization is given an entity-reading”. They give examples like *grobe Schätzung* ‘rough estimation’ or *eilige Meldung* ‘urgent message’, which they paraphrase as “roughly estimated value” and “speedily reported message”. As shown, my explanation for this characteristic is that the coherent result relation is conventionalized for these adjectives and supports copredication.<sup>147</sup> In future research, these phenomena should also be compared to Kratzer’s (2000) target state participles as in *schlampig gekämmt* ‘sloppily combed’, where she assumes that the manner adverb *schlampig* ‘sloppily’ cannot modify statives and must hence be able to apply before the participle becomes stative.

<sup>146</sup> We could e.g. not say ??*Das aufwendige Geschenkpapier* ‘the elaborate wrapping paper’. Besides, if we can combine these predicates with simple nouns which are not eventive *per se*, we recognize that they also refer to an event related to that noun, as e.g. in *Der präzise Text* ‘the precise text’

<sup>147</sup> However, they would not assume predicate transfer, but rather that the adjective can still take the underlying event as an argument, even though it is interpreted as denoting an entity, i.e. the event reading would not be eliminated. Here, the question remains, when it is possible to “look” into the structure and when not.

I have shown so far that predicate coherence can either exist as a relation between the two predicates in copredication based on their lexical semantics and world knowledge, and/or be built into the semantics of one indicator. However, there is another possibility to establish a kind of “spontaneous” coherence relation between the indicators, which requires knowledge about a wider situative context and more than just lexical or world knowledge about the two predicates in the sentence context. If predicate coherence is not given within an isolated sentence, there could still be a specific wider context or situation in which it is established. Let us reconsider the following example for which I have assumed that there is no correlation between the material of an obstruction and the duration constructing it: *?Die Absperrung aus Holz dauerte 2 Stunden* ‘The obstruction made of wood took two hours’. Although a special material does not tell us anything about whether it has taken long to establish its object, we might be able to think of a situation where this is indeed the case: Imagine, for example, a context where we have two groups of people who both have to build an obstruction, one with metal and one with wood. We could well contrast the two groups then by uttering (304).

- (304) *Die Absperrung aus Holz dauerte 2 Stunden, die aus Metall nur eine.*  
 ‘The obstruction made of wood took two hours, the one from metal only one.’

Here, we have a contrast between the two materials concerning the duration of the event and the intention to differentiate them motivates the copredication here. In this specific kind of context, the contrastiveness can be emphasized by a restrictive relative clause, as in (305), which usually does not make a difference for acceptability, as I have shown in section 8.2.

- (305) *Die(jenige) Absperrung, die aus Holz ist, dauerte 2 Stunden.*  
 ‘The obstruction that is made of wood took two hours.’

As an alternative to such a contrastive context, we could imagine that an obstruction made of wood takes so long because we know that in this case it does not have ready-made parts, but has to be sawed into the right pieces first, or similar circumstances, that allow us to establish a coherent relation (result-motivated consequence) between material and duration by adding more specific situational knowledge.

I will try to construe a suitable situation for another incoherent example from above: In example (296), the weight of the parcel does not seem to be coherent for this kind of event per se, but, again, we can create a situation in which this holds.

- (296) *?Die umständliche Bestellung wiegt 2 kg.*  
 ‘The cumbersome order weighs 2 kg.’

If we think of an order that normally gets wrapped in a special kind of bag before it is delivered and this bag cannot hold more than 1 kg, the weight could tell us why the

order was cumbersome: We can imagine, for instance, that maybe you could initially not order the item online because the system recognized that it was too heavy for the bag, then you would have called there etc. and in the end they might have found a way. In this case, there would be a correlation between the weight of an item and the special kind of process ordering it.

Another odd example, (295), that can be licensed by a specific context is repeated here.

- (295) ?Die Übersetzung [wurde von Paul gemacht]<sub>EV</sub> und kann nun endlich  
[gedruckt werden]<sub>AR</sub>.  
'The translation was done by Paul and can finally be printed now.'

If we have the more specific information, for instance that Paul is someone who is always very slow in translating texts and everyone gets impatient about that, we get a coherent relation between the two predicates, since the information about the event (i.e. the characteristics of its agent) explains the attitude towards its result. However, this information is not established between the lexical semantics of the indicators *per se*.

Obviously, these wider contexts are very peculiar and construed. The question is whether we really can create a special situative correlation between the indicators that does not exist without these further pieces of information licensing the predicate transfer. In a questionnaire on these phenomena, people did not judge examples like these within an already given, suitable context better than in isolation (cf. Weiland 2009). On the other hand, another small group of people I asked orally to construe their own contexts in which they would accept these examples were able to do that. In future work, it should be checked with a larger group whether the participants can come up with such context, which they themselves judge acceptable. For now I assume that such contexts exist in principle, but might not always be easy to find and can at least improve sentences like this if they involve reading indicators that do not violate Constraint 1.

As we have seen, predicate coherence plays a crucial role in licensing predicate transfer in copredication. It can exist or be established on different levels: This shows that the reader really tries hard to establish coherence. The different levels correspond to different extents of effort needed to accomplish this:

- It is built into the lexical semantics of deverbal *-ung* nominals, which can refer to events and to their results, which in turn enables them to appear in copredication.
- It can be conventionalized, as in the case of event indicators like *sorgfältig* 'careful/diligent' and *präzise* 'precise', i.e. an event modified with these indicators will always have coherent implications for its result and supports predicate transfer.

- It can exist between indicators based on their semantics and/or world knowledge about their correlations; this means that we have expectations with respect to a specific nominalization where the specific kind of event tells us something about the specific kind of result. Moreover, conjunctions such as *aber*, *somit* ('but, therefore') can make these coherence relations explicit, i.e. they function as coherence markers.
- If there is no such correlation between the indicators, it can sometimes be established or coerced through a wider context: This special context then suggests a situative coherence relation between the indicators.

These assumptions are summarized in the extended constraint 3b.

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**Constraint 3b**

Predicate coherence must either be built into the semantics of a specific indicator, or it must be based on correlations between the indicators or it must be situatively suggested by contextual knowledge

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How strong the coherence relation is depends on these levels. If it is built into the semantics, it is a causal relation that should hold in counterfactuals as shown in (306): if an event is precise, for example, its result must be precise, too.

- (306) Wenn die Messung (das Ereignis) nicht präzise gewesen wäre, wäre sie (das Resultat) nicht präzise gewesen.  
 'If the measurement had not been precise, it (the result) would not have been precise.'

However, predicate coherence relations between two indicators are not causal, since they are not stable in counterfactuals, as shown in (307): They depend on expectations about the world, which could also be satisfied by other reasons.

- (307) #Wenn die Übersetzung nicht langwierig gewesen wäre, hätte sie sich nicht millionenfach verkauft.  
 'If the translation had not been tedious, it would not have sold a million times.'
- (308) #Wenn die Übersetzung sich nicht millionenfach verkauft hätte, wäre sie nicht langwierig gewesen.  
 'If the translation had not sold a million times, it would not have been tedious.'

There could be other reasons why the translation has sold so often, that means if the event was not difficult it is not necessarily the case that the book does not sell well. Consequently, these relations are contingent, since they hold in some, but not in all worlds. Still, I have shown that examples where we are not immediately able to imagine

such a coherent relation between the predicates are less acceptable and need a very specific context to license predicate transfer. In these cases, the coherence relation is not actually asserted by the speaker, but rather inferred by the hearer. However, the speaker can make these relations explicit by introducing a coherence marker such as e.g. *somit* ‘hence, therefore’ like in (309).

- (309) Die Messung wurde [regelgerecht durchgeführt]<sub>EV</sub> und ist somit [verwertbar]<sub>AR</sub>.  
 ‘The measurement was conducted regularly and is hence usable.’

Here, the consequence is asserted and might hence be more stable, since it would be odd to cancel this relation in the next sentence by saying *#Dass eine Messung regelgerecht war heißt aber nicht, dass sie auch verwertbar ist* ‘That a measurement was regular does however not mean that it is also usable’.

In this section, I have shown that apart from the reading indicators involved and their position in the structure of the sentence, the predicates used in copredication must stand in a coherence relation to each other and cannot be combined arbitrarily. My account draws on discourse coherence relations that exist between sentences and I have shown that they can be transferred to copredication cases to account for exceptions. Moreover, I have exemplified different types of predicate coherence and different levels on which it can be established. In the following section, I will compare the different constraints introduced in this chapter to show how they interplay and finally determine the acceptability of copredication.

#### ***8.4 Weighing the constraints on copredication***

When I described the constraints in the preceding sections, I argued that some are more powerful than others, since we sometimes cannot compensate for the violation of one constraint by satisfying another: For example, when we combine two incompatible reading indicators (Constraint 1), but satisfy predicate coherence as in (228) (repeated here), we still do not get an acceptable example in my opinion, whereas I would be able to accept a marked construction (Constraint 2) that satisfies Constraint 1 and is coherent, as shown in (310).

- (228) ?Die Verwaltung [ist lückenlos]<sub>AR</sub> und deshalb [schon im Urlaub]<sub>COLL</sub>.  
 ‘The administration is complete/seamless and therefore already on vacation.’
- (310) ?Die Übersetzung [ist schlecht]<sub>AR</sub> und [mit Korrekturen übersät]<sub>COLL</sub>.  
 ‘The translation is bad and strewn with corrections.’

These subtle differences show that there are hard and soft constraints for copredication that must be weighed accordingly in order to be able to predict the right copredication examples. Consequently, I assume that acceptability corresponds to a continuum with acceptable and unacceptable examples as the extreme values, but also with a scale of better and worse examples in between. The question is how do native speakers actually judge copredication examples that violate different constraints? To answer this question, empirical data will have to be collected and analysed – a task that is left for future work. Still, I will formulate my predictions on how the results of such a questionnaire could look like in this section, starting with Constraint 1.

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**Constraint 1**

Copredication requires positive feature sharing and/or a resultative relation between the indicated reading categories

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Reading indicator combinations provide a hard constraint in my opinion: A violation of Constraint 1 cannot be neutralized by the satisfaction of other constraints, as my acceptability judgement for (228) has shown. The distribution of nominalization readings into the event, its results and its participants is mirrored by this constraint and it shows that we cannot combine indicators for something that is involved in the event with indicators for something that comes about by it. Although this is a hard constraint, I have shown that there are intermediate cases, depending on the extent of resultativity involved in objects, that might be judged better than the clear participant cases and worse than the clear result cases. I believe, that this emphasizes the decisiveness of the coherent resultative relation built into the semantics of deverbal *-ung* nominals.

Participant readings and events are hence more antagonistic (cf. Cruse 2002) than results and events; they cannot be unified with the event or other members of their group. This seems to be a general constraint for deverbal nominals, since *-er* and *-erei* nominalizations do not participate in copredication either: their readings also denote participants in the event and are antagonistic (cf. 2.3). Hence, Constraint 1 must be observed to license predicate transfer. Let us now turn to Constraint 2.

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**Constraint 2a**

Coordinated conjunction between the competing indicators impedes copredication

**Constraint 2b**

The competing indicators should appear in different forms

**Constraint 2c**

In event-result combinations, one indicator has to be temporally disjoint if the result comes about by the completed event<sup>148</sup>

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<sup>148</sup> This is always the case for result states, abstract result values and relations, created result objects and, under certain conditions mentioned above, also for resultative means and modifications.

The structural Constraints 2a and 2b constitute soft constraints in my opinion, since subordination and/or the use of different indicator forms simplifies copredication, but if we do not adhere to this preference, examples do not necessarily come out totally unacceptable as long as we adhere to Constraint 1. 2c is a hard constraint for event and result combinations: We must have temporal disjunction, no matter in which structure, since event and result cannot coexist, as shown in (311)–(313).

- (311) Die Ausrichtung der Antenne [war kompliziert]<sub>EV</sub> und [ist jetzt perfekt]<sub>RS</sub>.  
‘The alignment of the antenna was complicated and is perfect now.’
- (312) Die Ausrichtung der Antenne [war kompliziert]<sub>EV</sub>, aber dann doch [perfekt]<sub>RS</sub>.  
‘The alignment of the antenna was complicated, but then perfect.’
- (313) ??Die Ausrichtung der Antenne [ist kompliziert]<sub>EV</sub>, aber [perfekt]<sub>RS</sub>.  
‘The alignment of the antenna is complicated, but perfect.’

This behaviour mirrors the preference to keep the different domains involved in copredication examples apart, e.g. by structurally or temporally disjoining them or even by giving one of the indicators its own language material, as in anaphora cases. Constraints 2a and 2b<sup>149</sup> are hence soft constraints that support copredication, but only if Constraint 1 is adhered to.

Constraint 3 contributes to the acceptability of copredication cases in that it motivates the use of two competing indicators for one nominal form.

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#### **Constraint 3a**

The first and the enriched indicator must contribute properties that stand in a coherence relation (predicate coherence)

#### **Constraint 3b**

Predicate coherence must either be built into the semantics of a specific indicator, or it must be based on correlations between the indicators or it must be situatively suggested by contextual knowledge

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Predicate coherence, which exists on different levels, seems to be a hard constraint, since we try hard to establish it in any case. Kehler (2004: 242) notes on discourse coherence: “The fact that hearers are driven to try to identify such explanations is itself evidence that coherence establishment is an inescapable component of discourse interpretation.” Predicate coherence can improve examples that do not adhere to structural Constraints 2a and 2b, but I do not think that it can compensate for the

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<sup>149</sup> However, constraint 2b is stronger than 2a in many cases, depending on the two indicator forms: two adjectives might be much more acceptable than two relative clauses.

violation of Constraint 1: For example, we cannot combine two incompatible reading indicators, even if they stand in a coherent relation as in (228) above, where the consequence relation is even made explicit by the coherence marking conjunction *deshalb* ‘therefore’. Moreover, it cannot rescue event and result indicator combinations that are not temporally disjoint.

Based on these constraints for predicate transfer in copredication examples, I will formulate the following rule for copredication with deverbal nominals, which includes a weighing of the constraints and will have to be proved by empirical data of other native speakers:

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**Rule for copredication with deverbal nominals**

We can apply a predicate *x* normally applying to a certain domain *A*, available for the nominalization  $\alpha$ , to another domain *B* indicated by a predicate *y*, iff the two domains share at least one semantic feature and/or stand in a resultative relation. Moreover, predicate *x* and predicate *y* applying to nominalization  $\alpha$  have to stand in a coherent relation, established by the semantics of the predicate *y*, the correlation between *x* and *y* or through the situation. To facilitate copredication, *x* and *y* should be separated structurally by means of subordination or anaphoric pronouns, and have to be temporally disjoint if one of the domains is an event and the other a result.

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I will make this rule explicit with the already discussed example (255) repeated here. In discussing it, I will show that this rule predicts why this example is acceptable in my view.

- (255) Die [mühsame]<sub>EV</sub> Messung ist [auf fünf Stellen genau]<sub>AR</sub>.  
 ‘The cumbersome measurement is accurate to five decimal places.’

We can apply the predicate *auf fünf Stellen genau* ‘accurate to five decimal places’, which normally applies to the domain of abstract results (values) available for the nominalization *Messung* ‘measurement’, to the domain of events indicated by the predicate *mühsam* ‘cumbersome’ here, since these domains (events and abstract results) share at least one feature (here: being abstract) and stand in a resultative relation to each other.

Moreover, *auf fünf Stellen genau* ‘accurate to five decimal places’ and *mühsam* ‘cumbersome’ applying to *Messung* ‘measurement’ stand in a coherent relation, here established by an event motivated consequence between them, since such a precise value might suggest that it was hard to establish. The fact that these indicators are separated structurally by using two different forms of indicators (*mühsam*

‘cumbersome’ is part of the DP, while *auf fünf Stellen genau* ‘accurate to five decimal places’ is part of the VP) supports copredication and provides temporal disjunction, since one of the domains is an event and the other a result.

My predictions for questionnaire results on the interplay between the different constraints, which add up to acceptable or unacceptable examples, could be made more explicit by a value range along the lines of Blume (2004: 103), who weighs different factors influencing the acceptability of constructions with nominalised infinitives. She assumes that if a constraint is violated, it comes to a deduction of points corresponding to the “strength” of this constraint. If more than one constraint is violated, these deductions are added up to form an end value. If this value lies within a predetermined value range of acceptability, the example is fine, and since we do not only have one acceptable value, we can also account for “better” or “worse” examples that are not totally out. For the constraints on copredication I have stated here, I suggest the following values in Table 13.

<b>Violation of constraint</b>	<b>Deduction of points</b>
Constraint 1 (readings) (resultative means involved) <sup>150</sup>	– 4 (–1)
Constraint 2a (coordination)	– 1
Constraint 2b (different indicator forms)	– 2 / –3
Constraint 2c (temporal structure)	– 4
Constraint 3 (predicate coherence)	– 3

Table 13. Weighing the constraints on copredication

The acceptability range should be determined as between 0 and –3, so that all examples that have up to 3 deducted points or less are still acceptable, whereby less deducted points correspond to a higher acceptability. However, if an example adds up more than 3 deducted points there is no such cline anymore; these examples are simply unacceptable then (analogous to Blume’s treatment). For example, a copredication that involves incompatible reading indicators would get –4 in my opinion and is hence unacceptable no matter whether it violates other constraints or not, while an example with compatible indicators, but no predicate coherence relation between them is barely accepted, but maybe marked with 3 deducted points (and so on).

As in Blume’s account (Blume 2004), these predictions should be empirically motivated by questionnaires so that they correspond to informant judgements — a task left for future work in this field. Still, we already have first results of substudies that can be used as a basis for this task: Weiland (2009), Weiland et al. (2010) and Featherston et al. (submitted) provide empirical data that verify some of my basic assumptions, for example on the influence of noteworthiness / predicate coherence and the order of reading indicators. They have also tried to control effects such as the relative fluency of

<sup>150</sup> As I have shown in 8.1, the acceptability of event–result object copredications depends on the amount of resultativity involved; examples with resultative means were judged worse by some speakers.

the different readings of one deverbal nominal, performed experiments to identify clear indicators and discussed general issues of empirical studies on semantic and pragmatic phenomena.

I have shown in this chapter that copredication does not only depend on a special inherent lexical structure of the noun licensing it. It is also constrained by different factors concerning the reading indicators involved, the position of the readings in the structure and the relation between the indicators in context. The constraints I have stated depend on the context they appear in and on world knowledge about correlations between event and result properties. With these constraints, we are able to predict the right copredication examples and to improve an ambiguity test (Cruse 2000, 2001) by stating clear prerequisites for its application.

## 9. Conclusion

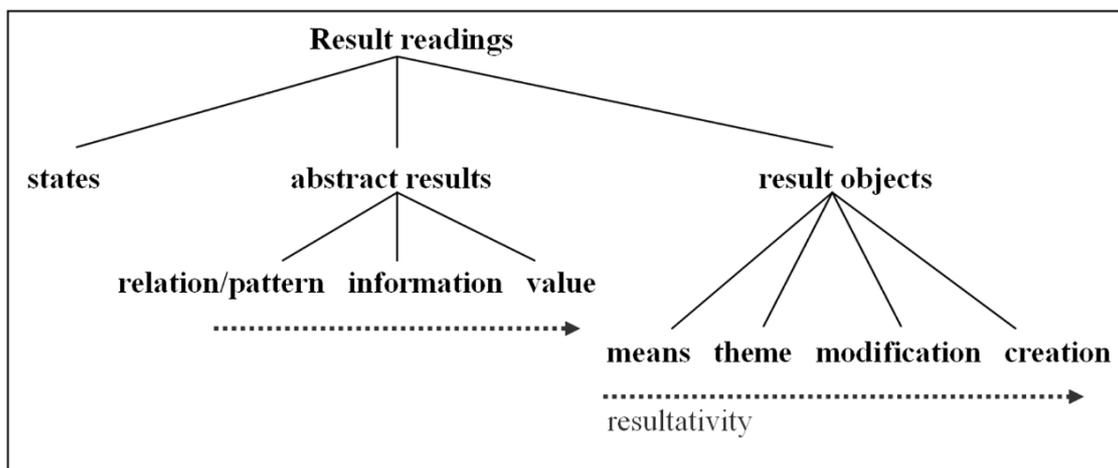
This work is a contribution to the field of meaning variation and disambiguation in context especially with regard to deverbal nominals, which have been in the focus of syntactic approaches for a long time now. The main questions have concerned the phenomenon of copredication, that is, contexts in which modifiers and predicates indicating different semantic domains (events, states, objects etc.) are simultaneously predicated of the same nominalization. My main goal was to cope with the issues of composing these sentences by solving the mismatch between the competing indicators and of constraining this mechanism to account for the variety of exceptions. I have focussed on *-ung* nominals in German since they display an extraordinary semantic flexibility and also because they are the only German nominalizations that allow for copredication.

To be able to address the open questions concerning interpretation in context and especially copredication, I first had to specify the available readings for deverbal *-ung* nominals relevant for a semantic-pragmatic approach. These do not only include events and states, but also objects, agents and locations as in Table 1, repeated here:

EVENT	<i>Messung</i> ‘measurement’
RESULT STATE	<i>Verschmutzung</i> ‘pollution’
ABSTRACT RESULT	<i>Übersetzung</i> ‘translation’
RESULT OBJECT	<i>Erfindung</i> ‘invention’
MEANS	<i>Lüftung</i> ‘air-conditioning’
AGENT	<i>Bedienung</i> ‘waitress’
COLLECTIVE	<i>Verwaltung</i> ‘administration’
LOCATION	<i>Reinigung</i> ‘dry-cleaning’

Table 1. Categories of *-ung* readings

The most extra-ordinary aspect of deverbal *-ung* nominals as far as their semantics are concerned turned out to be the event-result alternation and I have identified a variety of possible results that these nouns can denote summarized again in Figure 1.

Figure 1. Result readings for *-ung* nominals

These results depend on the event and differ with respect to how resultative and newly created (through the event) they appear to be — a characteristic that also influences the licensing of copredication as I have shown.

To identify the different readings from Table 1 I summarized their characteristics in Table 10, which correlate with the selectional restrictions of predicates and modifiers, so called reading indicators, which I have in turn used to identify readings in context, especially in copredication examples from a corpus.

	Event	Result State	Abstract Result	Result Object	Means	Agent/ Collective	Location
Duration	+	+	–	–	–	–	–
Dynamic	+	–	–	–	–	–	–
immaterial	+	+	+	–	–	–	–
resultative	–	+	+	+	–	–	–
volitional	–	–	–	–	–	+	–
cause event	–	–	–	–	+	+	–

Table 10. Categories for *-ung* nominals

To analyse these examples, I established a new viewpoint on composition in copredication cases (cf. Chapter 7). In contrast to other theories (e.g. Bierwisch 1989, Pustejovsky 1995), I did not focus on the flexibility of the noun alone, but emphasized the role of the context and pragmatic principles therein. I assumed that in such a mismatch situation, where two competing indicators modify one token of a deverbal nominal, we do not have to shift the nominalization itself, but we can adjust the context accordingly. This assumption was inspired by Nunberg's theory of predicate transfer, which accounts for situative contextual mismatches between a modifier and a noun in particular, but also for copredication with simple nouns. According to this theory, we can apply predicates normally modifying one domain to another (mismatching) domain if a salient relation between the domains exists. I conferred predicate transfer to

copredication with deverbal nominals, assuming that the first indicator fixes a reading for the nominalization whereas the second indicator is adjusted to the requirements of this reading by enrichment.

The main unsolved issue concerned constraints on predicate transfer in copredication, which has not been addressed in the literature to date in any detail and cannot be explained by theories focussing only on the noun's flexibility: If the noun's semantic representation could predict copredication, a specific noun should allow for different indicators in every context. I introduced constraints for copredication which concern the positioning of the indicators in the sentence structure, the reading indicator combinations, and the relation between the properties they assign in context (cf. Chapter 8). In doing so, I demonstrated that we prefer to keep competing indicators apart in the sentence structure and, in some cases, they must be temporally disjointed. Moreover, I made clear that there are three groups of readings based on the features in Table 10: events, their results and participants in the event. Their indicators cannot be freely combined in copredication, but only if they belong to the first two groups, which is related by resultativity. I also found that the more fine-grained partition of result readings I proposed (cf. 2.2) has grammatical effects: the different categories of result objects differ in the acceptability of copredication and temporal coexistence with the event (cf. 8.1 and 8.2) and in whether they allow theme arguments with the result nominal (cf. 3.2). Lastly, I demonstrated that it is not only decisive which readings are indicated, but also which specific properties these indicators assign to the nominalization: they have to stand in a coherent relation. To exemplify this relation, I conferred relations known from discourse coherence between sentences and then showed that they are crucial and can be adapted for copredication as well (cf. 8.3).

By providing an original analysis for copredication examples with deverbal nominals in terms of predicate transfer, I also introduced a new possibility to annotate these examples in corpora as an alternative to the strategy of leaving the noun's interpretation open (as e.g. with complex dot types in GL): The first indicator should accordingly determine the only reading for the noun in context. Moreover, I proposed additional types of indicators in the wider context (cf. 3.2) that are not considered in other theories: Sense relations can function as indicators for the noun and ambiguous indicators can be disambiguated by contextual knowledge, which means that not only semantic selectional restrictions in the immediate environment are crucial for interpretation. These "tools" can be used in corpus linguistics if the local context does not suggest a reading.

The constraints I stated for copredication do not only explain this phenomenon in more detail, but they can also refine the ambiguity test discussed e.g. by Cruse (2000, 2001). Cruse's test leads to inconsistent results if it only depends on the readings involved, as I have shown in the introduction and in Chapter 5: As we have seen, the same reading indicator combinations can lead to different judgements, depending on their position and predicate coherence (cf. Chapter 8). Consequently, if a copredication sentence

fulfills the structural<sup>151</sup> constraints and is coherent, but is still odd or “zeugmatic”, we can be sure that the two indicated readings of the noun are antagonistic. Hence, my observations contribute to the improvement of ambiguity tests, which are often criticized for their inaccuracy, mostly due to context dependence (cf. Zwicky & Saddock 1975, Geeraerts 1993).

Moreover, the findings in this thesis can give new impulses for nominalization theories or meaning variation in general. The behaviour of different reading combinations in this specific structure tells us something about the relations between these readings and provides the strongest constraint on copredication as I have shown. Hence, it might have implications for the representation of deverbal nominals within the discussed theories, which should take into account that the distribution of these readings (events, participants and results) has grammatical effects. I suggest, that in Bierwisch’s theory (cf. Chapter 5.1), which has an underspecified (event) representation and operators for the other readings, these operators should be distinguished somehow, so that we have different ones for participants and results. Alternatively, participant readings could come about by a mechanism different from the one for results. For the generative lexicon (cf. Chapter 5.2), it may be plausible to assume that the participant readings are coerced by exploitation of the qualia (not the dot) or by wrapping, and that this makes them unacceptable in copredication.<sup>152</sup> Moreover, the constraints on copredication I have stated can complement such theories: They predict that the special lexical structure they propose for simple nouns like *school* and deverbal nominals mirrors or motivates copredication, but by simply relying on that, they cannot account for exceptions.

To conclude, I will pose some open questions that might be interesting for further research. I have focussed my survey of deverbal nominals and copredication on German data involving *-ung* nominals, but I assume that the observations made here hold in a similar way for other languages that have deverbal nominals. However, the crosslinguistic stability of copredication and its constraints should be verified in a systematic way. For this reason, I will give a short overview here in order to be able to determine some open questions. The pattern of relations between the readings available for *-ung* nominals seems to be very general, since we find similar patterns in other languages, like, for example, French, English, Italian and Spanish: For example the nominalizations *traduction*, *translation*, *traduzione* and *traducción* are all derived from the verb for translate and can have event or (abstract and material) result readings, like in German. The pattern for the etymologically related counterparts of *-er* and *-erei* in German, which can refer to participants in the event, is also similar: *conducteur*, *driver*, *conduttore*, *conductor* all refer to the person driving, like the German *Fahrer* ‘driver’,

<sup>151</sup> Obviously, the temporal constraints only have to be fulfilled if we test event and result readings of deverbal nominals.

<sup>152</sup> In Melloni’s morphological account (2007: 110ff), agent/collective and location readings are said to come about by sense extensions triggered by paradigmatic pressure (cf. Booij & Lieber 2004), while means readings are defined as logical polysemy, just like results. However, means cannot appear in copredication and should therefore be paired with the other participant readings somehow.

while *distillerie*, *distillery*, *distilleria* and *destillería* refer to the location where the corresponding event is usually carried out, like the German *Schnapsbrennerei*.

As I have shown, copredication only concerns *-ung* nominals (and simple nouns as *school*) in German, because there is only one productive suffix to form this kind of nominalization that involves event and result readings. These German derivatives do apparently not translate into a single derivation form in other languages, as shown in Table 14.<sup>153</sup> Some *-ung* nominals translate into *-ing* or *-ment* nominals in English (e.g. *Bemalung* ‘painting’, *Heizung* ‘heating’, *Messung* ‘measurement’, *Bestrafung* ‘punishment’), while others have counterparts in *-ion*, as e.g. *Absperrung* ‘obstruction’.

German	English	French	Italian	Spanish	Common readings
<i>-ung</i>	<i>-ion/-ing/ -ment</i>	<i>-ion/-ment/ -age</i>	<i>-mento / -zione</i>	<i>-ión/-era</i>	Event, result, means, agent/collective, location

Table 14. Counterparts to German *-ung*

German *-ung* is not unrestricted (cf. 2.1), but pretty flexible (cf. e.g. Fleischer & Bartz 1995, Motsch 2004), which means it can, for example, form abstract and concrete entities, count nouns, mass nouns and collectives, takes stative and non-stative base verbs, etc. This is presumably the case because there are no other competing productive suffixes covering this domain and, in case of lexical gaps, the most flexible suffix fills those due to so-called paradigmatic pressure (cf. Booij & Lieber 2004).

In languages with a richer morphology, the “labour” *-ung* does is distributed among several suffixes, which have clear restrictions. The question is, how is this divided and does that have implications for copredication? To answer this, the functions of the different suffixes have to be taken into account in more detail.<sup>154</sup> French *-ment*, for example, has a tendency to cover non-agentive, terminative readings and prefers result states, while *-age* is rather used for the agentive, eventive ones (cf. Uth 2011).<sup>155</sup> Hence, the choice of a specific suffix might already reduce the possible readings the verb might contribute here: For example, *décollage* ‘departure (of a plane), displacement’ covers the causative reading (agentive or not), the agentive inchoative reading and does not have a stative reading, whereas *décollement* ‘ablation/displacement’ covers the non-

<sup>153</sup> German also has nominalised infinitives available for every verb (e.g. *bauen* ‘to construct’, *das Bauen* ‘the constructing’), and most of them are eventive (with a few exceptions for e.g. *das Schreiben* literally: ‘the writing’/‘the letter’). Nouns in *-ment*, *-(t)ion* and *-age* are clearly restricted and not productive in German: copredication is only possible with some *-ion* forms as *Installation* ‘installation’.

<sup>154</sup> Like nouns, specific suffixes could be analysed in terms of a two layer-semantics: for an approach to the semantics of Italian *-ata* see von Heusinger (2009).

<sup>155</sup> Similarly for Italian: “the nominal in *-zione* (*cancellazione* ‘cancellation’) can only convey the event reading, whereas the one in *-tura* (*cancellatura* ‘erasure’) expresses exclusively a concrete interpretation” (Melloni 2007: 73). In German, both readings would be covered by the *-ung* nominal *Streichung*.

causative reading, the non-agentive inchoative reading and the stative reading of the verb.<sup>156</sup>

I can only hint at the implications which these facts might have on copredication here: Since *-ung* in German is very flexible in meaning it can display copredications like (314), which might not function in the same way in French, for example, due to the fact that no single French suffix covers both readings.

- (314) Die [bestehende/vorgefundene]<sub>RS</sub> Ablösung der Rinde wurde  
[absichtlich vorgenommen]<sub>EV</sub>.  
‘The existing/found dissolution of the bark was done on purpose.’

In French, we would have to use an *-age* nominal for the event reading and a *-ment* nominal for the state reading, which means a copredication analogous to the one in German is presumably not possible, as shown in (315).

- (315) a. ?Le décollement existant/trouvé de l'écorce était opéré/procédé  
intentionnellement.  
b. ?Le décollage existant/trouvé de l'écorce était opéré/procédé  
intentionnellement.

However, this does not mean that these other languages do not display copredication examples. Most English translations of the German examples discussed in this work have shown that copredication is in fact possible with deverbal nominals in English (when the English nominal form covers the same two readings). Moreover, examples (316) and (317), taken from Jacquesy (2001) for French and from Jezek & Melloni (2009) for Italian, show that these languages also allow for copredication (reading indication adjusted to my labelling).

- (316) La reproduction du tableau de droite, [qui a commencé hier]<sub>EV</sub>, [sera  
vendue]<sub>RO</sub> le mois prochain.  
‘The reproduction of the table on the right, which began yesterday, will  
be sold next month.’
- (317) La costruzione, che [si protrasse]<sub>EV</sub> fino al XVII secolo, [rimane  
un'importante testimonianza]<sub>RO</sub> della geniale tematica del Palladio.  
‘The construction, which continued till the XVII century, represents an  
important evidence of Palladio’s ingenious artwork.’

<sup>156</sup> Thanks to Fabienne Martin for providing these characteristics. For further considerations on derivation as disambiguation see Uth (2011) and Martin (2009).

The question is whether the constraints I have stated also hold in other languages. Jezek & Melloni (2009) notice the same structural and temporal constraints for Italian as quoted here referring to (317):

“We claim that co-predication is felicitous in this context because of three facilitating factors: a) the E-type selector is introduced in the relative clause, b) there is temporal disjunction between the E and the R type, namely Past for the E-type selecting predicate, Present for the R type selecting predicate, and c) the internal argument is omitted (the result interpretation would be blocked in case of internal argument projection).”<sup>157</sup>

Jezek & Melloni (2009: 8)

Moreover, copredication neither seems to be possible with participant readings as displayed by *-ung*, nor by *-er* and *-erei* counterparts, as in (318) and (319), just like in German.

(318) ?The [broken]<sub>MEANS</sub> borer [took a break]<sub>AGENT</sub>.

(319) ?La distillerie [délabrée]<sub>LOCATION</sub> [est très dure]<sub>EVENT</sub>.  
'The ruinous distillery is very hard.'

However, it is not clear whether the relations between other readings of deverbal nominals corresponding to *-ung* are similar across languages and hence, whether the reading indicators predicted to be compatible for *-ung* lead to acceptable copredications in other languages as well. Hence, I would expect that coherence and general structural constraints for copredication are cross-linguistically stable, but there might be differences concerning tense forms (cf. 8.2), the readings covered by one nominal type and the acceptability of reading indicator combinations, which means I expect additional constraints for other languages. These assumptions could be verified by comparing occurrences of copredications in translations of the same text, e.g. in a parallel corpus like *EUROPARL*, which comprises texts of the European Parliament in many different languages.<sup>158</sup>

Further questions concern the embedding of my specific findings concerning copredication within theories of anaphora (cf. 8.2), thematic roles (cf. 8.1), and resultative constructions (cf. 8.3). It would be worth considering whether the data given and the assumptions made give new insights into these specific fields of research, e.g. into the accessibility of antecedents for pronouns, the mapping from features of

<sup>157</sup> For the hypothesis that the possibility of realising the theme argument within the NP depends on the specific lexical semantic structure of the base verb, see Ehrich & Rapp (2000) and my observations in section 3.2.

<sup>158</sup> <http://www.statmt.org/europarl/>. This is only one example for a possible existing database. In a first check I did not find copredication examples therein.

referents to their thematic roles and the comparison of inherently result relevant event indicators as *präzise* ‘precise’ to resultative adverbs as in *schlampig gekämmt* ‘sloppily combed’ (cf. 8.3 and Kratzer 2000 among others). How pragmatic intrusion or repair mechanisms (e.g. predicate transfer as described in detail above) interplay with semantic composition is also an open question of interest. It seems that semantics is not just the input for pragmatics, since in copredication structures it comes to mismatches that cannot be solved without pragmatic factors influencing the interpretation in context on the fly (cf. Chapter 5). The way in which pragmatic principles interfere with the lexicon within composition, especially of copredication structures, should be modelled in more detail as a contribution to the semantics-pragmatics interface.

As far as experimental or psycholinguistic studies are concerned, my survey opens up different possibilities to verify the assumptions made here. In fact, some questionnaires were already done with main focus on copredication and predicate coherence (cf. Weiland 2009, Weiland et al. 2010 and Featherston et al. submitted), which for example have shown that coherent examples are indeed judged better than incoherent ones and which factors we need to control in studies like these. However, the relative strength of the different constraints should be systematically tested, as well as their interplay with each other. In 8.4, I have represented my predictions on how the violation of different constraints could influence the acceptability by deduction of points that allows weighing combinations of different constraint violations, in analogy to Blume (2004). It should hence be tested whether the specific acceptability predictions I made there are mirrored in the judgments of native speakers in order to verify the continuum of acceptability suggested in this work.

With respect to the processing of copredication structures, the question arises whether the mismatch involved there is costly and if so, to what extent (also considering the different supporting factors). It could be tested, for example, at which position within the sentence we find delayed processing and consequently where repair mechanisms may apply.

As we have seen, the study of deverbal nominals opens up a vast field of areas, such as morphology, syntax and semantics. However, it is my belief that pragmatic aspects are also of interest and cannot be disregarded when it comes to the interpretation of deverbal nominals, especially in cases of sortal mismatches. I hope to have shown in this work, that copredication is on the one hand a powerful means to give impulses for other areas such as meaning variation of different lexical items, but on the other an intriguing area of research in its own right.

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## **Eigenständigkeitserklärung**

Hiermit erkläre ich, dass ich diese Arbeit abgesehen von den im Literaturverzeichnis genannten Hilfsmitteln selbstständig und nur mit Ratschlägen der in der Danksagung genannten Personen verfasst habe.

Stuttgart, den 21.04.2010

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