

The division of the causative eventive chain by means of -ment and -age*

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In this paper I will investigate process and result nominals in -age and -ment, which are derived from verbs participating in the causative/anti-causative-alternation (henceforth labelled “alternating verbs”). First of all, it will be empirically shown that -ment-nominals have both the anti-causative reading and the resultant state reading, whereas process nominals in -age focus on the causing process and result nominals in -age only appear in applicative constructions. Ehrich & Rapp (2000) assume that the causative eventive chain consists of a causing process and a change-of-state event that takes the resultant state as its situational argument. Following that, I will conclude from the empirical evidence that -ment nominalizes the change-of-state event, while -age nominalizes the causing process. Furthermore, I will model the relevant -age- and -ment-nominals in terms of Lieber’s (2004) conceptual structures and discuss the question whether we may assume that -ment and -age introduce different aspectual operators.

1. Introduction

In this paper, I will analyze the properties of process and result nominals in -age and -ment that are derived from bases denoting parts of what I will call the causative eventive chain. As regards the relationship between the different parts, I adopt the view advanced by Ehrich & Rapp (2000) according to which this eventive chain consists of two sub-events, a causing process r and a change-of-state event e , which takes the resultant state it culminates in as its situational argument. The specific alignment of r and e is interpreted as a causative event e by means of a lexical redundancy rule (cf. *ibid.*: 258):

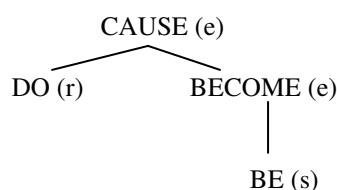


Fig. 1: The causative eventive chain according to Ehrich & Rapp (2000)

I assume that alternating verbs are underspecified regarding the denotation of the several parts of the causative eventive chain (cf. Piñon (2001)), and that

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their denotation is specified by means of further contextual influences as e.g. inflectional morphology (1a), or the number, the thematic roles and the quantificational constitution of their arguments (1b,c):

- (1) a. Le ballon **est gonflé**. resultative
 ‘The balloon is inflated.’
 b. Le ballon **gonfle**. anti-causative
 ‘The balloon becomes inflated.’
 c. Pierre **gonfle** le ballon. causative
 ‘Pierre pumps up the balloon.’

Concerning event nominalizations, the formal segregation of expressions denoting the resultant state from expressions denoting the dynamic parts of the causative eventive chain (cf. 1) is largely cancelled, as evidenced by the many cases of event nominalizations that are ambiguous between the process reading and the resultant state reading (cf. e.g. Dubois (1962:13f)). In this paper, it will be shown that *-ment*-nominals occur in both the BECOME-reading (process nominals) and the BE-reading (result nominals), whereas process nominals in *-age* focus on the causing process, while result nominals in *-age* only appear in applicative constructions. From this evidence I will conclude that the nominalization procedure initialized by *-age* does not extend to the second sub-event of the causative eventive chain, contrary to the one represented by *-ment* that is restricted to precisely this sub-event:

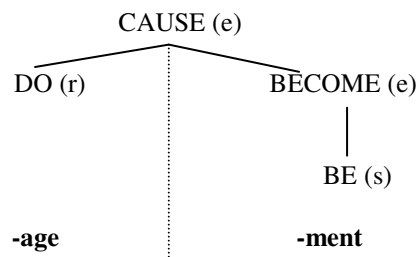


Fig. 2: Division of the causative eventive chain by means of *-ment* and *-age*

The structure of the paper is as follows. Sections 2 and 3 present previous analyses as well as new data concerning the restriction of the denotational range of *-ment* and *-age* to the respective sub-events. Section 4 provides some suggestions as to how this difference might be modelled in terms of the morphosemantic formalism proposed by Lieber (2004). In Section 5, *-ment* and *-age* are analyzed as introducing aspectual operators, in a way such that the differences observed in the realm of alternating base verbs might possibly be attributed to more general aspectual differences that have been ascribed to the suffixes for independent reasons by e.g. Bally (1965), Martin (this volume), or Uth (2008).

2. The semantics of –ment-nominals derived from alternating verbs

Concerning event nominalizations in -ment derived from alternating verbs, it is already noted by Dubois & Dubois-Charlier (1999) that they generally denote the change-of-state-event if they occur in the process reading:

- (2) la température **s'adoucit** -> **l'adoucissement** de la température
'the weather becomes mild' 'the becoming mild of the weather'

The hypothesis that the denotation of process nominals in -ment is generally restricted to the change-of-state component was first explicitly put forward by Martin (2007). Martin states that if we compare „agent-less“ sentences with -age-nominalizations to sentences with -ment-nominalizations, both being derived from alternating verbs (as in (3a and b)), only the denotation of the -age-nominals extends to the causing process. This is shown by the fact that only in (3a) the causing process is to be necessarily witnessed for the sentence to be true. The -ment-suffix does not refer to any part of the causing process, as is evidenced by the non-entailment in (3b). Reference to the causing process may however be introduced by additional constituents, as e.g. a *par*-phrase denoting the agent of the action (3c):

- (3) a. Pierre a assisté au **gonflage** des ballons.
'Pierre witnessed the inflating of the balloons.'
-> Pierre witnessed the causing event.
- b. Pierre a assisté au **gonflement** des ballons.
'Pierre witnessed the inflating of the balloons.'
-/> Pierre witnessed the causing event.
- c. Pierre a assisté au **gonflement** des ballons **par Paul**.
'Pierre witnessed the inflating of the balloons by Paul.'
-> Pierre witnessed the causing event.

In order to evaluate this generalization, I extracted 100 types of -ment-nominals from a New French text corpus.¹ This data sample contains 56 types (328 tokens) of -ment-nominals derived from alternating verbs. The share of nominalizations occurring in the process reading amounts to 123 tokens (vs. 205 result nominals). In line with Martin's (2007) line of argumentation, Table 1 shows that the relevant process nominals in -ment mostly denote pure change-of-state-events (i.e. in 103 out of 123 cases). 14 tokens are ambiguous concerning the implication of the causing process, i.e. whether or not these occurrences of -ment-nominals imply the causing process can not be determined. Finally, there are six

¹ The corpus sample is extracted from the categorized version of the FRANTEXT database (<http://www.frantext.fr/categ.htm>). It consists of 3 Million words and ranges from 1987 to 1997.

cases that disprove the above hypothesis at first sight, as the denotation of the -ment-nominals seems to extend to the causing process:

<i>reading</i>	<i>freq_ tokens</i>
1. <u>change-of-state</u> Acteur « professionnel », j'avais connu (...) l' aplanissement progressif des bruits quand la lumière baisse (...). (Le pas silencieux de l'amour, p. 254) 'As a professional protagonist I had known (...) the progressive slow-down of the noise when the light was slowly switched off (...). '	103
2. <u>ambiguous</u> (change +cause?) (...) la Libération, l' achèvement de la guerre semblaient marquer la fin d'une époque, (...). (Le bonheur à San Miniato, p. 251) 'The Liberation, the ending of the war, seemed to mark the end of an era.'	14
3. <u>causation</u> (change + cause) Un livre, cela se fait comme un meuble, par ajustement patient de pièces et de morceaux . (Le medianoche amoureux, p. 183) 'A book is made like a piece of furniture, by patiently adjusting pieces and components.'	6
total	123

Table 1: Share of different denotational ranges of process nominals in –ment

However, there are further pieces of evidence clearly confirming Martin's hypothesis. For example, I found various -ment-tokens co-occurring with PPs or verbal predicates that denote a causing process, thereby explicitly reducing the denotation of the -ment-nominal to the change-of-state-part:

- (4) a. Réveillée par l'**amusement** que lui cause cette découverte, elle se lève enfin et se regarde dans la glace. (Les oeufs de Paques (p. 60f)
'Aroused by the amusement caused by this discovery, she finally gets up and looks at herself in the mirror. '
- b. Mais ce n'était pas l'argent qui donnait à M.. de Chamilly tant d'**apaisement** et de calme. C'était son éducation, sa famille, son passé. (La douane de mer, p. 375f)
'It wasn't the money which gave so much appeasement and calmness to M. de Chamilly, but it was his education, his family and his past.'

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- c. Ce paysage de rizières n'appelait pas le coup de foudre, mais le lent **attachement** qu'éveille, avec le temps, la précaution des femmes intelligentes. (Les Samourais, p.68)
'This scenery of paddy fields didn't excite love at first sight, but the slow adherence which the precaution of intelligent women provokes over the years.'

Another piece of evidence in favour of Martin's (2007) hypothesis comes from lexicographic definitions that explicitly contrast -ment-nominalizations derived from alternating verbs with their doublets in -age. In such definitions, the denotation of the -ment-nominalization is clearly restricted to the BECOME-part of the event denoted by the verbal base, whereas the -age-nominal denotes the DO-component:

- (5) a. **L'échouage** est volontaire, par exemple pour caréner la coque d'un navire; alors que **l'échouement** est subi, par exemple lors (...) d'une manœuvre manquée. (<http://fr.wikipedia.org/wiki/%C3%89chouage>)
'The "échouage" is voluntary, for example in order to careen the hull of a ship, whereas "l'échouement" is being sustained, for example during a (...) failed manoeuvre.'
- b. **L'arrosage** est accompli par un phénomène naturel; **l'arroisement** est dû à des moyens artificiels mis en action par l'homme. (Colignon & Berthier (1996: 44))
'"L'arrosage" is accomplished by a natural phenomenon whereas "l'arroisement" is due to artificial means introduced by humans.'²

In view of this evidence, it seems reasonable to suppose that in the apparent counterexamples cited above, the causative component is introduced by other means than the -ment-nominalization itself. A further example supporting this analysis is (6), in which the -ment-nominal clearly denotes the change of state (the loss of weight), while the cause of this loss of weight is adjoined by means of the *par*-phrase:

- (6) (...) grâce à l'absorption d'ampoules de Trophisan à base de glucides j'avais récupéré mon poids d'avant l' **amaigrissement par le zona**, c'est-à-dire soixante-dix kilos. (A l'amie qui ne m'a pas souvé la vie, p. 20)
'(...) thanks to the absorption of ampullae of carbohydrate-based Trophisan, I had regained my weight which I had before the excessive losing of weight caused by the zoster and that is 70 kilos.'

² These examples demonstrate a further distinctive characteristic between -ment and -age that is also discussed by Martin (2008), referring to Kelling (2004), namely the fact that -age, contrary to -ment, is excluded in purely non-agentive contexts. In this paper, this difference is largely disregarded for several reasons, but see section 5.

All in all, I take the evidence above to support the hypothesis that the denotation of process nominals in -ment does not extend to the causing process. This characteristic may best be accounted for by assuming that -ment nominalizes the BECOME(BE)-component of the underspecified base verbs, and that -ment-nominals occurring in the process reading denote the first subpart of this component, i.e. the change-of-state-event:

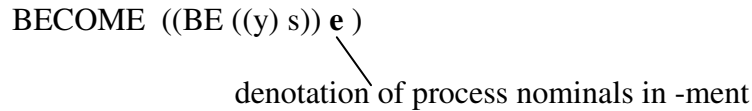


Fig. 3: Denotation of process nominals in -ment from alternating verbs

As regards result readings in -ment, it is first of all striking that compared to -age, -ment is generally taken to be rather resultative (cf. Huot (2005: 75)). The examples commonly given to illustrate this peculiarity of -ment-derivatives are resultative constructions, in which “le sens résultatif de ”état“ ou de ”résultat“ prévaut sur le sense de ”action“ ”(‘the resultative meaning outweighs the “action” meaning’, Dubois & Dubois-Charlier (1999:22)):

- (7) Paul **est entêté**, cela lui nuit. => **l’entêtement** de Paul lui nuit.
 (‘P is stubborn, this fact harms him.’) (‘P’s stubbornness harms him.’)

These (lexicalized) occurrences of -ment-derivatives indicate towards the assumption that result nominals in -ment denote the state resulting from the change of state that is denoted by the very same -ment-derivative when it occurs in the process reading. In order to examine this generalization closer, I investigated the result-related definitions given by the Petit Robert (1993) (henceforth PR 1993) for the -ment- nominals derived from alternating verbs that we extracted out of our FRANTEXT corpus sample. The PR 1993 attests resultant state readings for 44 out of these 56 types of -ment-nominalizations. As will become evident in Section 3, these Figures are in clear contrast with the ones obtained for -age, for which the PR 1993 does not attest resultant state readings at all. Table 2 gives a categorization of the different definitions:

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	<i>definition</i> <i>PR</i>	<i>example</i>	<i>freq_</i> <i>type</i>
Type A "état de" (,state of")	état de ce qui est descendu (‘state of what is fallen’)	Que quelques hommes aient pu s'amouracher de cette latrine, c'est bien la preuve de l' abaissement des hommes de siècle . (La douane de mer, p. 574) ‘The fact that some people became infatuated with this latrine shows the decay of the people of this century.’	26
Type B "fait de" (,fact of")	fait d'être ajusté (,fact of being adjusted’)	Tout, de cet arbre - y compris l'ajustement précieux des lamelles d'écorce entre leurs crevasses - semble encourager l'artiste à la seule fidélité maniaque dans la reproduction. (Carnet du grand chemin, p. 117) ‘Everything of this tree – including the precious adjustment of the lamellas of bark between their crevices – seems to encourage the artist to the unique and manic fidelity in the way of reproducing.’	4
Type C synonym	„fin“ (,end’)	La vie m'avait tant donné, avec tant de surprises et de générosité, que je ne redoutais pas la mort qui en était l' achèvement . (La douane de mer, p. 17) ‘Life has given me so much with so many surprises and generosity that I don't fear death which is the completion of life.’	14
total			44

Table 2: Categories of result-related definitions of –ment-nominals in the PR 1993

As expected, result nominals in -ment generally denote the state that results from the change denoted by the same nominalization occurring in the process reading. Crucially, the same argument that undergoes the change-of-state *e* is in the resulting state *s* after experiencing *e*:

- (8) a. la vie s'achève => la vie s'est achevée
‘life is running out’ ‘life has ended’
b. l'achèvement de la vie => l'achèvement de la vie
‘the ending of life’ ‘the end of life’

Based on Ehrich & Rapp's (2000) event semantics, according to which the BE-component is to be conceived of as an argument of the BECOME-component, we may argue that process nominals in -ment and result nominals in -ment actually denote different subparts of one and the same change-of-state event:

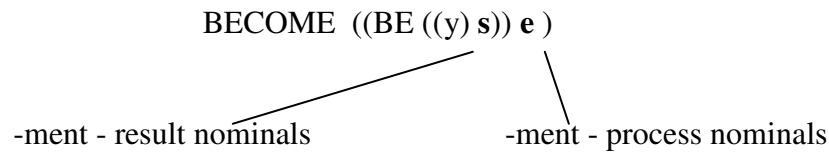


Fig. 4: Denotational range of –ment-nominals derived from alternating verbs

Evidently, the overall denotational range of the derivatives extends to both subparts of the BECOME(BE)-component. Since context-free –ment-nominals derived from alternating verbs are, furthermore, inherently ambiguous between the change-of-state reading and the resultant state reading, I assume that the relevant –ment-nominals generally denote the entire BECOME(BE)-component and that the precise range of their denotation (i.e. change-of-state or resultant state) needs to be determined by further contextual information.³

3. Semantic characteristics of –age-nominals from alternating verbs

As regards nominalizations in -age derived from alternating verbs, Dubois & Dubois-Charlier (1999) give several examples suggesting that the denotation of process nominals generally includes the causing component:

- (9) le bûcheron **abat** les arbres => **l'abattage** des arbres par le bûcheron
 'the lumberjack is chopping trees' 'the felling of trees by the lumberjack'

As already alluded to in Section 2, Martin (2007) argues that their denotation necessarily includes the causing process, since in the case of agent-less -age-nominalizations, the causing process necessarily has to be witnessed for the sentence to be true. The pertinent example is (3c), repeated below as (10).

- (10) *Pierre a assisté au gonflage des ballons.*
 'Pierre witnessed the inflating of the balloons.'
 -> Pierre witnessed the causing event.

In order to account for this hypothesis, I extracted 100 types of -age-nominals from the database described above. In the case of -age, we obtained 27 types derived from alternating verbs that split into 134 tokens, 71 of which have a process reading. As shown by Table 3 and in line with Martin's (2007) line of argumentation, the denotation of the relevant process nominals generally includes the causing process. 5 tokens are ambiguous concerning the implication of the causing component. Finally, there are indeed 11 cases that seem to refute the

³ The specification of the denotational range of –ment-nominals in context might possibly be conceived of as a twofold ambiguity resolution in terms of “bridging” and “thinning”, in analogy to what is proposed by Roßdeutscher (2008) in order to describe the resolution of the process-result-ambiguity of German –ung-nouns.

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hypothesis above, as the denotation of the -age-nominals does not extend to the causing component:

<i>reading</i>	<i>freq_ token</i>
1. <u>causation (change + cause)</u> Une autre fois, il s'est agi d'encourager l'élevage des sangliers en Alsace , de là à franchir les Pyrénées pour se retrouver en Algarve au sud de Lisbonne où (...). (Les greniers de Seine, p. 29f) 'Another time it was about encouraging the breeding of wild pigs in Alsace and from there surmounting the Pyrenees in order to find oneself again at the Algarve, south of Lisbonne, where'	55
2. <u>ambiguous</u> Mona s'attaquait à son bronzage . Avec application. (Gouttière) 'Mona tackles her browning. With application.'	5
3. <u>change-of-state</u> Surpris par le démarrage subit de son collègue , il a regardé partout, m'a aperçu, et a mis la main à sa poche. (La clef des mensonges, p. 43f) 'Surprised by the sudden starting of his colleague, he looked all-around, noticed me and put his hand in his pocket.'	11
total	71

Table 3: Share of different denotational ranges of process nominals in -age

All in all, I take the pattern in Table 3 to establish another supporting aspect for the hypothesis that the denotation of process nominals in -age derived from alternating verbs generally implies the causing component.

In the following, I am going to argue that the relevant process nominals in -age constitute only nominalizations of the causing component, and that any information concerning the respective change-of-state event is contributed to the derivative's semantics by virtue of the base verb. There are two kinds of evidence leading to this assumption. First of all note that 36 out of the 56 clearly causative process nominals in -age of our database emphasize the causing process. These nominals appear to be derived from causative base verbs in absolute constructions that likewise focus on the causing component (cf. Goldberg (2001: 512f)):

<i>reading & example</i>	<i>freq_ token</i>
<p><u>1. emphasis on causing process</u></p> <p>La succession brusquée des ombres et des lumières intérieures semble tenir du rêve non seulement sa toute-puissance sur l'esprit, mais aussi sa soudaineté sans cause, et son éclairage sans foyer lumineux. (Carnets du grand chemin, p. 59)</p> <p>'The abrupt succession of shades and interior lights seems to take from the dream not only his omnipotence over the mind, but also his abruptness without cause and his lighting without luminous source.'</p>	36
<p><u>2. neutral</u></p> <p>Une autre fois, il s'est agi d'encourager l'élevage des sangliers en Alsace, de là à franchir les Pyrénées pour (...). (Les greniers de Seinne, p. 29f)</p> <p>'Another time it was about encouraging the breeding of wild pigs in Alsace and from there surmounting the Pyrenees in order to'</p>	20
total	56

Table 4: Share of –age process nominals with emphasis on causing process

There are different characteristic contexts of -age-nominals that may be conceived of as reflecting this general tendency. For example, in our database we find many collocations containing -age-derivatives that clearly focus on the causing activity, in some cases to the extent that the change-component is completely neglected:

- (11) a. faire dans le **bronzage** ('to engage in tanning business');
faire dans l'**abattage** ('to prostitute oneself');
- b. l'art du **déchiquetage** ('the art of fragmenting/fragmentation');
l'art du **cisaillage** ('the art of cutting');
les barres de **bloquage** ('closing device');
le système d'**éclairage** ('lighting system'); etc.

Another case in point are examples in which the change-component either lacks altogether (12a) or is explicitly denoted by further constituents, i.e. *ajustement* in 12b and *combustion* in 12c:

- (12) a. [À] midi, sous l'**éclairage vertical**, le canyon, moins sonore, n'est pas beaucoup plus qu'une gorge aride qui (...). (Carnet du grand chemin, p. 56)

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‘At noon, under the vertical lighting, the canyon which seems less sonorous is barely no more than an arid gorge which (...)’

- b. [L'**ajustage** est une o]pération destinée à donner à une pièce la dimension exacte que requiert son **ajustement** à une autre. (PR 1993)
‘Adjusting is a process destined to give a piece the accurate dimension which requires his adjustment to another piece.’
- c. Comment ce vide fonctionne-t-il lors de l'**allumage de la combustion** et de l'explosion de la fusée ? (Le medianoche amoureux, p. 102)
‘How does this vacuum work during the firing of the combustion and the explosion of the missile ?’

The general tendency of the -age-derivatives to focus on the causing component is also evidenced by -age-derivatives that have developed lexicalized absolute readings by metonymic shift:

- | | | |
|---------------------------------------|---|-----------------|
| (13) éclairage (abs) | = | glow |
| maison d'abattage (coll.) | = | brothel |
| débloquage (dire des sottises, coll.) | = | talking rubbish |

To sum up, I take the evidence above to suggest that the relevant -age-derivatives as such only denote the causing process, while any information regarding the respective change-of-state event is contributed by the base verb:

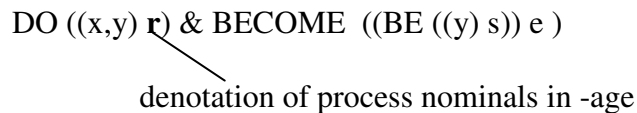


Fig. 5: Denotation of process nominals in –age derived from alternating verbs

However, the most important evidence in favor of this hypothesis comes from the relevant result nominals, since these never appear in the resultant state reading that is typical for the respective –ment-nominals. Interestingly, only 10 out of the 27 relevant -age-types of our corpus sample show up with result-related definitions at all. Circumscriptions by virtue of "état de" etc. are largely absent:⁴

- (14) allumage: ensemble des organes assurant l'allumage
‘ensemble of organs which assure firing’
- arrosage: quantité d'eau fournie (...) à une terre cultivée
‘water which is delivered to a cultivated field’

⁴ The PR 1993 notes for *collage* “état de ce qui est collé”, and for *bloquage* “fait d’être bloqué”, however. Furthermore, there are three result nominals denoting places that might be attributed to metonymic shift.

brouillage: trouble dans la réception des ondes de radio, de télévision [etc.]
(...) dû à l'addition d'un signal différent du signal émis 'trouble
with radio or television reception due to adding a different signal
to the signal emitted'

chauffage: les installations qui chauffent
'heating installations' (PR 1993)

If we take into consideration the lexical semantics of the base verbs, it becomes evident that 9 out of the 10 -age-nominals of our corpus sample that are given result-related definitions by the PR 1993 are basically derived from so-called applicative verbs.⁵ Applicative verbs denote causative eventive chains, in which the PATIENT - argument is affected by virtue of applying to it a concrete or abstract object, the applicans, as for example in the case of German *bespritzen* ('besprinkle'). In this case, the applicative function APPL is sub-ordinated to the BECOME-component, too, since the change consists in (gradually) affecting the PATIENT - argument (y) by virtue of an artefact (z):

(15) Hans (x) bespritzt die Wand (y) mit Farbe (z):
'Hans spatters the wall with colour'

DO ((x,y) r) & BEC ((APPL ((z,y) s)) e) (cf. Ehrich & Rapp (2000: 260))

In a subclass of these cases, the applicative causation accounts for the coming into being of a new object that corresponds to the applicans, applied to the PATIENT-argument during the causing process. A well-known example is Ger. *übersetzen* ('translate') that causes the coming into being of a *Übersetzung* (res) ('translation'). In such cases, the BECOME - function takes for its arguments both the APPL- and the BE-function, since the change-of-state-event comprises both, the application of an additional argument to the PATIENT and the simultaneous coming into existence of the additional argument (or rather its concretion, resulting from its application to the PATIENT, respectively):

(16) Hans (x) übersetzte (>z) das Buch (x) ('...'):
'Hans translated the book'

DO ((x,y) r) & BEC (((BE (z) & APPL (z,y)) s) e) (cf. ibd.)

Due to a lack of an appropriate terminology, I will call this category the APPL-EXIST category. Note that the result of applying the additional argument (z) to (y) is not the result of a change-of-state-event. The change taken by the PATIENT-argument does not result in a "translation", but in a state of being translated. Instead, the "translation" has to be conceived of as the result of the

⁵ The one counterexample is *élevage*. However, the base verb of this lexeme is not in a direct alternating relationship to the anti-causative counterpart, since its meaning is narrowed to denote the process of breeding animals, in a technical sense. Therefore, I do not want to go into details as regards this nominal.

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causing process (i.e. the DO-function in the above representations), since the coming into being of (z) results from the fact that “(x) applies it to (y)”. Coming back to our result nominals in *-age*, it is interesting to note that all of them denote the applicans (z) that is applied to the PATIENT argument. The result nominals of the APPL-category develop an instrument reading since the applicans is conceived of as serving a specific purpose in a technical context. The semantics of the relevant result nominals and their base verbs is illustrated by (17a and b):

- (17) a. arrosage < arroser: to water -> x gives **water** to y
 allumage < allumer: to fire -> x gives **fire** to y
 éclairage < éclairer: to light -> x gives **light** to y
 chauffage < chauffer: to heat -> x gives **heat** to y
- b. Le jardinier (x) arrose (> z) les fleurs (y)
 ‘The gardener irrigates the flowers’
 DO ((gardener_i, flowers_j) r) & BEC ((APPL ((**water**_k, flowers_j) s)) e)

The remaining result nominals in *-age* are basically derived from verbs belonging to the APPL-EXIST category.⁶ They exhibit an object reading, since they denote the object that comes into being when (z) is applied to (y):

- (18) a. brouillage < brouiller: to interfere -> x gives **interference** to y
 blocage < bloquer: to block -> x gives **a blockade** to y
 bronzage < bronzer: to suntan -> x gives **suntan** to y
 clivage < cliver: to split -> x gives **a split** to y
- b. Ce signal (x) brouille (> z) la réception des ondes de radar (y)
 ‘The signal disturbs the reception of ray.’
 DO ((signal_i, radar ray_j) r) & BEC (((BE (**brouillage**_k) & APPL
 (brouillage_k, radar ray_j)) s) e)

Finally note that the *-age*-nominals that are derived from non-applicative causative verbs do not develop result readings at all:

- (19) Le bucheron abat les arbres.
 ‘The lumberjack is chopping trees’
 DO ((x,y) r) & BEC ((BE ((y) s)) e)

To sum up, Figure 6 illustrates the denotational range of our *-age* process and result nominals:

⁶ The missing nominal is *collage*, which will not be analyzed in detail in this paper, cf. footnote 6.

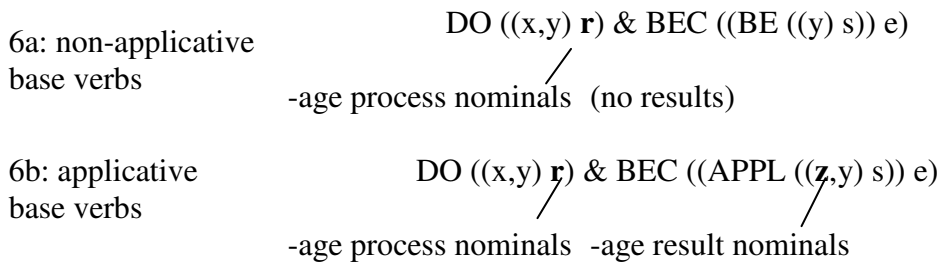


Fig. 6: Denotational range of -age-nominals derived from alternating verbs

I would like to emphasize once again that the denotation of the result nominals in –age crucially differs from the resultant states denoted by the result nominals in -ment. The results denoted by –ment-nominals are equivalent to resultant states, whereas the results denoted by the above result nominals in –age are additional entities that come into existence next to the resultant states. The fact that the only results denoted by the -age-nominals are intimately related to the DO-component constitutes further evidence in favor of the assumption that the scope of the nominalization procedure initialized by -age does not extend to the change-of-state event.

4. Lexical conceptual semantics of –ment- and –age-nominalizations

I argued above that –age-nominals as such only denote the causing process, and that any information concerning the respective change-of-state event is contributed by the base verb. In order to clarify this intuitive description, I would like to propose an analysis in terms of Lieber’s (2004) lexical semantics, since this may help to formalize the interaction between the semantics of the affix and the semantics of the bases. Lieber argues that whenever a noun-forming derivational affix is attached to a verbal base, its R-argument⁷ is co-indexed with one of the arguments of the base verb, co-indexation meaning that “the two arguments are identified referentially with each other” (ibid.: 61). The suffix being the head, the specific way of co-indexing its referential argument to one of the base’s arguments determines the denotational properties of the entire derivative:

- (20) *writer*
 [+material, dynamic ([i], [+dynamic ([i], []))]
 -er write (ibd.: 68)

According to the (violable) Principle of Co-indexation, the –er-suffix in (20) is co-indexed with the “highest and preferably unindexed” (thematic) argument of the base verb, resulting in a nominalization that is interpreted as the AGENT performing the process denoted by the derivational base (ibd: 61-68). Evidently,

⁷ ...that is introduced with reference to Higginbotham (1985) and others to encode the referential properties of nouns...

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in such a representation the semantics of the derivational base essentially influence the denotation of the entire derivative, as shown by the mere fact that an agent nominalization denotes the particular AGENT that performs the process denoted by the base verb.

Lieber (2004) apparently does not allow for referential arguments of verbs to be represented in the lexical conceptual structures. However, I would like to argue that if we adhere to the hypothesis that the suffix's R-argument determines the denotational range of the derivatives, then the mere existence of event nominalizations forces us to enlarge the representation of verb meanings to include the event-, state- and process arguments proposed by e.g. Ehrich & Rapp (2000), since event nominalizations generally denote processes, events or states. Based on Lieber's (2004) lexical semantic representation of causative verbs as Engl. *V-ize* and *V-ify*, I would therefore like to propose the following tentative representation of the causative base verbs of our -age-nominals:

- (21) [+dynamic ([**r**], [*i*], [*j*]) ; [+dynamic, +IEPS ([**e**], [*j*], ([+Loc ([**s**]),
 DO BECOME APPL
 [-dynamic ([**s**], [*j*])))]
 BE

In (21), the referential properties of the causative verb are encoded by means of Ehrich & Rapp's (2000) process variable *r*, the change-of-state variable *e*, and the resultant state variable *s*. The *i*-indexed argument position represents the AGENT-argument, the *j*-indexed argument positions represent the PATIENT-argument. The change-of-state event is characterized as +dynamic and goal-directed (+IEPS),⁸ while the resultant state is characterized as -dynamic. The referential arguments of process, event and state are aligned to the left side of the thematic arguments since in Lieber's representation the hierarchical ordering of arguments is signalled by linear order. The [+Loc]-function roughly equals Ehrich & Rapp's APPL-function discussed above in the context of result nominals in -age. Since Lieber models the conceptual semantics of English *-ize/-ify* - verbs, she proposes that all causative structures imply the Loc-function. However, we may easily retain the difference between applicative and non-applicative verbs by assuming that in the case of non-applicative verbs, the referential argument of the Loc-function is co-indexed with the referential argument of the [-dynamic]-function representing the resultant state. Conceived this way, the representation of applicative causatives differs from (21) only in the fact that the argument of the +Loc-function is not co-indexed with the referential argument of the resultant

⁸ "IEPS" is an abbreviation for "inferable eventual position or state" and is meant to encode that the respective eventuality progresses towards a determinate goal, distinct from the starting-point.

state. With reference to Ehrich & Rapp (2000), we introduce the variable *z* to represent the applicans applied to the PATIENT in applicative structures:⁹

- (22) [+dynamic ([**r**], [*i*], [*j*]) ; [+dynamic, +IEPS ([**e**], [*j*], ([+Loc ([**z**]),
 DO BECOME APPL
 [-dynamic ([**s**], [*j*])))]]
 BE

Based on these representations, we may now tentatively determine the lexical conceptual representations of our -age-nominals by means of co-indexing the referential argument of the causing process *r* with the R-argument of the suffix, in such a way that the denotation of the nominalization becomes restricted to this first component of the base's entire denotation:

- (23) [-material, dynamic ([**r**] ; [+dynamic ([**r**] [*i*], [*j*]) ; [+dynamic,
-age *abatt-*
 +IEPS ([**e**], [*j*], ([+Loc ([**s**]), [-dynamic ([**s**], [*j*])))]])]

The representation of process nominals derived from applicative verbs is very similar. The only difference is that the thematic argument of the LOC-function is not co-indexed with the situational argument of the resultant state:

- (24) [-material, dynamic ([**r**] ; [+dynamic ([**r**] [*i*], [*j*]) ; [+dynamic,
-age *arros-*
 +IEPS ([**e**], [*j*], ([+Loc ([**z**]), [-dynamic ([**s**], [*j*])))]])]

Evidently, the relevant process nominals in –age are interpreted as denoting a causing process that is in a causal relation to a specific change-of-state event, denoted by the derivational base - just as the agent nominal in (20) may be interpreted as denoting the performer of the action denoted by the derivational base. Nevertheless, an *abattage* is primarily a causing process, just as a *writer* is primarily an AGENT. The second argument available for –age, next to the *r*-argument representing the causing process, is the *z*-argument of the Loc-function. I do not want to go into details concerning the concrete mechanisms motivating the restriction of the –age-denotation to this argument. Though evidently, the *z*-argument is in an intimate relation to the DO-component, since it comes into existence by virtue of *x*'s applying something to *y*. For the time being, I will rely on this fact to maintain our generalization that the nominalization procedure

⁹ In (21) and (22) I depart further from Lieber (2004) in the way that I do not include a CAUSE-component into the second sub-event. Instead, I adopt the view proposed by Wunderlich (1997) that causativity is established by means of a lexical redundancy rule that assigns a causal relationship to all instances of DO-BECOME-strings (cf. Section 1). Furthermore, I subordinate the APPL/BE-component to the BECOME-component and I equate the base of the causative verb with the resultant state *s* that is experienced by the undergoer of the change, i.e. *j*.

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represented by –age does not extend to the second sub-event of the causative eventive chain, i.e. to the BECOME (BE)-component.

By contrast, the relevant –ment-derivatives do precisely attach to bases denoting the change-of-state component. Hence, we may derive the relevant lexical conceptual representation by co-indexing the referential argument of the change-of-state event of the anti-causative base with the R-argument of the suffix:

- (25) [-material, dynamic ([e_i]; [+dynamic, +IEPS ([e_i], [j_i], ([+Loc ([s_i]), [-dynamic ([s_i], [j_i])])])])])])
-ment aplanisse-
dynamic ([s_i], [j_i])])])])])

Since from our point of view the resultant state is to be conceived of as a situational argument of the change-of-state-component, this operation links the R-argument of the suffix to both, the BECOME-component as well as the BE-component. That means, I assume that –ment nominalizes denote the overall second sub-event of the causative eventive chain, that consists of two hierarchically ordered subparts. As already alluded to in Section 2, I assume that the relevant –ment-nominals generally denote both parts of this sub-event and that their denotation may only be restricted to one of the two parts by means of contextual influences (cf. footnote 3).

The lexical conceptual structures developed in this Section account for the complex characteristics of the –ment- and –age-nominals presented in Sections 2 and 3: result nominals in –age never adopt the resultant state reading and process nominals in -age focus on the causing process, since the R-argument of the suffix is co-indexed with the DO-component. By contrast, the relevant –ment-nominals are inherently ambiguous between the change-of-state reading and the resultant state reading, since the R-argument of the suffix is co-indexed with the BECOME(BE)-component.

5. Do -ment and –age introduce aspectual operators?

Since we part from the hypothesis that –age attaches to bases denoting the whole causative eventive chain, while –ment attaches to bases denoting anti-causative events, the co-indexation patterns above are in fact in line with Lieber’s violable Principle of Co-Indexation, according to which the “highest (preferably unindexed) argument of the suffix is to be co-indexed with the highest argument of the base” (cf. above). As regards the violability of the principle, Lieber argues that “[i]f no consistent argument exists, it is sometimes apparently possible to co-index the head argument with the least incompatible nonhead argument” (ibid.: 65). For example, the agent nominalization *standee* results from the co-indexation of the suffix’s R-argument specified for sentience and non-volitionality with the external argument of *stand* that is specified as “?volitional” [sic]. And in fact, the

lexeme *standee* exhibits precisely the “odd meaning nuances” predicted by a (weak) violation of the Principle of Co-indexation, the referent being “not clearly volitional, but also not clearly nonvolitional” (ibid.). Furthermore, Lieber puts forward the hypothesis that “this type of –ee-derivatives is intuitively far less productive than the usual “patient” forms” (ibid.: 66), and she argues that this is the case because such semantically abnormal derivatives “are coined only when the argumental mismatch seems to allow for a nuance of interpretation that is (...) in some way contextually or pragmatically forced” (ibid.: 66). Drafted this way, the Co-indexation Principle may not only predict the regular semantics of several derivational procedures, but it also accounts for the degree of “sense abnormality” of a given derivative, as well as for the degree of productivity of the relevant derivational procedure. Hence, in order to account for the co-indexation pattern of our –ment- and –age-nominals derived from alternating verbs, we should likewise ask for the decisive semantic feature to which this pattern might be attributed.

There are several pieces of evidence suggesting that the differences above should be traced back to an underlying aspectual distinction. Bally (1965:181) already argues that in New French, „-ment désigne volontiers l’aspect ponctuel ou terminatif, -age au contraire très souvent l’aspect duratif et itératif (...)“ (‘-ment is very likely to designate a punctual or terminative aspect, whereas -age very often designates a durative and iterative aspect ...’). Furthermore, Martin (2008, this volume) offers a detailed analysis of various aspectual differences between –age and -ment that is largely in line with Bally’s classification. For example, she observes that –age-nominals derived from unergative intransitive bases may exhibit an iterative interpretation, whereas the corresponding -ment-nominals are forced to occur with plural inflection in iterative contexts:

- (26) (a) OK Une séance de miaul**age**. (singular)
 ‘A meowing session’
 (b) vs. * Une séance de miaule**ment**. (singular)
 (c) vs. OK Une séance de miaule**ments**. (plural)

Related differences observed by Martin (2008) are that –age is able to denote longer eventive chains than –ment (cf. example 3 above), that –age is non-terminative, whereas –ment is terminative, and that –age, contrary to –ment, prefers internal arguments that are incrementally affected by the event denoted by the derivational base. The data we presented in Sections 2 and 3 offers numerous examples (more or less directly) illustrating these contrasts. For example, we may use the following test proposed by Martin (2008) in order to illustrate the difference in terminativity between our –ment and –age-nominals:

- (27) a. **L’ajustage** de la pièce a abouti à son **ajustement**.
 The adjusting of the piece resulted in its adjustment.
 b. # **L’ajustement** de la pièce a abouti à son **ajustage**.

‘The adjustment of the piece resulted in its adjusting.’

By hypothesis, aspectual values such as iterativity, continuativity or non-terminativity may all be traced back to atelicity if we conceive of atelicity as being defined by means of (divisive and) cumulative reference. Divisivity/cumulativity was originally introduced to define the reference of mass nouns and indefinite plurals denoting homogeneous pluralities or masses. The crucial characteristic of an entity being in the extension of, for example, a mass term, is that its parts, as well as any sum of its parts, are in the extension of the same term. As pointed out by Quine (1960:19), “[s]o called mass terms like ‘water’, ‘footwear’, and ‘red’ have the semantic property of referring cumulatively: any sum of parts which are water is water.” Evidently, this characteristic can easily be transferred to the domain of eventualities, in the sense that atelic expressions refer cumulatively to eventualities/parts of eventualities (homogeneous reference), whereas telic expressions refer non-cumulatively to eventualities/parts of eventualities (quantized reference). Hence, in order to account for the various aspectual differences between –ment and -age mentioned above, we may generalize that -age, contrary to –ment, introduces an atelic operator, motivating the respective nominals to homogeneously referring to (parts of) the eventuality denoted by the base verb.

This generalization is also strongly suggested by diachronic evidence. As stated by Uth (2008), the earliest –age-derivatives originated from substantivized relational –aticu-adjectives borrowed from Latin, cf. *censu terraticu* (‘tax of land’), *canis venaticus* (‘staghound’). Evidently, –aticu attached to nouns as well as verbs, the relevant bases denoting (sub-)kinds and action types, respectively, cf. e.g. *barnage* (‘kind/quality of nobles’), or *passage* (‘right to cross a territory’). Crucially, the bases of both, the denominal as well as the deverbal derivatives, necessarily refer cumulatively to non-singular entities, as argued for by e.g. Chierchia (1998). The borrowed substantivizations have then been reinterpreted as group terms (in the denominal domain) and as true event nominalizations (in the deverbal domain). As most clearly shown by the group terms (*barnage* as ‘group of barons’), the homogeneous constitution exhibited by the bases of the –aticu-substantivizations is transferred to the reinterpreted derivatives, so that we may conclude that the basic aspectual characteristic of all sorts of derivational bases of –age-derivatives may be defined in terms of cumulative reference. In Uth (2008) it is therefore argued that –age should be analyzed as introducing a pluractional operator (as defined by van Geenhoven (2005)), that motivates the non-quantized interpretation of (parts of) the eventuality denoted by the base verb.

Regrettably, we do not yet possess any detailed diachronic analysis of the –ment-suffixation. However, what we do know about the diachrony of –ment is, that it developed from Latin –mentum, which in turn contains with –tum a suffix stemming from former substantivized perfect passive participles, as *inventum*

(‘the (object/entity being) invented’) or *cogitatum* (‘the (idea being) thought’), cf. Meyer-Lübke (1894: 524f). These participles introduce a theme-related (passive) perspective and present the respective eventuality in the form of a resulting property or state (cf. Alsdorf-Bollée (1970: 45)). If we additionally take into account the synchronic analysis of the suffix as presented above, our working hypothesis for -ment should be that this suffix introduces a perfective perspective into the semantics of the base verb.¹⁰

One possibility to model aspectual operators is offered by de Swart (1998), who proposes a formalization of the English Perfect and the English Progressive within the framework of Discourse Representation Theory (DRT, cf. Kamp & Reyle 1993). According to de Swart (1998), aspectual operators are best to be conceived of as “eventuality modifiers” that map “sets of different types of eventualities to eventualities of some possibly other type” (ibid.: 349). For example, the Perfect Operator is analyzed as denoting a function that maps any eventuality (\mathcal{E}) to a state (S) (PERF $\mathcal{E} \rightarrow S$), by introducing the consequent state the input eventuality culminates in (ibid.: 354). De Swart argues that “the Perfect is an extensional operator” (ibid.), i.e. that the input as well as the output are asserted by the relevant expression. Figure 7 gives the DRT-representation for the sentence “Mary has met the president”. $t=n$ means that the reference (t)ime of the event is equivalent to the speech time, i.e. (n)ow. $s \circ t$ indicates that states overlap with the reference time, x and y represent the thematic arguments and $e \supset \subset s$ signals that the resultant state starts right at the end of the respective event:

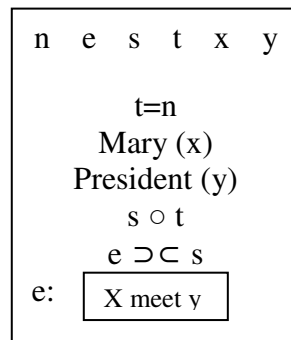


Fig. 7: DRT-representation of “Mary has met the president” (de Swart (1998))

As regards the Progressive, de Swart develops her analysis mainly on Landmann (1992) who argues that “in the case of [e.g.] accomplishments, semantically the progressive relates an actual event in progress to a complete, possibly non-actual event” (ibid.: 10), which, if it does not continue in the real

¹⁰ The characterization of -tum as a “passive participle” again points to the further differences between -ment and -age related to agentivity (cf. Kelling (2004), Martin (2008)). This phenomenon is largely ignored in the present paper, but see footnote 2 and below.

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world, has a reasonable chance to continue in some other possible world (i.e. arguably the world that is closest to the actual one, cf. Dowty (1979)). Drawing on this analysis, de Swart (1998: 355) argues that the progressive “picks out” an (atelic) stage of the entire input event, the latter being defined intensionally after the application of the operator. In Figure 8 this interpretational difference between the input event and the output event of the Progressive function is illustrated by the introduction of an embedded box the Progressive operates on:

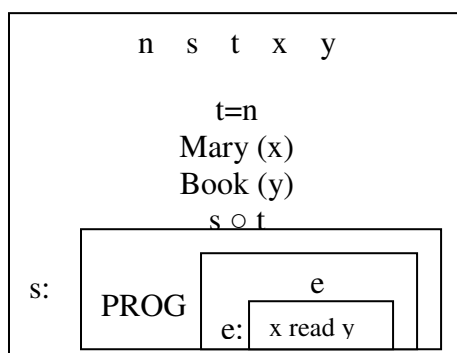


Fig. 8: DRT-representation of “Mary is reading a book” (de Swart (1998))

Finally, de Swart introduces aspectual coercion operators in order to account for aspectual shifts that are triggered by different kinds of aspectual operators, but that have no morphological or syntactic reflection. For example, in order for a basically quantized event to be modified by an overt atelic operator, as e.g. a time span adverbial, it has to be coerced at first into an iterative process by a C_{ch} (event \rightarrow homogeneous eventuality) – operator. Accordingly, in a sentence like *John played the sonata for eight hours*, the coercion results in an iterative interpretation.

Coming back to our –ment- and –age-nominals, I would like to point to the fact that the analysis proposed in Sections 2 and 4, according to which –ment modifies change-of-state events, such that the –ment-nominals denote the change-of-state event e as well as the resultant state s , exhibits astonishing similarities to de Swart’s analysis of the English Perfect by means of DRT-representations. Based on these similarities, I would like to propose tentatively that -ment might be conceived of as introducing a perfect operator that introduces, in turn, the consequent state, the event denoted by the base verb culminates in. This consequent state may either be the final endpoint of the event denoted by the base verb, as in e.g. *l’achèvement de sa vie* (‘the ending of his/her live’) corresponding to *Sa vie s’est achevée* (‘Her/his live has ended’), or it may be any intermediate state, as may be the case with –ment-nominals derived from so-called degree achievements (cf. Hay et al. (1999), Ramchand (2008)). In any case, the respective DRT-representation may be developed by reducing Figure 7 by the

external argument, as well as by any information concerning the reference time, since this is not part of the semantics of –ment-nominals:

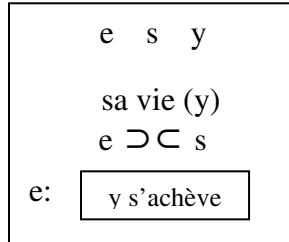


Fig. 9: DRT-representation of “l’achèvement de sa vie” (without context)

An important peculiarity of the relevant –ment-nominalizations is that their exact denotational range is only determined by contextual influences, in such a way that the interpretation characteristic for perfect sentences is generally blurred. That is, while perfect sentences (in languages as English) are interpreted as asserting a state, which abuts to a preceding event, -ment-nominals may either denote events resulting in a consequent state (the interpretation corresponding to the respective finite verb forms), or they may denote a resultant state preceded by a change-of-state event (the interpretation corresponding to the respective participles). Hence, we may argue that the actual impact of the nominalization of anti-causative verbs by means of –ment is the neutralization of the difference in interpretation that exists between the finite form of the base verb (cf. “Sa vie s’achève”, ‘His/Her life is ending’) and the corresponding participle (“Sa vie s’est achevée”, ‘His/Her life has ended’). That means, the denotation of –ment-nominals derived from alternating bases extends to both, the change-of-state event as well as the resultant state, as represented by the DRT-representation above, as well as by the co-indexation pattern developed for the relevant –ment-nominals in Section 4.

Concerning –age, its similarity to the Progressive operator relates to the emphasis on the ongoing part of the input event. As we saw above, the –age-nominals focus on the causing process, while defocussing the culmination part of the event denoted by the base verb. Very similarly, the semantics of the Progressive as analyzed above “involves stripping an event of its culmination point” (de Swart (1998: 355)), relating this pre-culminating stage to a complete event that may or may not culminate in the actual world. Therefore, in analogy to de Swart’s proposal for the Progressive, I would like to argue that the role of –age is to “pick out” a certain atelic stage (e.g. a ‘process of adjusting’) of the entire input event (e.g. ‘x adjusts y’), whereby the (remaining) input event is interpreted intensionally after the application of the operator. Figure 10 is developed in accordance to Figure 8, except that the x-variable remains undefined (as is, equally, the AGENT in the respective example). and the representation is reduced by any temporal information. By embedding the input event in a separate box,

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Figure 10 predicts that after modification by means of -age, the part of the semantics that is “contributed to the derivative by virtue of the base verb” (cf. Sections 3-4) is to be defined intensionally:

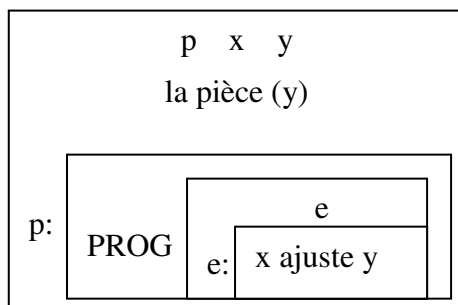


Fig. 10: DRT-representation for “ajustage de la pièce”

Accordingly, we may generalize that the role of the derivational base is to constitute the intensional background of the process that is extensionally denoted by the relevant –age-nominalization. Again, the DRT-representation is in line with the co-indexation patterns established in Section 4, which likewise predict that the (extensional) denotation of the relevant –age-derivatives is restricted to the causing process.

According to this line of argumentation, we might indeed conclude that the general aspectual distinction between –ment and –age also constitutes the primary underlying characteristic distinguishing between –ment- and –age-nominalizations derived from alternating verbs, in the sense that the co-indexation patterns developed in Section 4 represent the interpretational variants that result from the application of the “progressive –age-operator” and the “perfective –ment-operator” to alternating base verbs. Accordingly, we would argue that -ment, since it descends from Latin perfective inflection, prefers bases specified for [+IEPS], i.e. bases denoting events or processes that develop towards a resultant state (or an intermediate degree, respectively), in order to introduce the consequent state these events are expected to culminate in. As such, -ment prefers bases that are inherently goal-directed, similarly to what is observed for perfective inflection by e.g. Bertinetto (1987: 264). By contrast, –age, since it descends from a kind term formation suffix, requires bases that are at least partly homogeneous, in order to receive (internally) homogeneous reference. In the domain of alternating verbs, this is achieved by attaching to the causative variants of the relevant bases, from which -age “picks out” the atelic part, i.e. the causing process.

However, it should be noted that this proposal leaves open a range of questions. First of all, it would have to be verified further empirically. For example, concerning the proposal that –age introduces a Progressive operator, it should be examined if the relevant –age-nominals may co-occur with constituents

that cancel the intensional part of the progressive predicate (28a), or denote the interruption of the respective event (28b); cf. (28c-d) for some proposals:

- (28) a. Mary was drawing a circle but she didn't finish it.
b. Mary was crossing the street, when the truck hit her.
(Landmann (1992))
c. L'ajustage de la pièce **n'a pas abouti** à son ajustement. => ok?
'The adjusting of the piece did not result in its adjustment.'
d. L'allumage de la combustion **a été interrompu** pour des raisons de
sécurité. => ok?
'The firing of the combustion was interrupted for security reasons.'

Secondly, the attempt to attribute the complementary attachment pattern exhibited by –ment and –age in the domain of alternating verbs to the [IEPS]-feature does not really match with the comparison of the suffixes with the (English) Perfect and Progressive morphology: A Perfect operator may very well introduce a consequent state into non-culminating representations – just as the Progressive operator may operate on culminating bases, as long as these contain a pre-culminating homogeneous stage that may be “picked out”.

A further problem is that the attempt to reduce the differences between –ment and –age to a basic aspectual difference actually would require a discussion of the relation between this basic difference and the voice-related differences, i.e. the fact that –age is more agentive than –ment (cf. e.g. Kelling (2004)). Note that in some domains, the voice-related difference even appears to be the predominant feature distinguishing between –ment and –age (cf. Martin (2008, this volume)). This discussion would largely exceed the scope of the present paper. Nevertheless, I would like to argue that the large conformity of the data presented in Sections 2 and 3 and the co-indexation patterns developed in Section 4 with our analysis of –age and –ment in terms of aspectual operators suggests that it might be worthwhile to advance the above proposal.

6. Conclusions

In this paper I examined process and result nominals in -age and -ment derived from verbs participating in the causative-/anti-causative-alternation. First of all, I argued that –age nominalizes the first sub-event, and –ment nominalizes the second sub-event of the causative eventive chain. Drawing on Lieber (2004), I then developed lexical conceptual representations illustrating that the relevant –age-nominals denote processes that cause a determinate change-of-state, just as deverbal agent nominals denote agents of a determinate action. As regards –ment, the co-indexation of the suffix's R-argument with the change-of-state component results in derivatives that are intrinsically ambiguous since they denote the change-of-state event as well as its situational argument. Finally, I compared these

conceptual structures with the aspectual operators introduced by de Swart (1998) proposing an analysis according to which –ment attaches to anti-causative bases, since it is its role to introduce the consequent state the event or process denoted by the base is expected to culminate in, whereas –age attaches to causative bases, since it requires the base to denote eventualities containing atelic stages that may be “picked out” during the nominalization procedure. As it stands, this proposal has many shortcomings. However, the large conformity of the data and the relevant co-indexation patterns with the representation of –age and –ment in terms of de Swart’s aspectual operators suggests that it might nevertheless be worthwhile to further advance this line of reasoning.

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