Membership recruitment in the Secondary Predicate construction

The rise of the Mental zero-SPC

Frauke D'hoedt and Hubert Cuyckens

KU Leuven

1. Introduction

This paper discusses the different mechanisms of membership recruitment in the zero-Secondary Predicate Construction (or zero-SPC). The zero-SPC (or 'small clause', see Williams 1980, 1983; Aarts 1992, 1997; Haegeman & Guéron 1999; Hoekstra 2004; Los 2005) consists of a [Verb + Noun Phrase + XPhrase]-sequence and involves a (secondary) predicative relation between the 'predicand' Noun Phrase (NP) and the 'predicate' XPhrase (XP). Examples from Present-Day English are given in (1). The 'zero'-element in the category label 'zero-SPC' indicates that the secondary predicate XP is not introduced by a dedicated marker, unlike the XP introduced by *as* in the *as*-SPC in *I regard him as my brother.*

(1) a. His name has already *made him the butt of many jokes*. (BNC, 1993)
b. Apparently they didn't *consider her pretty*, but I *thought her strongly beautiful*. (COCA, 2006)

The general development of the zero-SPC has been detailed in D'hoedt et al. (in prep.). The construction comprises many different classes of verbs that allow a secondary predicate, each of which has developed differently. The overall result of these developments, however, is that the zero-SPC has undergone a process of internalization (Traugott 1987, 1989), with internal (i.e. mental/cognition/volition) verbs gradually taking up a higher share in the construction (2a), at the expense of external (causative/labelling) verbs (2b).

(2) a. She had never *thought it necessary* to have a purpose other than riding, (…). (COCA, 2008)

b. His anticipation to see Serena *had rendered him temporarily thoughtless*. (COCA, 2011)

The present paper aims to study in more detail the mechanisms underlying the drastic increase of internal verbs in the zero-SPC (and, specifically, of mental representation verbs) as in (2a), from Old English (OE) to Late Modern English (LModE). This development not only involves an increase in frequency of the original members of this verb class, but, more importantly, it also involves the addition of new members. In other words, the class of mental representation verbs in the zero-SPC has not only become more frequent in terms of token frequency, but also more productive in terms of type frequency. This raises the questions where these new members came from, and what underlying processes account for their recruitment into the Mental zero-SPC. It will be argued that the expansion of the mental representation class is the result of a complex interplay of factors, with multiple mechanisms and multiple sources accounting for the increase in (token) frequency and (type) productivity.

While the notions of 'multiple mechanisms and sources' seem to situate this research in the literature on multi-source constructions (i.e. where multiple constructions interact to create a new construction, see De Smet et al. 2013), we will argue that the development of the Mental zero-SPC does not fall under the strict definition of a multi-source construction. Instead, we suggest that the construction has rather expanded through the mechanism of 'categorial incursion'. This notion refers to the introduction of a new lexical item into a category that already exists by virtue of other members of that category (see De Smet 2009, Petré 2014).

These research questions will be dealt with in the following order: after discussing the methodology and corpora used for this study (section 2), we will home in on the Mental *zero*-SPC in section 3. The different mechanisms of recruiting members will be discussed as follows: random and unsystematic polysemization in OE (3.1); increasing systematicity in ME (3.2); and Romance influence throughout ME and EModE (3.3). In section 4, then, we will elaborate on the theoretical question whether the Mental zero-SPC is a multi-source construction or a case of categorial incursion. The concluding section 5 will summarize the findings.

2. Methodology and corpora

The corpora used for this study comprise on the one hand the suite of Penn Corpora of Historical English, which includes the Penn-Helsinki Parsed Corpus

of Middle English, third edition (PPCME3), the Penn-Helsinki Parsed Corpus of Early Modern English, second edition (PPCEME2) and the Penn Parsed Corpus of Modern British English (PPCMBE), and on the other hand the York-Toronto-Helsinki Parsed Corpus of Old English Prose (YCOE). Each of these corpora is syntactically parsed and can therefore easily be searched for the zero-SPC (using the search string "IP-SMC" (which stands for "Internal Phrase – Small Clause"[1]). Table 1 offers an overview of these corpora and the number of attestations of the zero-SPC.

Corpus	**Period**	**Words**	**Hits**	**Normalized freq. (/100,000 words)**
YCOE	… - 1150	1,500,000	2,137	142.5
PPCME3	1150-1500	1,155,965	3,888	336.3
PPCEME2	1500-1710	1,737,853	5,872	337.9
PPCMBE	1700-1914	948,895	2,771	292.0

Table 1: Overview of the corpora and number of attestations of the zero-SPC from OE to LModE

The data were subsequently entered into an Excel file and classified on the basis of the semantics of the matrix verb in the [Verb + NP + XP]-sequence. Nine verb classes were identified, which occupy positions on a cline from more external meanings (that is, making reference to the external, visible world) to more internal (cognitive/evaluative) meanings (see also Traugott 1987, 1989). This classification has been amply detailed in D'hoedt et al. (in prep.), so the discussion will be limited here to some examples of the verb classes, along with a visualization of their relative positions on the external-internal cline:[2]

1. Causative verbs (e.g. *render*, *cause*, *make*, *turn*):

(3) The judges in honour are obliged to do justice, and compassion seldom *renders them partial* (…) (PPCMBE, 1743)

2. Creative verbs (e.g. *create*, *make*):

(4) Accordingly he created Mankind in his own Similitude, even each in that of himself; *creating them Male and Female*. (PPCMBE, 1764)

3. Pseudo-causative verbs (e.g. *keep*, *let*, *have*, *get*):

(5) (…) he went ashore there with 140 Men (…); but falling into an Ambush laid by the Spaniards, *had 50 of his Men kill'd*, and return'd to his Ships with very little Corn. (PPCMBE, 1712)

4. Possessive verbs (e.g. *have*, (*have*) *got*):

(6) Horses that *have their coats long and full of dust*, (…), will require the free use of the curry-comb. (PPCMBE, 184x)

5. Labelling verbs (e.g. *call*, *term*, *declare*, *label*):

(7) There is a new beautiful creature come, and I shall *call her Colinette*. (PPCMBE, 1865)

6. Perception verbs (e.g. *see*, *hear*, *feel*, *find*):

(8) In a long room, with green Gothic doorways, quite small, I *found more men assembled than I could have believed could have got in*. (PPCMBE, 190x)

7. Communication verbs (e.g. *say*, *tell*, *relate*, *show*):

(9) The Lord Nithsdale said he would not affect delay and therefore *confessed himself guilty of the rebellion* and was sorry for it. (PPCMBE, 1716)

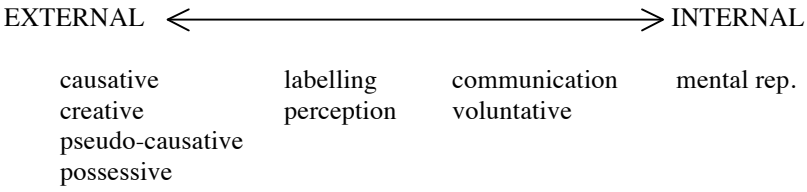
8. Voluntative verbs (e.g. *want*, *wish*, *intend*, *mean*):

(10) Job Thornberry has no reason, now, *to wish himself worth a groat*: - the old ironmonger and brazier has nobody to hoard his money for, now! (PPCMBE, 1805)

9. Mental representation verbs (e.g. *consider*, *think*, *regard*, *deem*):

(11) When boys arrive at Virgil, they *may be supposed capable of thinking*; (…). (PPCMBE, 1743)

These nine verb classes are positioned on the cline from more external to more internal meanings in the following fashion:



The external-internal cline can also be seen to represent the diachronic development of the zero-SPC as a whole (see also D'hoedt et al. in prep.): as mentioned above, the zero-SPC originated from mainly causative and labelling uses in OE and ME, but gradually underwent a decrease in those external verb classes and a concomitant increase in the mental representation verbs. In what follows, the mechanisms underlying this 'reeling in' of new mental verb types will be discussed for the different periods.

3. Membership recruitment in the Mental zero-SPC: different sources and different mechanisms

The process of membership recruitment in the Mental zero-SPC can be captured by the well-known metaphor of the rolling snowball: the construction gained relatively few verb types in OE, increased its membership between OE and ME, and reached its peak membership between ME and EModE, when most new members were recruited. After EModE, the increase levels off and the type frequency reaches a more or less stable value. This development is represented in Figure 1, which shows the average type frequencies of the Mental zero-SPC between OE and LModE.[3]

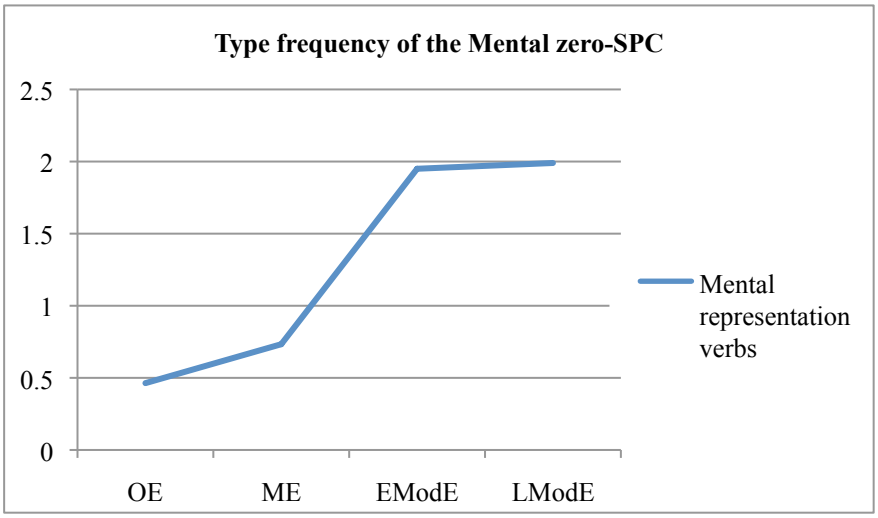


Figure 1: Average type frequencies of the Mental zero-SPC between OE and LModE

These different speeds of recruitment correspond with the different mechanisms of membership recruitment: in what follows, it will be argued that the process of attracting new members into the Mental zero-SPC became more systematic over time. In OE, new members ended up in the Mental zero-SPC through random, or accidental, polysemization, with the new members originating from different verb classes in the zero-SPC and with no clear 'attractor sets' (Traugott 2008: 33) in the mental verb class. In ME, then, more verb types in the zero-SPC polysemized to mental meanings, but this time, a more systematic process of analogy supported this polysemization as strong attractor sets in the mental class exerted an influence on new members. From ME to EModE, the mental verb class was reinforced even further through the mass addition of verb types of Romance origin, accounting for the high recruitment rate between ME and EModE. Finally, as the mental verb class exhausted most mental verbs of the language by EModE, fewer types were left to be recruited to the Mental zero-SPC, which explains the levelling of the graph after EModE.

3.1. *Membership recruitment in OE: random and unsystematic polysemization*

In OE, the Mental zero-SPC comprised two kinds of mental verbs. The first kind, of which *witan* 'know' or *belifan* 'believe' are examples, are what will be called 'core mental verbs': these are verbs that are exclusively used with a mental meaning in the SPC and that cannot be used to denote perception, causation, or

any meaning of the other verb classes. In other words, their 'primary' semantics relates to the mental domain and they have no secondary semantics that ties them to another verb class of the SPC. The second kind comprises polysemous verbs which only acquired a mental meaning by extension, such as *gefindan* 'find' (as in, *I find him interesting*) or *healdan* 'hold' (as in, *I hold you faultless in all of this*). These verbs, whose primary semantics is non-mental (*find* is primarily a perception verb, whereas *hold* is primarily a (pseudo-)causative verb), only have a secondary mental meaning; they are, accordingly, called 'secondary mental verbs'.

In OE (and to a lesser extent in ME), a substantial part of the OE Mental zero-SPCs contained exactly these secondary mental verbs which were primarily used in the other verb classes (with their respective semantics), but developed an extended mental meaning. Below are the verbs with their primary definition, as offered in the *Old English Dictionary* or the *Bosworth-Toller Anglo-Saxon Dictionary*, followed by some examples where they are used with their secondary mental meaning in the zero-SPC. These secondary mental verbs include verbs which originally belong to the following verb classes:

1. Verbs of perception:
   afindan (to find out, discover)
   gefindan (to find)
   gemetan (to come upon, find out)
   geseon (to see)
   onfindan (to find out, perceive)
   ongietan (to discern, recognize)

In the OE data, these verbs can be used in contexts that are not compatible with their perception meanings:

(12) Þe he hine Wilfirð rihtgefremedne & wisne *unfunde & gemette*.
'He found him Wilfrid rightminded and wise.' (YCOE, s. xi2)

(13) He *geseah* Simonem & Andream his broðor.
'He saw/considered Simon and Andreas as his brothers.' (YCOE, s. xi1)

In example (12), *unfunde & gemette* do not literally mean 'perceive, find out', but have acquired a mental meaning ("He was of the opinion that Wilfrid was rightminded and wise"). Similarly, in (13), the subject does not literally see Simon and Andreas, but "considers them his brothers". As such, these verbs, which are originally associated with a perception meaning, are used here with a mental meaning.

2. (pseudo)-Causative verbs:
gewyrcan (to make, build)
healdan (to hold, keep)
lætan (to let, leave)
gedon (to do, make)

Again, these verbs have a mental use in OE: *gewyrcan, lætan, healdan* and *gedon,* in (14–17) do not convey their primary semantics, but have acquired a secondary, mental meaning.

(14) Hi befrunon Crist, hwilcne ***wyrcst*** ðu ðe sylfne?
'They asked Christ, whom do you make/consider yourself?' (YCOE, s. x/xi)
(15) Se heahengel Gabrihel hi ungewemmede ***geheold*****.**
'The archangel Gabriel held him unblemished/uncorrupted.' (YCOE, s. x/xi)
(16) Forþon Drihten ***let*** hine him swa leofne, þæt he ne geþolode, þæt he wære medmycelne fyrst geunrotsod.
'For the Lord thought him so dear, that he couldn't bear, that he was a short time offended/grieved.' (YCOE, s. xi)
(17) Þa noldon hie, þa Iudeas, for heora Eastertidum þæt þa lic ealne dæg on þære rode wæren, for þam hie þone dæg haligne ***dydon***.
' (...) for they considered that day holy.' (YCOE, s. xi)

3. Verbs of communication:
tellan (to tell, narrate)

While examples of *tellan* with a mental meaning are scarce, the following example shows that *tellan* could be used with a mental rather than a communication meaning:

(18) Þa cwædon þa halgan þæt hi ðone hælend wurðodon, and nænne oðerne swa healicne ne ***tealdon***.
'Then the saints said that they admired the Saviour, and that they deemed none other so noble.' (YCOE, s. xi)

4. Possessive verbs:
habban (to have)

(19) ðan ðe heo noldon þæt heora lichaman on ðam heora restedæge on rode wæron, for ðan (…) heo þone dæg swiðe micelne ***hæfdon*****.**

'because they did not want that their bodies on their rest day were on the cross, because they held that day very highly/considered that day very great.' (YCOE, s. xi in.)

(20) Equitius, se (…) wæs *gehæfd* & ongyten mid eallum, þam þe hine cuþon, for his sylfes gewyrhtum mycelre geearnunge man.
'Equitius, who was held and considered with all, who knew him, for his own deeds a man of many merits.' (YCOE, s. xi2)

In (20), the mental meaning is expressed by *habban* and *ongietan*, both of which have mental meanings only by extension (*ongietan* has a primary perception meaning, see above). In a similar example from the same source text, the mental meaning of *habban* is even clearer, as it co-occurs with *wenan*, a core mental verb:

(21) & in þam wæs sum munuc, se wæs *hæfd* & wened fram mannum mycelre arfæstnesse.
'and among them was a monk, who was held and deemed by the men someone of much honour.' (YCOE, s. xi2)

All of these verbs then, have acquired a mental meaning in addition to their original perception/causative/communicative/possessive meanings. Common to all of them is that their original meaning is more external than the secondary mental meaning, with (pseudo-)causative and possessive verbs being entirely external and perception and communication verbs in between external and internal. The shift from a (semi-)external meaning to an internal meaning can be explained through the process of metaphorization, where the originally concrete and often experience-based meaning gives way to a secondary, in this case mental/cognitive, meaning.

Considering however the wide array of verb classes these particular verbs come from, this process of polysemization does not appear to have taken place in a structured, systematic manner; rather, it appears that this process was relatively random, and that individual verbs from all kinds of classes were able to undergo the semantic change[4]. In addition, the non-systematic nature of this development is apparent from the fact that only some verbs of a particular verb class developed a mental extension, whereas others did not. Also, the new members show no clear semantic or distributional link with the existing core mental verbs of the Mental zero-SPC, which could have functioned as an attractor set for analogical extension. In other words, the development of secondary mental meanings is unsystematic because of its lack of one particular source class, its lack of an attractor set and because of its effect on some, but not all members of a non-mental verb class. In the following section on ME, a situation quite

different from the one in OE will be discussed, where the membership recruitment processes occurs in a more organized and systematic manner.

3.2. *Increasing systematicity in ME*

In ME, two secondary mental verbs assumed an important role in the development of the Mental zero-SPC, namely *hold* and *find*. As can be seen in Figure 2, *hold* and *find* alone make up 66% of all tokens of mental verbs. This is in strong contrast with OE, where *healdan* (the OE form of *hold*) only accounted for 2.5% of the Mental zero-SPCs, and *gefindan* (the OE form of *find*) for 2%.

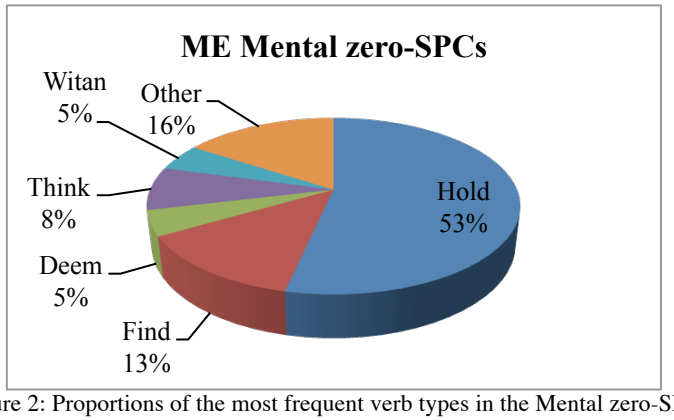


Figure 2: Proportions of the most frequent verb types in the Mental zero-SPCs

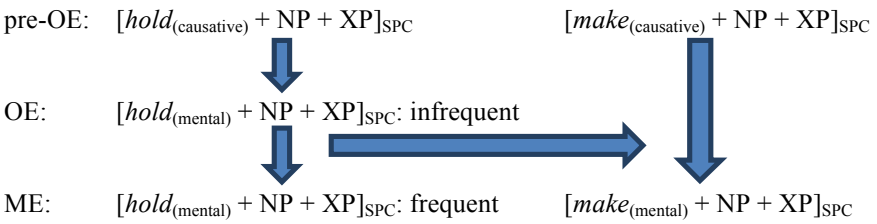
Remarkably, in the same period, three new secondary mental verbs start to occur in the Mental zero-SPC, namely *feel* (22), *make* (23) and *take* (24). Of these verbs, *feel* and *make* already occurred in the zero-SPC in OE, albeit strictly with non-mental meanings, while *take* makes its first appearance in the SPC in ME, where it is predominantly used as a causative verb (12 attestations), and occasionally as a mental verb (4 attestations).

(22) But þogh *ȝe felen hym gracious*, be neuer þe boldyr to lye yn synne.
(But even though you know that he is gracious, never be so bold as to lie in sin (…).) (PPCME3, 1415)

(23) *Whom makest tow þe*? Wher þow be more þan onye of þese seyntes?
(Whom do you make yourself (= Who do you think you are?) More than any of these saints?) (PPCME3, 1400)

(24) (…) by cause that men <u>*shulde take the ordyr of fryers moste parfytyste of alle orders*</u>. (… so that men would consider the order of friars the most perfect of all orders.) (PPCME3, 1475)

The high frequency of *find* and *hold* explains the recruitment of *feel, make,* and *take,* since *find* – a perception verb – could now function as an attractor for other perception verbs such as *feel*, while *hold* – a causative verb – attracted (pseudo-) causative verbs such as *make* and *take*. More specifically, the attraction between *find* and *feel* on the one hand and *hold* and *make/take* on the other hand is due to semantic similarity not only between the verbs themselves, but also between the verbs *as they are used in the zero-SPC*, that is, in the context of a secondary predication. Especially in the case of *hold* and *make/take*, the semantic similarity between the verbs themselves is less obvious, whereas the use of these verbs in the same construction creates a link that facilitates processes of analogy between the two. The development of these verbs can consequently be visualized as follows:



For *take*, then, the process was accelerated, since this verb only entered the zero-SPC in ME and developed a mental extension almost simultaneously.

Note that while the result of this recruitment process is similar to the situation in OE (that is, a set of perception/(pseudo-)causative verbs develops mental extensions), the mechanism underlying this process is different: in ME, the new members are reeled into the Mental class through analogy with *find* and *hold*, whereas in OE, the mental extension was a result of accidental polysemization (as a result of metaphorization).[5] In other words, the ME developments can be argued to have come about in a more 'organized' or 'systematic' fashion, whereas the changes in OE were more random and coincidental.

3.3. *New core mental verbs and Romance influence throughout ME and EModE*

In ME and EModE, two mechanisms of membership recruitment are consistently at work, namely (i) attraction of core mental verbs of Germanic origin through

analogy with the already existing members in the Mental class (as was the case in ME), and (ii) attraction of verbs of Romance origin (core mental or secondary mental verbs), again through analogy with the existing Mental verbs. Especially the second mechanism is quite prominent in these periods: in ME, eight new core mental verbs are added to the Mental class, five of which have Romance roots (*account, arett* (= PDE *reckon*)*, count, imagine* and *suppose*), versus only three of Germanic origin (*guess*, *mone* (= PDE *consider*) and *understand*).

This development is of course in line with the general influx of Romance language features after the 1066 Battle of Hastings, but it is of particular interest here, since the new load of core mental verbs entering the English lexicon gradually pervaded the zero-SPC, so that core mental verbs came to represent the large majority of the Mental zero-SPC. Before this influx, almost half of the attestations and of the verb types of the Mental zero-SPC comprised secondary mental verbs.[6] As increasingly more core mental verb types and core mental attestations occur from ME onwards, the position of the Mental zero-SPC at the internal end of the internal-external cline was reinforced.

A second reason why this influx of Romance verbs is of interest is because it *variably affects* the different verb classes in the zero-SPC: a comparison of the percentages of Romance loan words in ME in the individual verb classes shows that the Mental class is one of the most affected verb classes (with 52.2% of the verbs coming from Romance languages), surpassed only by Communication verbs (57.1% Romance influence). Labelling verbs too show quite a large amount of influence from Romance (38.1%), whereas the other verb classes have much lower percentages (19.1% with the Causative verbs and 14.3% with the Perception verbs). These numbers show that there has been a stronger influence of Romance languages on the internal classes of the zero-SPC (viz. Mental, Communication, and to a lesser extent Labelling verbs) than on the others.

Finally, this trend is maintained in EModE, where another set of verbs of Romance origin strengthens the internal classes of the zero-SPC, and in particular the Mental zero-SPC (*conceive < Fr. concevoir; conclude < Lat. concludere; consider < Fr. considérer; doubt < Fr. douter; esteem < Fr. estimer; fancy < contraction of Fr. fantaisie; grant < Anglo-Norman granter; impute < Fr. imputer; interpret < Fr. interpréter; judge < Fr. juger; regard < Fr. regarder; remember < Fr. remembrer ; repute < Fr. reputer; value < Anglo-Norman and Middle Fr. †valuer)* (Oxford English Dictionary).

4. The Mental zero-SPC: a multi-source construction or a multiply influenced construction?

The recruitment mechanisms discussed in this paper have shown that the development of the Mental zero-SPC is a complex and multi-faceted process, influenced both by language-internal and language-external sources. These multiple sources (and, concomitantly, multiple recruitment mechanisms) may at first glance give the impression that the Mental zero-SPC is inevitably also a multi-source construction. However, examples of multi-source constructions discussed in the literature differ in a number of ways from the Mental zero-SPC and challenge the idea that multiple sources necessarily also create a multi-source construction. One such example is discussed by Riionheima (2013), who details the phenomenon of language blending between Ingrian Finnish and Estonian in the inflection system. In Ingrian Finnish, the present tense contains two synonymous grammatical morphemes, one from each contacting language. Thus, in the present tense singular of *to cost*, the verb form *maksa-a-p* (*it costs*) exhibits a grammatically hybrid or pleonastic suffix, with *-a-* deriving from Ingrian Finnish, and *-p* deriving from Estonian. Another example is provided by Joseph, who discusses the development of English *go* and *went* (2013: 678). Here, the former is known to have derived from Old English *gān* and the latter from Old English *wendan*, but the historically different verb forms are clearly perceived as belonging to the same paradigm in PDE (consider for instance the parallel usage of idiomatic expressions like *He goes bananas* vs. *He went bananas*).

What both examples have in common is that two independent constructions interact in constituting a construction or paradigm that is entirely new to the language. This is different from the Mental zero-SPC, which already existed before OE, even with core mental verbs. The later additions from multiple sources notwithstanding, the construction can hardly be said to have been *created* by these sources, as it was not new to the language at all. Rather, the different sources have all contributed to the increasing productivity and expansion of the Mental zero-SPC, without actually establishing it. As such, the Mental zero-SPC is not a multi-source construction in the strict sense of the word, albeit that the construction has benefited significantly from multiple sources.

Perhaps a more fitting term to define the recruitment processes in this construction is De Smet's notion of 'categorial incursion' (2009). Categorial incursion refers to the introduction of a new lexical item into a category, which already existed by virtue of other members of that category (see also Petré 2014). In other words, a lexical item suddenly becomes part of another category, but

this category is not new to the language. An example is *worthwhile*, which developed a transitive use (25) in addition to its (more standard) intransitive use through analogical extension with the transitive *worth* (26) (De Smet 2009: 1732–43):

(25) there is much that is *worthwhile* visiting. (CB, from De Smet 2009: 1733)
(26) Now was not this heroic lover *worth* running after? (CLMETEV, 1742, from De Smet 2009: 1732)

Here, categorial incursion allows *worthwhile* to become part of the category 'transitive', which was previously established through other transitive adjectives such as *worth* or *short* in *I'm two cents short*.[7] The similarity with the development of the Mental zero-SPC is obvious: the category of the Mental zero-SPC already existed before OE (by virtue of a select – and admittedly, rare – group of core mental verbs such as *witan, talian, belifan*, etc.) and was expanded at different times in its development, particularly by verbs from different sources: secondary mental verbs in OE, verbs of Romance origin (secondary or core mental) or English core mental verbs in ME and EModE. Originally, these verbs could not be used either as a mental verb or with a secondary predicate, but they became part of the Mental zero-SPC, a category which already existed because of members like *witan* or *belifan*. The notion of categorial incursion can consequently be said to be less restrictive than the concept of multi-source constructions, as it does not require the establishment of an entirely new construction, but still allows for multiple sources from which new members originate.

5. Conclusion

This paper has discussed the different mechanisms through which the Mental zero-SPC has recruited new members, and which eventually led to the general process of internalization characterizing the zero-SPC. Broadly speaking, the mechanisms of recruitment have become more systematic over time, with focused attractor sets and more large-scale developments starting to appear from ME onwards. This explains the general pattern of increasing productivity in the Mental zero-SPC: between OE and ME, the Mental zero-SPC only gradually gained in type frequency, then increased dramatically (as a result of increasing systematicity) between ME and EModE, and finally leveled off after EModE as the pool of recruitable new verb types became exhausted.

In OE, a striking number of secondary mental verbs (that is, verbs which primarily have non-mental semantics like causation or perception but develop a mental extension meaning) were part of the Mental zero-SPC. These verbs derived from four source classes which also occurred in the zero-SPC, namely perception verbs, communication verbs, (pseudo-)causative verbs and possessive verbs. They were seen to undergo a process of metaphorization, as their concrete, external meaning metaphorically shifted to a more abstract, internal meaning.

In ME, two secondary mental verbs assumed an important role in the Mental zero-SPC, namely *hold* and *find*, which together made up more than 66% of all mental attestations. Simultaneously, three new secondary mental verbs – *feel, take and make* – started to be used in the Mental zero-SPC. It has been argued that *hold*, originating from the (pseudo-)causative class, and *find*, originating from the perception class, functioned as attractors for *take/make* and *feel* respectively due to their high frequencies as mental verbs. The new verb types consequently entered the Mental zero-SPC through analogical extension with these attractors, a process which we claimed to be more systematic, or 'organized' than the more random metaphorization processes in OE.

Throughout ME and EModE, then, language-external influence from Romance languages played an important role in recruiting a vast amount of new verb types to the Mental zero-SPC. This recruitment was especially important because it strengthened the group of core mental verbs in the Mental zero-SPC and consequently reinforced the position of this group at the internal end of the cline from external to internal verb meanings; in addition, the influx of Romance verbs had a stronger impact on the internal verb classes (especially mental representation and communication verbs) than on the external verb classes, thus again contributing to the general process of internalization.

Finally, we addressed the issue whether the Mental zero-SPC can be considered a multi-source construction, in view of the multiple influences that contributed to its productivity increase. It was argued that, since these influences do not establish a construction that is entirely *new* to the language, the Mental zero-SPC is not a multi-source construction in the strict sense. By contrast, the developments characterizing the construction's evolution can be defined as cases of 'categorial incursion', as new verb types were added to a construction which was already established in the language.

Notes

[1] For more information on the syntactic parsing, see http://www.ling.upenn.edu/hist-corpora/annotation/index.html.
[2] Note that some of these verbs have different semantics depending on the context and consequently belong to multiple verb classes. This polysemy will be discussed in more detail in section 3.
[3] The method for measuring these type frequencies is detailed in D'hoedt et al. (in prep.): in order to ensure comparability over the different sized corpora of the YCOE, PPCME3, PPCEME2 and PPCMBE, the corpora were split in chunks of 5000 words and the average type frequencies for each of these chunks was taken as a measure of type productivity.
[4] Note that different pathways may underlie the metaphorization processes of the different verbs. For example, *habban* in (21) has metaphorized from 'possessive *having*' to 'mentally *having in mind*', whereas *geseon* in (13) has metaphorized from 'empirically *seeing*' to 'mentally *seeing*'. At the same time, the most schematic metaphor underlying these processes can be described as 'ABSTRACT IS CONCRETE', where all verbs uniformly reach an abstract meaning, but originate from very different concrete meanings.
[5] This is not to say that polysemization as a mechanism of member recruitment can be ruled out entirely in ME: possibly, analogy and polysemization both played a role during this period. However, the higher rate of recruiting new members in ME as opposed to OE points to the predominance of a more systematic mechanism, in this case analogy.
[6] In the OE data, 103 attestations involve secondary mental verbs vs. 111 with core mental verbs and the mental verb class conmprises 12 secondary mental verb types vs. 16 core mental verb types.
[7] See De Smet 2009: 1732 on the notion of 'transitive adjectives'.

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Corpora

- The BNC: British National Corpus (http://www.natcorp.ox.ac.uk/)
- The Penn Corpora of Historical English, including:
  the Penn-Helsinki Parsed Corpus of Middle English, third edition (PPCME3);
  the Penn-Helsinki Parsed Corpus of Early Modern English, second edition (PPCEME2);
  the Penn Parsed Corpus of Modern British English (PPCMBE).

More information on the Penn Corpora of Historical English can be found at (http://www.ling.upenn.edu/histcorpora)
- The YCOE: York-Helsinki Corpus of Old English Prose (http://www-users.york.ac.uk/~lang22/YCOE/YcoeHome.htm)
- The COCA: Corpus of Contemporary American English (http://corpus.byu.edu/coca/)
- The OED: Oxford English Dictionary (http://www.oed.com)
- The Bosworth-Toller Anglo-Saxon Dictionary (http://www.bosworthtoller.com)