Resourceful ways of recruiting members:

The origin and development of Mental zero-Secondary Predicate
Constructions

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Abstract. This paper discusses the development of the Mental zero-Secondary Predicate Construction (Mental zero-SPC) from Old English to Late Modern English (e.g. *Apparently they didn't consider her pretty, but I thought her strongly beautiful*), paying special attention to the complex interplay of mechanisms underlying the increasing recruitment of internal, mental representation verbs in the zero-SPC. Informed by Traugott's work on semantic change, this pattern of increasing productivity in the Mental zero-SPC is here characterized as a process of internalization. It is argued that the key recruitment mechanisms are polysemization (in Old English), analogical extension (in Middle English), and language-external influence from Romance languages (in Middle and Early Modern English). Broadly speaking, the mechanisms of recruitment are seen to become more systematic over time, with focused attractor sets and more large-scale developments only appearing from Middle English onwards. On a more theoretical plane, we address the issue whether the Mental zero-SPC can be considered a multi-source construction, in view of the multiple influences that contribute to its productivity increase. Since these influences do not establish a construction that is entirely *new* to the language, we argue that the Mental zero-SPC is not a multi-source construction in the strict sense. Rather, the developments characterizing the construction's evolution are defined as cases of 'categorial incursion', as new verb types are added to a construction which was already established in the language.

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’ designates that the secondary predicate XP is not introduced by a dedicated marker, unlike the XP introduced by *as* in the *as*-SPC in (2a) or by *for* in the *for*-SPC in (2b).

- (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)
- (2) a. Children regard fast traffic merely as a mean to their amusement. (OED, 1934)
b. Yonnel ... looks every inch an actor; you couldn't possibly mistake him for anything else. (OED, 1945)

The general development of the zero-SPC has been detailed in D'hoedt et al. (submitted) and in D'hoedt (2017). 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 external (causative/labelling) verbs (as in (3a)) gradually giving way to increasingly more internal (i.e. mental/cognition/volition) verbs (as in (3b)).

- (3) a. His anticipation to see Serena had rendered him temporarily thoughtless. (COCA, 2011)
b. She had never thought it necessary to have a purpose other than riding, (...). (COCA, 2008)

The present paper, which further develops insights in D'hoedt & Cuyckens (2016), aims to study in more detail the mechanisms underlying the strong increase of internal verbs in the zero-SPC (and, specifically, of mental representation verbs) as in (3b), 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 notion of ‘multiple mechanisms and sources’ seems to embed this research in the literature on multi-source constructions (i.e. where multiple constructions interact to create a new construction, see Van de Velde 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 ‘categorical 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 2012; 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 describe the increase of internal verbs in the zero-SPC as a case of ‘internalization’ (Section 3), in a way reminiscent of Traugott’s (1989) original coinage of the term. In Section 4, we home in on the Mental zero-SPC, and the different mechanisms of recruiting members into that construction: random and unsystematic polysemization in OE (4.1); increasing systematicity in ME (4.2); and Romance influence throughout ME and EModE (4.3). In Section 5, then, we will elaborate on the theoretical question whether the Mental zero-SPC is a multi-source construction or a case of categorical incursion. The concluding section 6 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 frequency (/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 Author2 (2017), so the discussion will be limited here to a short definition of each of the verb classes, some

¹ For more information on the syntactic parsing, see <http://www.ling.upenn.edu/hist-corpora/annotation/index.html>.

examples, and a visualization of the relative positions the verb classes on the external-internal cline:²

1. **Causative verbs**: cause a change of state in the predicand NP. Examples are *render*, *cause*, *make*, *turn*.

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

2. **Creative verbs** differ from causative verbs in that there is no *change* of state; rather, they denote a process where something comes into existence. Examples are *create*, *make*.

- (5) 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** denote non-intervention with respect to the predicand NP. Examples are *keep*, *let*, *have*, *get*.

- (6) For Arithmetick, it will be best for such to **let it alone** 'till their more advanc'd Years ... (PPCMBE, 1718)

4. **Possessive verbs** denote possession or describe a feature that belongs to someone. Examples are *have*, *(have) got*.

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

5. **Labelling verbs** assign a name or label to the predicand NP. Examples are: *call*, *term*, *declare*, *label*.

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

6. **Perception verbs** denote empirical observation or the cognitive process of becoming aware of something. Examples are: *see*, *hear*, *feel*, *find*.

- (9) 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** denote any transfer of communication. They include verbs like *say*, *tell*, *relate*, *confess*, but also *feign* or *show*.

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

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.

8. **Voluntative verbs** express a certain wish or aim. Examples are *want, wish, intend, mean*.

- (11) 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** includes verbs of thinking, considering, judging or any form of cognitive processing. Examples are *consider, think, regard, deem*.

- (12) 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:

3. Internalization in the zero-SPC

The external-internal cline presented in the previous section can also be seen to represent the diachronic development of the zero-SPC as a whole. As has been argued by D'hoedt (2017: 127–130) and D'hoedt et al. (submitted), the development of the different verb classes of the zero-SPC has resulted in a general shift that can be captured by the notion of 'internalization'. This concept was first introduced by Traugott (1987, 1989) in her account of semantic change in terms of three tendencies. Internalization, in this account, is an integral part of the semantic change Traugott refers to as 'Tendency I', by which "Meanings based in the external described situation > meanings based in the internal (evaluative/perceptual/cognitive) described situation".³ Traugott (1989: 34) elaborates on this as follows:

[Tendency I] subsumes most of the familiar meaning changes known as pejoration and amelioration (e.g. *boor* 'farmer' > 'crude person'); a wide range of metaphorical extensions, most of them shifts from concrete to abstract; and the tendency identified

³ Traugott's three tendencies capture the following semantic developments: (i) developments from the external to the internal domain (i.e. internalization), (ii) developments from the external or internal domain to the textual and metalinguistic situation, and (iii) developments whereby meanings become increasingly based in the speaker's belief state/attitude towards the proposition (i.e. the more well-known subjectification phenomenon) (Traugott 1989). These tendencies have received most attention in studies discussing semantic change in grammaticalization. On the basis of this description of semantic change, subjectification is located in Tendency III. It may therefore presuppose internalization, but internalization does not presuppose subjectification. Note, however, that in later studies, Traugott views semantic change as marked by a unidirectional increase in subjectification (Traugott 1995; Traugott & Dasher 2002), such that subjectification is not restricted to Tendency III.

by Sweetser ‘to use vocabulary from the external (sociophysical) domain in speaking of the internal (emotional and psychological) domain’ (1984: 56) – for example, early OE *felan* meant only ‘touch’; it did not acquire a perceptual sense until late Old English.

While the notion ‘internalization’ is traditionally confined to individual lexical items shifting from an ‘external’ to an ‘internal’ meaning, it can easily be extended to the more schematic semantic levels, in particular the level of verb classes. In the case of the zero-SPC, the decrease in token frequency of verb classes belonging to the external domain (labelling verbs and to a lesser extent causative verbs) is offset by an increase in verbs belonging to the internal domain (mental representation verbs). In addition, the zero-SPC saw a marked relative increase in the type frequency of mental representation verbs. These processes, then, are reminiscent of the process of internalization at the level of lexical items. Just like an individual lexical item such as *felan* (the example given by Traugott) developed from an empirical/external verb to a perceptual one, so did the zero-SPC undergo a shift from the empirical/socio-physical domain to the cognitive/emotional/psychological domain.

These findings resemble the results of a study on the Double Object Construction (DOC) as detailed by Coleman & De Clerck (2011), which shows that the DOC has come to be associated with a significantly narrower range of verb types since the beginning of Late Modern English. In the DOC as well as in the zero-SPC, a schematic construction has evolved as a result of several developments in the lower-level subschemas, and in both cases, these developments concern the collocational patterns of the constructions. However, D’hoedt (2017: 131–132) comments that in spite of these parallels, the zero-SPC and the DOC differ in at least two ways: first, while Coleman & De Clerck observe a decrease of the semantic range of the DOC, these losses appear to have affected uses that were already non-prototypical to begin with (such as verbs of dispossession like *bereave* or verbs of banishment like *expel*). The zero-SPC, by contrast, has seen a demise in its two most frequent verb classes – the labelling and causative verbs – and has therefore undergone radical shifts in its *core* verb classes. Second, the zero-SPC does not specialize in the same way as the DOC does; in fact, as the core of the zero-SPC shifts from a predominantly ‘labelling and causative’-distribution to a distribution that is characterized by a wider array of verb classes, the process at play here is rather the opposite: it appears that what has occurred is a process of generalization, resulting in a construction that is much more evenly distributed over the verb classes than before. Finally, D’hoedt et al. (submitted) also argue that neither the changes observed in the DOC, nor those in the zero-SPC can strictly be defined as ‘semantic *change*’, as in both cases, the semantics of the construction actually remain stable; what changes rather are the collocational profiles of the constructions, or, the associations between the constructions and the lexemes (in this case, the verb types) occurring in them.

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

The internalization process, as sketched above, involves a decrease of the external verb classes, and a concomitant increase in the internal verb classes, in particular in the mental representation verbs. This increase in internal verb classes 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 not only became more frequent in terms of token frequency, but also more

productive in terms of verb types. Considering the exceptionally strong increase in token and type frequency of the mental representation class, the remainder of this paper will investigate where these new members came from, and what underlying processes account for their recruitment into the mental representation class (henceforth: the ‘Mental zero-SPC’).

The process of membership recruitment in the Mental zero-SPC can be captured by the well-known metaphor of the rolling snowball, visualized in Figure 1 as an S-shaped curve (for a survey article on the descriptive adequacy of the S-curve model in diachronic studies of language change, see Nevalainen 2015, and references therein). 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. The method for measuring these type frequencies is detailed in D’hoedt (2017: 53–58): in order to ensure comparability over the different sized corpora of the YCOE, PPCME3, PPCME2 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

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

In what follows, it will be argued that these different speeds of recruitment correspond with the different mechanisms of membership recruitment, as 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 became polysemous, acquiring 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,

⁴ The same idea is applied by the WordSmith software, which compares lexical richness across texts by cutting each text into equal-sized chunks, counting lexical types per chunk and then calculating the average types-per-chunk ratio for each text (Scott 2010: 221–222).

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.

The different mechanisms of recruiting members will now be discussed: random and unsystematic polysemization in OE (4.1); increasing systematicity in ME (4.2); and Romance influence throughout ME and EModE (4.3). Section 4.4 will summarize these developments.

4.1 Membership recruitment in OE: Random and unsystematic polysemization

4.1.1 Secondary mental verbs

In OE, the Mental zero-SPC comprised two kinds of mental verbs. The first kind, exemplified by *witan* ‘know’ or *belifan* ‘believe’, 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 verb classes presented in 1.-4.

I. 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:

- (13) a. Ðe he hine Wilfirð rihtgefremedne & wisne *unfunde & gemette*.
‘that he found & considered him, Wilfrid, rightminded and wise.’⁵ (YCOE, s. xi2)

⁵ We chose to render the original examples by fairly literal translations (rather than glosses).

- b. He *geseah* Simonem & Andrean his broðor.
 ‘He saw/considered Simon and Andreas his brothers.’ (YCOE, s. xi1)

In example (13a), *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 (13b), the subject does not literally see Simon and Andreas, but ‘considers them his brothers’.⁶ As such, these verbs, which are originally associated with a perception meaning, are used here with a mental meaning.

II. (pseudo)-Causative verbs:

gewyrcean (to make, build)
healdan (to hold, keep)
lætan (to let, leave)
gedon (to do, make)

Again, these verbs may convey a mental meaning in OE, but this mental meaning is not their primary meaning, but is an acquired, secondary meaning. Examples with *gewyrcean*, *healdan*, *lætan* and *gedon* are provided in (14).

- (14) a. Hi befrunon Crist, hwilcne *wyrcest* ðu ðe sylfne?
 ‘They asked Christ, whom do you make/consider yourself?’ (YCOE, s. x/xi)⁷
 b. Se heahengel Gabrihel hi ungewemmede *geheold*.
 ‘The archangel Gabriel held her unblemished/uncorrupted.’ (YCOE, s. x/xi)
 c. 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)
 d. Ða noldon hie, þa Iudeas, for heora Eastertidum þæt þa lic ealne dæg on þære rode wæren, for þam hie þone dæg haligne *dydon*.
 ‘Then they didn’t want, the Jews, for their Easter that the bodies would be on the cross for the whole day, for they considered that day holy.’ (YCOE, s. xi)⁸

III. Verbs of communication:

⁶ In fact, the semantic shift from *see* to *consider/think* has received previous attention:

Le glissement de *voir* à *comprendre, juger, considérer* est bien connu translinguistiquement, il est de l’ordre du métaphorique, mais également du diachronique. C’est la même racine indo-européenne qui a donné le verbe *see* et des verbes signifiant ‘savoir’.

‘The shift from *see* to *understand, judge, consider* is well known cross-linguistically, at a metaphorical, as well as a diachronic level. The same Indo-European root lies at the base of the verbs *see* and of verbs meaning ‘know’.’

(Khalifa 2003: 190; see also Chuquet 2003: 168 for more detail on the history of the cognitive value of *see*).

⁷ One reviewer pointed out that this is a translation of John 8:53, ‘quem te ipse facis’ (*The Vulgate Bible*), and may be a calque from Latin. We agree, but would like to comment that even calques may have facilitated the establishment of secondary mental verbs in the zero-SPC: consider for instance example (22) below from ME, which has a similar meaning (‘Whom do you make yourself?’), again with a causative verb.

⁸ This example may however be a scribal error: other variants of the text (see example (16a)) have “heo þone dæg swiðe micelne *hæfdon*”, with “hi ða swa *dydon*” in the following line, which might be the source of *dydon* in example (14d).

tellan (to tell, narrate)

While attestations 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:

- (15) Ða 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 accounted none other so noble.’ (YCOE, s. xi)

IV. Possessive verbs:

habban (to have)

- (16) a. 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.)
b. 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 (16b), 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).

4.1.2 Metaphorization and the role of the reflexive pronoun

The above-mentioned secondary mental verbs 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.^{9,10} This resembles Traugott’s (above-mentioned)

⁹ Note that different pathways may underlie the metaphorization processes of the different verbs. For example, *habban* has metaphorized from ‘possessive *having*’ to ‘mentally *having in mind*’, whereas *geseon* 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.

¹⁰ This metaphor process has also been described in child language acquisition studies: Hampe (2011: 15) describes how verbs such as *find* have the properties of a ‘primary scene’, which, if repeatedly experienced in (early) infancy, gives rise to a primary metaphor, because “a perceptually determined source-domain concept (here: location/surroundings) and a subjective response (...) are simultaneously active”. She argues that the development of a fully metaphorical cognition use of such verbs is not completed until well into late adulthood (2011: 15–16).

example of the internalization process for *felan*, which was shown to have developed from *touch* to *think/consider* in her discussion of Tendency I (Traugott 1989: 34).

A similar development from experience-based meanings to more cognitive, intuitive meanings has been described for Present-Day French SPCs by Lauwers & Tobback (2013). In particular, they argue that the reflexive pronoun functions as a facilitating factor in this process, as it influences the meaning of the verbs and pushes them towards the domain of the intuitive, emotive and subjective. For instance, *savoir* ‘know’ and *croire* ‘believe/think’ are argued to have a more subjective meaning when used with reflexive pronouns in the NP-slot (17a, 18a) than with non-reflexive ones (17b, 18b):

- (17) a. (...) depuis sa première rencontre avec Bruno, elle *se sait très éprise* du jeune homme, mais préfère lui cacher des sentiments (...). (+/- ‘se sent éprise’)
 ‘ever since she first met Bruno, she’s been feeling very taken by the young man, but prefers to hide her feelings from him.’ (ibid.)
- b. Je *la sais très éprise* du jeune homme.
 ‘I know her very taken by the young man.’ (Lauwers & Tobback 2013)
- (18) a. Elle *se croit intelligente*.
 ‘She thinks herself intelligent.’ (nuance of incredulity) (ibid.)
- b. On *la croit intelligente*. (ibid.)
 ‘They think her intelligent.’

The mechanism underlying this phenomenon is referred to as ‘la clôture actantielle’ (Melis 1990) or ‘self-affectedness’ (Waltereit 2000): the presence of a reflexive pronoun has the effect of annihilating the “conceptual separation” (Kemmer 1993: 206) between the role of the subject and that of the reflexive pronoun (Lauwers & Tobback 2013: 50–51), giving rise to an “internal process” (Melis 1990: 64–65). The effect is even more striking with verbs such as *proclamer* ‘proclaim’ or *déclarer* ‘declare’, where the official character of the verbal semantics gives way to a more internal meaning (see (19)):

- (19) Ma mère se déclarait souffrante et s’enfermait dans sa chambre.
 ‘My mother said she was sick and locked herself up in her room.’ (Lauwers & Tobback 2013: 52)

The reflexive pronoun also appears to have played a role in the metaphorization process of the English secondary mental verbs: when used with a mental meaning, the OE verbs occur significantly more often with a reflexive pronoun than when they are used with their primary, non-mental meaning (consider, for instance: (...) *he ðeah hine selfne ongeat him gelicne* – ‘he yet considered himself alike to him’; OED, 9th cent.¹¹).¹² This is apparent from Figure 2 below, which presents the relative proportions of reflexive pronouns occurring with those secondary mental verbs that convey their original, non-mental meaning versus those that

¹¹ Note that *selfne* in this example is probably not part of the reflexive pronoun, but is used as an intensifier (i.e. lit. ‘he considered *himself self* alike’), since reflexives in OE were generally not marked by *self*; see König & Siemund (1997) and Keenan (2008).

¹² In addition to collocational associations between the internal verb types and the NP component, some associations can also be observed between certain verb types and XP components (e.g. *to hold someone responsible*, *to leave someone alone*) and even between certain SPC subtypes and XP components (e.g. *as*-SPCs prefer NPs in the XP slot, whereas zero-SPCs prefer APs). For more detail, see D’hoedt (2017: Chapter 7).

convey a mental meaning in OE.¹³ Here too, then, the reflexive pronoun may have facilitated the shift towards more cognitive, subjective meanings, through the phenomenon of self-affectedness.

Figure 2: Proportions of reflexive pronouns with secondary mental verbs with external vs. internal meanings in OE

In addition, Lauwers & Tobback show that this ‘internalizing/subjectifying’ potential of the reflexive pronoun applies to verbs of any verb class, and is not dependent on the semantics of the main verb:

On s’aperçoit en effet aisément de l’absence de lien entre le degré de subjectivité d’un verbe et la proportion de structures réfléchies recensées et cela tant du côté des verbes les plus objectifs que du côté des verbes plus subjectifs. *Il n’y a donc pas de corrélation entre le sens lexical intrinsèque des verbes et une certaine prédilection pour l’emploi réfléchi.* Cela n’est guère étonnant, car (...) le pronom réfléchi a justement le pouvoir d’infléchir le sens du verbe vers le domaine du ressenti, *plus ou moins indépendamment de son sens de base.*

‘... Therefore, there is no correlation between the inherent lexical meaning of the verbs and a particular preference for the reflexive use. This is not surprising, since the reflexive pronoun has exactly the ability to steer the meaning of the verb in the direction of the domain of the subjective, regardless of the verb’s base meaning.’ (Lauwers & Tobback 2013: 50, translation and emphasis ours)

¹³ The odds ratio calculated for the 2x2 contingency table yielded a p-value of 0.001 and an odds ratio estimate of 3.97, meaning that the chance for reflexive pronouns with mental uses of the verbs is 3.97 times higher than with the non-mental uses.

This is also reflected in the OE data: indeed, the secondary mental verbs have been shown to originate from all types of verb classes (causative, perception, communication, ...), with different semantic distances to the internal domain. The reflexive pronoun consequently has the potential to drive any kind of verb towards the internal domain,¹⁴ regardless of its primary meaning, so that the result is a diverse collection of secondary mental verbs. It is worth mentioning that the secondary mental meaning is moreover restricted to the zero-SPC for most verb types: D’hoedt (2017: 141–144) has shown that, with the exception of *geseon*, *ongietan* and *laetan*, all other secondary mental verb types are attested with mental meaning only in the zero-SPC. For those verbs, it can consequently be assumed that the mental meaning is imposed by the construction as a whole, rather than being a feature of the verbs themselves. Specifically, D’hoedt (2017) argues that these verbs may have acquired a mental meaning in the [Verb + NP + XP]-constellation of the SPC, in analogy with existing Mental zero-SPCs.¹⁵

Considering then this wide array of verb classes, the process of polysemization does not appear to have taken place in a structured, systematic manner; rather, it appears that it occurred relatively randomly, and that individual verbs from all kinds of classes could undergo the semantic change. This is in agreement with Hampe’s claim that metaphorical extensions are strictly local and operate on low-level generalizations rather than on entirely schematic levels of a construction (Hampe 2011: 13; and see also Grady 1997; Grady & Johnson 2003; Tomasello 2003; Dabrowska 2004; Diessel 2004). In addition, the non-systematic nature of this development is obvious 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. In sum, the development of secondary mental verbs was highly unsystematic because of its lack of one particular source class, its effect on some, but not all members of a non-mental verb class, and because of its lack of overlap with the existing mental verbs. The situation changes in ME, where the membership recruitment processes occur in a more organized and systematic manner.

4.2 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 3, *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%.

¹⁴ This supports the idea that the mental meaning of some of the secondary mental verbs is not inherent to the verb types themselves, but results from its use in the zero-SPC, in particular when a reflexive pronoun is used.

¹⁵ An anonymous reviewer suggests that there may have been a turning point in the development, before which the mental meaning is supplied mostly by the lexical items, and after which the lexical items receive their semantics mostly from the construction. We agree, and believe that the reflexive pronoun plays a role mainly in this second stage (i.e. after the turning point). However, determining the turning point for each verb type falls beyond the scope of this study.

Figure 3: Proportions of the most frequent verb types in the Mental zero-SPCs

Remarkably, in the same period, three new secondary mental verbs started to occur in the Mental zero-SPC, namely *feel* (20), *make* (21) and *take* (22). 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).

- (20) But þogh *ze 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)
- (21) *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)
- (22) ... by cause that men *shulde take the ordyr of fryers moste parfytyste of alle orders*.
 ‘... 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*, as *find* and *hold* began to function as an ‘attractor set’ (Traugott 2008: 33), or as analogical models, for other non-mental verbs. That is, *find* – a perception verb – started to 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 both 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 in Figure 4: *hold* first metaphorized from a (pseudo-)causative verb to a secondary mental verb, but was still infrequent in OE. As it became increasingly more frequent between OE and ME, it started to function as an attractor for other (pseudo-)causative verbs, such as *make*, causing them to develop a mental meaning as well.

Figure 4: The development of *hold* and *make* into secondary mental verbs

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).¹⁶

This is in line with Hampe's claims on the acquisition of cognitive verbs in the 'complex-transitive construction' (i.e. zero-SPC), which state that once a metaphorical use of a non-mental verb is established as a 'complex-transitive verb', it can be "path-breaking", as other, non-metaphorical cognition verbs can be analogically modelled after this verb (Hampe 2011: 18). Such a process has been described as an 'analogical snowball' (Ogura & Wang 1996),¹⁷ in that the recruitment process can be seen as an incremental, self-feeding process: as more and more verbs are reeled into the Mental zero-SPC, the pool of attractors becomes bigger, which, in turn, can function as analogical models for new verbs. Of importance for analogical snowball processes is the element of frequency: in order to exert enough pulling force, the analogical models need to be sufficiently frequent, or 'entrenched' (Langacker 1987: 59). This explains why *hold* and *find*, the two most frequent mental verbs in ME, were the most likely candidates to occupy this model position.

In sum, while the changes in OE were random and coincidental, the ME developments appear to have come about in a more 'organized' or 'systematic' fashion. This systematicity is maintained in EModE, although new factors start to play a role as well.

4.3 New core mental verbs and Romance influence throughout ME and EModE

In ME and EModE, two mechanisms of membership recruitment are alternately 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

¹⁶ 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 (consider for instance example (21), where a reflexive pronoun is used, which may point to a continuing effect of reflexivity as a mechanism facilitating the recruitment of mental verb types). 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.

¹⁷ Ogura & Wang (1986) use the term to describe the lexical diffusion of the development of the -s in the third person singular in English, but the 'analogical snowball' effect characterizing this development is similar to the one observed here. In other words, while we understand that the diffusion of third-person -s cannot be put on a par with the development of the zero-SPC, both processes share their incremental self-feeding character.

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 hardly surprising, as it is in line with the general influx of Romance language features after the 1066 Battle of Hastings. However, 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 (tokens) and close to half of the verb types of the Mental zero-SPC comprised secondary mental verbs.¹⁸ 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.

In addition, the Romance influence on the zero-SPC is peculiar in that it *variably affects* the different verb classes in the zero-SPC: some verb classes were more affected by the development than others. 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 shares (19.1% with the causative verbs and 14.3% with the perception verbs). In other words, 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. *se souvenir*; *repute* < Fr. *reputer*; *value* < Anglo-Norman and Middle Fr. *valuer*) (Oxford English Dictionary).

4.4 Interim conclusion

The increase in the frequency and productivity of the Mental zero-SPC is best described as a cascade of ‘the adjacent possible’ (Kauffman 2003; Johnson 2010). This notion captures the set of first-order possibilities of change, which, when arrived at, open up new possibilities for change. Johnson describes it as follows: “The adjacent possible is a kind of shadow future, hovering on the edges of the present state of things, a map of all the ways in which the present can reinvent itself” (Johnson 2010). For language change, this means that at any given moment, only a limited number of linguistic changes are possible, which will each lead to new opportunities for language to be reinvented. In the development of the Mental zero-SPC, a cascade of the adjacent possible took place, as random and accidental changes initially

¹⁸ In the OE data, 103 attestations involve secondary mental verbs vs. 111 with core mental verbs and the mental verb class comprises 12 secondary mental verb types vs. 16 core mental verb types.

caused minor shifts in the system, which eventually triggered increasingly more radical and increasingly more systemic changes.

This cascade is also obvious from Table 2 below, which presents an overview of the development of core versus secondary mental verbs in the Mental zero-SPC (with absolute frequencies). The table shows the large number of secondary mental verbs in OE, and the subsequent increase of core mental verbs in the subsequent periods. Each step in the process – the lower-level metaphorization processes, the increase in frequency of *hold* and *find*, the analogical modelling of new secondary mental verbs and later of core mental verbs, and the attraction of Romance core mental verbs – built on previous changes, and became a steppingstone itself for new developments.

Type of Mental Verbs	OE		ME		EModE				LModE			
Core mental verbs	belifan ¹⁹	1	account	5	account	60	reckon	24	Account	10	remember	2
	cunnan	1	arett	2	believe	24	regard	1	apprehend	1	repute	1
	deman	4	believe	2	conceive	2	remember	4	believe	10	suppose	18
	eahtian	1	count	2	conclude	4	repute	4	conceive	7	suspect	1
	geaxian	3	deem	14	consider	2	suppose	28	conclude	2	think	309
	gelifan	11	guess	4	deem	10	take	7	consider	51		
	gecnawan	3	imagine	1	doubt	1	think	557	count	2		
	geþencan	4	know	8	esteem	61	understand	5	deem	24		
	oncnawan	9	mone	4	expect	2	value	1	esteem	28		
	onmunan	2	suppose	1	fancy	3	weigh	1	estimate	1		
	talian	17	think	24	grant	3			fancy	4		
	tocnawan	2	understand	1	imagine	4			guess	1		
	truwian	1	ween	7	impute	1			imagine	4		
	wenan	6	witan	15	interpret	2			judge	18		
	witan	44			know	31			know	10		
	wundrian	2			note	7			reckon	13		

¹⁹ *Belifan* = to believe; *cunnan* = to know, become acquainted with; *deman* = to deem; *eahtian* = to deliberate, consider; *gelifan* = to believe, trust; *onmunan* = to esteem, think worthy of; *talian* = to consider, reckon; *truwian* = to trust; *wenan* = to ween, suppose; *witan* = to wit, know, have knowledge of; *wundrian* = to wonder at, to regard with surprise or admiration. The rest of the OE verbs have been discussed in Section 4.1.1.1.

(ambiguous attestations)	foreseon	2	feel	2	repute	2	Find	4
	gefindan	1	find	1	feel	1	make	3
	gemetan	2			find	9		
	geseon	4			foresee	1		
	onfindan	4			hold	1		
	ongietan	4			make	6		
	tellan	1			see	1		
	undergitan	1						
Secondary mental verbs	<i>afunden</i>	1	<i>feel</i>	1	<i>judge</i>	41	<i>Feel</i>	10
	<i>gedon</i>	1	<i>find</i>	40	<i>count</i>	46	<i>find</i>	168
	<i>gefindan</i>	4	<i>see</i>	2	<i>feel</i>	1	<i>see</i>	2
	<i>gemetan</i>	16	<i>hold</i>	162	<i>find</i>	244	<i>have</i>	1
	<i>geseon</i>	2	<i>make</i>	2	<i>see</i>	9	<i>hold</i>	3
	<i>gewyrcan</i>	2	<i>take</i>	4	<i>hold</i>	33	<i>make</i>	3
	<i>habban</i>	9	<i>have</i>	2	<i>have</i>	9		
	<i>healdan</i>	5			<i>make</i>	3		
	<i>lætan</i>	6						
	<i>onfindan</i>	1						
	<i>ongietan</i>	34						
	<i>tellan</i>	3						

Table 2: Overview of the core versus secondary mental verbs in the zero-SPC from OE to LModE (absolute frequencies)

The cascade of changes in the Mental zero-SPC can be argued to have had ripple effects on the zero-SPC at a more abstract level, which saw a general shift in its collocational profile from external to internal verb types (see also D’hoedt et al. (submitted)). This chain of events is visualized in Figure 5: (i) initially, there were relatively few any internal uses (before OE and in OE); (ii) in OE, a number of external verbs developed secondary, internal meanings; (iii) this caused other external verbs to also develop internal meanings in ME *and* attracted new internal verbs into the construction (ME and EModE); (iv) by LModE, the zero-SPC was characterized by a more balanced external-internal semantic profile.

Figure 5: The cascade of changes in the Mental zero-SPC is reflected in the semantic profile of the zero-SPC in general (ext = external; int = internal)

5. 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, traditional examples of multi-source constructions differ in a number of ways from the Mental zero-SPC, which challenges the idea that multiple sources necessarily also create a multi-source construction. One example of a multi-source construction 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*). Finally, Fischer argues that multi-source constructions may also result from processing errors (2013: 522–524). Typically, contaminations in proverbs or idiomatic expressions may cause confusion, and when used

frequently enough, may become a fixed novel idiom. The example given by Fisher is a ‘mistake’ made by former US President Barack Obama in 2008 when saying that he is “green behind the ears” (Zimmer 2008). In this case, there is clearly a mix-up between the ‘correct’ expression *wet behind the ears* or *not dry behind the ears* and the meaning of *green* used to refer to lack of experience. Both sources are branches of the macro-construction ‘to be inexperienced’, and together they generate a new branch of the same construction.

What these 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 the notion of ‘categorical incursion’ (see De Smet 2009; Petré 2012). Categorical incursion refers to the introduction of a new lexical item into a category, which already existed by virtue of other members of that category.²⁰ 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 (23a) in addition to its (more standard) intransitive use through analogical extension with the transitive *worth* (23b) (De Smet 2009: 1732–1743):

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

Here, categorical 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*.²¹ The similarity with the development of the Mental zero-SPC is obvious:²² 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

²⁰ The term ‘categorical incursion’ will here be employed in Petré’s (2012) sense. While in De Smet’s definition, categorical incursion captures the phenomenon whereby an expression develops a new structure, on the basis of an existing model (e.g. the noun *fun* developed an adjectival use, following the example of structures such as *It was great/sad/...*), in Petré’s (2012) interpretation, lexical items become part of a new category without necessarily undergoing structural changes. Petré illustrates the notion with the introduction of the verbs *becuman* and *weaxan* in the Copular Construction.

²¹ See De Smet (2009: 1732) on the notion of ‘transitive adjectives’.

²² We are, however, aware that not all source verbs may be equally amenable to recruitment by categorical incursion. As one reviewer points out, some verbs, for instance, may already have had a full secondary predicate potential outside of the Mental zero-SPC (e.g. for *imagine*: *I imagined that he was sad/a fool*, etc.). The recruitment of *imagine* into the zero-SPC would then have involved a transfer of the productivity from one complementation pattern to another one but sharing the same lexical item. This is an interesting empirical question that will have to be left to future research.

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.

6. 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.

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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>)