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Verifying Causatives: A Corpus-based Study of the Middle English Derivational Suffix *-fien*

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Abstract

Modern English has more than 800 verbs that alternate between intransitive and causative use (McMillion, 2006). This characteristic of Modern English results from long-term diachronic changes and the transformation of the derivational system of English (Durkin, 2014; van Gelderen, 2018). The current study seeks to investigate the Middle English derivational suffix *-fien*, which is said to be a productive causativizing suffix in Modern English (Plag, 1999). However, its causativizing properties with regard to previous stages of English are almost unexplored (Dalton-Puffer, 1996). The suffix came into English as part of simplexes through the language contact with the Anglo-Normans (van Gelderen, 2018). A corpus-based analysis using the three Middle English corpora: *The Penn-Helsinki Parsed Corpus of Middle English 2*, *The Parsed Corpus of Middle English Poetry,* and *The Parsed Linguistic Atlas of Early Middle English* reveals that *-fien* derivatives can be categorized into three different classes regarding their semantic properties. In addition, it is shown that causativity is a matter of degree. Most investigated verbs have an underlying causative meaning but incorporate multiple senses that are either more prototypically causative or 'abstract causative'. Lieber's (2004) lexical-semantic framework is used to demonstrate that *-fien* is a causativizing suffix with a causative skeleton but without a lexical meaning. This study provides one piece to the puzzle of the unexplored 'morphological history' of English and the long-term effects of the language-contact situation with Anglo-Norman.

Keywords: causativity; derivational morphology; polysemy; argument structure; argument realization; productivity; contact-induced language change; Middle English

Contents

1 Introduction

Languages change in the course of time. New words enter the language, fall out of use, or develop distinct meanings. However, languages change not only on a lexical level but also undergo developments on a grammatical level (Hopper & Traugott, 2003, p. 6). An interesting example with regard to such developments can be seen in the history of the English language.

Over time, English lost many purely intransitive verbs and gained more verbs that occur in transitive and intransitive clausal patterns without changing their morphological form (van Gelderen, 2018, p. 76). Verbs that exhibit such behavior are called labile verbs (Kulikov & Lavida, 2014, p. 871).

A linguistic notion that plays an important role concerning these developments is causativity, which is, in most general terms a valency-increasing operation (Kulikov, 2001, p. 894). Kulikov (2001) provides a precise definition of causative verbs.

> Causatives can be defined as verbs which refer to a causative situation between two events, one of which (P_2) is believed by the speaker to be caused by another (P_1). [...] In other words, a causative is a verb or verbal construction meaning 'cause to V_o', 'make V_o', where V_o stands for the embedded base verb (Kulikov, 2001, p. 886).

From this definition, it follows that causative constructions are always transitive constructions. Labile verbs are found in a specific type of causatives, which are called lexical causatives (Levin & Rappaport Hovav, 1995, p. 145; Kulikov, 2001, p. 887; Schäfer, 2009, p. 642). A unique feature of lexical causatives is that the transitive causative construction has for some verbs an intransitive counterpart, called inchoative. Taken together, these two constructions are defined as the causative/inchoative alternation (Levin, 1993, p. 27). An inchoative-causative verb pair expresses "the same basic situation" (Haspelmath, 1993, p. 90). The difference is that the transitive causative construction includes, in contrast to the inchoative construction, an entity that causes the situation. The following provides an example for such a verb pair:

(1) (causative) The microscope **magnified** the object.

(2) (inchoative) The object **magnified**.

In sentence (1), an external causer brings about the eventuality: The microscope 'causes the object to become magnified'. In (2), no external causer is syntactically expressed and, therefore, the situation is conceived as occurring spontaneously (Haspelmath, 1993, p. 92). The example above is particularly interesting because *magnify* is a special kind of verb: It is a verbal derivative copied[1] from Old French in medieval England (Marchand, 1969, p. 300).

Through the language contact with the Anglo-Normans, not only an extensive amount of vocabulary was copied into English, but the contact situation also led to a complete transformation of the derivational system (Durkin, 2014, p. 224). Four *derivational affixes* that came to English through French are *-en, -ize, -(i)fy*, and *-ate* (van Gelderen, 2018, p. 95). With regard to Modern English, the four affixes are typically defined as causative affixes (Marchand, 1969, pp. 259–319; Levin, 1993, p. 28; Plag, 1999, p. 239; Lieber, 2004, p. 76).

Derivational morphology is a subfield of morphology that has, especially in terms of the diachronic study of the English language, "a kind of Cinderella status" (Dalton-Puffer, 1996,

[1]The term *copying* will be used in this paper instead of the traditional word *borrowing* in order to describe the transmission of linguistic elements from one language to another. The reason for this choice lies in the fact that the term *copying* is more neutral and, therefore, less biased than the word *borrowing*. For a discussion see Johanson (2002).

p. 1). Only one extensive study exists that is concerned with the derivational morphology of verbal suffixes in the history of English. This study was carried out by Dalton-Puffer (1996). The researcher investigates, among others, the three derivational suffixes *-ate*, *-(i)fy*, and *-ize* in Middle English. Most importantly, Dalton-Puffer (1996) does not provide an extensive qualitative analysis of each suffix, but she rather gives a general overview of Middle English derivational morphology.

Considering everything that has been said so far, it is of significant interest to investigate how productive non-native derivational suffixes are in Middle English and whether it is appropriate to define them as causativizing suffixes. However, this paper cannot account for an investigation of each of the three verbal derivational suffixes mentioned above. Therefore, exclusively the suffix *-(i)fy* will be empirically investigated in the scope of this paper.[2]

In morphological literature, various and oftentimes confusing definitions of terms like *base*, *root*, and *stem* exist. In the current study, the term *base* is used to refer to "the part of a word which an affix is attached to [...]" (Plag, 2003, p. 11). The term *root* will not be used for the sake of terminological simplicity.

The study aims to answer the following research questions:

> **RQ:** What different meanings are exhibited by the Middle English derivational suffix *-fien* and how often does this suffix contribute to lability in the causative/inchoative alternation? How productive is *-fien* as a causativizing suffix in Middle English?
>
> **H:** The suffix *-fien* is predominantly used as a causativizing suffix in Middle English, but *-fien* is also found in other patterns. Due to the occurrence in different patterns, the suffix also exhibits multiple meanings, which can, however, be traced back to one underlying core lexical meaning.

This section has introduced the topic argument structure alternations and causativity and laid out the motivation for the empirical investigation of the derivational suffix *-fien.* In Section 2, the concept of argument structure will be specified, and the semantic role list adapted for this work will be presented. Section 3 provides an overview of the main characteristics of causative verbs. Section 4 describes the method taken for the study, namely a corpus-based analysis by means of three Middle English corpora. In Section 5, the qualitative as well as some quantitative aspects of the study will be presented. Subsection 5.1 starts with the categorization of the *-fien* derivatives and the other subsections continue with a qualitative analysis of individual verbs. In this regard, the semantic similarities and differences between *-fien* derivatives will be identified. Subsection 5.5 adds quantitative aspects to the study and presents an outlook on future developments of *-fien.* Section 6 provides an introduction to Lieber's (2004) framework of lexical-semantic description. The main findings will be interpreted and modulated in terms of Lieber's (2004) approach before a conclusion and outlook are presented in the final section.

[2]It should be noted that *-(i)fy* changed its shape morphologically in the course of time. The Middle English counterpart is the suffix *-fien* ('-fien, suf.', MED, McSparren et al., 2001).

2 Argument Structure and Semantic Roles

In order to explore the semantic as well as syntactic properties of verbs, it is relevant to introduce the concept of argument structure. Levin (2018) explains that "the term 'argument structure' is used to refer to the lexical representation of argument-taking lexical items – typically verbs [...] that specifies sufficient information about these items' arguments to allow their syntactic realization to be determined." A number of working theories of argument realization use semantic role lists to investigate the argument structure of verbs (Gruber, 1965). However, semantic role lists are often embedded in larger theoretical frameworks.

This paper takes the semantic role lists provided by Van Valin (1993; 2005), which are embedded in the theoretical framework of the Role and Reference Grammar, a "structural-functionalist theory of grammar" (Van Valin, 1993, p. 65). Opposed to other approaches, Van Valin (2005) makes a distinction between three levels of specification that account for the semantic relations between a verb and its arguments. He differentiates between verb-specific semantic roles, thematic relations, and generalized semantic roles (Van Valin, 2005, p. 53). The generalized semantic roles are the macroroles Actor und Undergoer (p. 60). Van Valin (2005) explains the difference between these two macroroles in the following way:

> Generally speaking, the actor is the most agent-like argument, while the undergoer is the most patient- like. They are called 'macroroles' because each subsumes a number of specific thematic relations. Macroroles are motivated by the fact that in grammatical constructions groups of thematic relations are treated alike (p. 60).

This definition indicates that thematic relations are the second layer of specification. They are described in terms of lists and include semantic roles like Agent, Experiencer, Recipient, Theme, and Patient (Van Valin, 2005, p. 54). For simplicity, the third level will not be taken into account since it has a grade of specificity that is not relevant for the current study. However, the assumption that some thematic relations are more prototypical macroroles than others is of significant relevance.

As will be seen in terms of the qualitative investigation, the distinction between thematic relations and generalized semantic roles will be of major benefit to account on a semantic level for the difference between individual *-fien* derivatives.

3 Causativity

The previous section introduced the term argument structure and presented the semantic role list adapted for the current study. In the next step, it is necessary to elaborate in more detail on causativity and the main characteristics of causative verbs. This chapter aims to develop a classification schema that will be used as a template for the categorization of the *-fien* derivatives in section 4.

In the introduction, it was referred to Kulikov's (2001) definition of causativity. The researcher explains that causatives are verbs that express a causative situation, which can be paraphrased as 'cause to V_o' or 'make V_o' (Kulikov, 2001, p. 886). For instance, a causative

verb such as *open* has the underlying meaning 'cause to open' or 'make open' (Kulikov, 2001, p. 886). Beyond that, it is possible to distinguish three types of causative constructions: morphological causatives, syntactic causatives, and lexical causatives (Comrie, 1981, p. 161; Kulikov, 2001, pp. 886–888; Schäfer, 2009, pp. 641–643).

These constructions differ in the way in which the CAUSE is expressed. Whereas in morphological causatives, the CAUSE is added through affixation, syntactic causatives take free morphemes for the same purpose (Schäfer, 2009, p. 643). An example of a morphological causative verb is the Arabic verb *fariha* ('be glad'), which can be used causatively through affixation: *farraha* ('make glad') (Kulikov, 2001, p. 886). An example of a syntactic causative construction would be English *make go* (Kulikov, 2001, p. 886). The free morpheme *make* adds the CAUSE to the verb *go*, which would be otherwise non-causative (Schäfer, 2009, p. 642).

The type of causatives relevant to the current study are lexical causatives, which lack any kind of "regular or productive causative marker" (Kulikov, 2001, p. 887). Most importantly, this subclass of causatives is only possible with a restricted class of verbs (Schäfer, 2009, p. 643). Kulikov (2001) notes that "lexical causatives may go back to morphological causatives with a marker which was regular and productive in the older language" (p. 887). For instance, Old English had in contrast to Modern English verbal affixes that were productively used as causative markers (van Gelderen, 2018, p. 13). The Old English causative *-i* suffix, which derives from the Germanic *-j* suffix, had "a fronting and raising effect on the vowel" (van Gelderen, 2018, p. 80). Therefore, verb pairs such as *feallan* (i.e. intransitive 'fall') and *fellan* (i.e. causative 'fell') evolved due to causativization with the help of this suffix (van Gelderen, 2018, p. 81). However, morphological causativizing became unproductive in English in the course of time.[3]

The second characteristic of causative verbs can be best explained by taking a closer look at the verb *kill.* Considering the sentence (3), *The fox killed the chickens*; the grammatical object *the chickens* bears the semantic role Patient because *the chickens* are strongly affected by the event (Van Valin, 2005, p. 54). The event of *killing* indicates that the *chickens* undergo a change of state, namely from being alive to dead. To denote a change of state as in (3) is one of the main characteristics of causative verbs, and they are therefore mostly referred to as *change of state verbs* (Levin & Rappaport Hovav, 1995, p. 172; Wright, 2002, p. 341; Beavers et al., 2021, p. 57).

Wright (2002) explains that change of state verbs "involve a change in the internal composition of an entity undergoing a particular event" (p. 339). Such verbs can be subdivided into two distinct groups: *externally* and *internally* caused change of state verbs. The former type implies the existence of an external causer, whereas the latter indicates that the inherent properties of the entity bring about the eventuality. Levin and Rappaport Hovav (1994) emphasize that the "distinction between internally versus externally caused eventualities is relevant for change of state verbs" (p. 51). They argue that "all externally caused verbs have a transitive causative use, but not all of them need have an intransitive use in which the external cause

[3] See García García (2012) for a comprehensive study on causativization in Old English, and van Gelderen (2018) for a detailed explanation on changes in transitivity with regard to English in the course of history (pp. 76–112).

is unspecified" (Levin & Rappaport Hovav, 1994, p. 52). Coupled with this assumption, the researchers assume that externally caused verbs (for instance, *break*) are inherently causative and undergo a process of detransitivization when used intransitively (Levin & Rappaport Hovav, 1994, p. 52). However, not all externally caused verbs can be used intransitively. They take verbs such as *murder* and *assassinate* as counterexamples for verbs that never detransitivize (Levin & Rappaport Hovav, 1994, p. 61).

Concerning the distinction between externally and internally caused change of state verbs, Levin and Rappaport Hovav (1994) point out that "verbs which are externally caused inherently imply the existence of an external cause with the immediate control over bringing about the eventuality denoted by the verb: an agent, an instrument, a natural force, or a circumstance" (p. 50). The verb *kill* requires an external Causer that 'causes to *kill'* another animate entity (Comrie, p. 160). However, a verb like *bloom* does not allow the expression of an external causer because this verb denotes internal causation (Beavers et al., 2021, p. 186). For example, a sentence such as (4) **She bloomed the rose* is ungrammatical because the event of *blooming* cannot be caused by an external Causer, but it evolves due to the inherent properties of the *rose* (Beavers et al., 2021, p. 186). No matter whether verbs are internally or externally caused change of state verbs, they always indicate a change in the physical shape of appearance of an entity, which typically bears the semantic role Patient (Levin & Rappaport Hovav, 1994, p. 52; 1995, p. 93).

In addition, external causation goes in contrast to internal causation together with the notion of controllability (Wright, 2002, p. 343). According to Wright (2002), "change of state verbs occur along a scale of controllability where their position on the scale is dependent upon the degree to which they can be manipulated by an outside source" (p. 343). For instance, a verb like *cut* indicates a high degree of controllability because the event of *cutting* requires the external control of a volitional Agent, which must be a human being (Wright, 2002, p. 344). In view of this, it should be noted that the argument expression options, whether a human and non-human causer is licensed to bring about the eventuality, are dependent on the properties of an individual verb (Wright, 2002, p. 343). For example, the verb *kill* licenses in contrast to the verb *murder* a human as well as non-human causer (Van Valin, 2005, p. 56). A sentence such as (5) "*The rockside* KILLED *nearly half of the children*" ('kill,v.', FrameNet, 2003) is grammatical, but the sentence (6) **The rockside* MURDERED *nearly half of the children* is ungrammatical because the verb *murder* denotes an eventuality that requires a volitional Agent as Causer and does in contrast to *kill* not allow natural force subjects as Cause arguments (Levin & Rappaport Hovav, 1994, p. 62).

A further characteristic of causative verbs is described by Haspelmath (1993), who investigates the typology of the causative/inchoative alternation. As already mentioned in the introduction, the causative/inchoative alternation is a transitivity alternation in which a limited number of causative verbs participate (Levin, 1993, p. 27). According to Haspelmath (1993), causatives, which are the transitive counterparts of the intransitive inchoative, denote typically events that do not come about spontaneously but rather are instantiated by an external Agent (p. 107). Such events are regarded as the "stereotype of a caused event" (Haspelmath, 1993, p. 107). Haspelmath (1993) argues that an externally caused event must be transitive and

does not occur spontaneously. If an event is likely to occur spontaneously, the verb is typically intransitive (p. 107). From Haspelmath's line of argumentation, it follows that the stereotype of a caused event does not occur spontaneously but is "likely to occur through causation by an external agent" (1993, p. 107).

Apart from Haspelmath, Levin and Rappaort Hovav (1994) provide further empirical insights into the interconnectedness of spontaneity and causativity. The researchers explain that morphologically complex verbs, formed with the suffixes *-ize* and *-ify*, typically denote eventualities that "cannot come about spontaneously without the external intervention of an agent" (p. 63). Most importantly, *-ify* and *-fien* derivatives that can only be used transitively and do consequently not participate in the causative/inchoative alternation allow a narrower range of subjects than alternating verbs (Levin & Rappaport Hovav, 1994, p. 63). This observation might be of significant relevance for the qualitative investigation of the *-fien* derivatives in terms of the current study. It can be predicted that the semantic realization of the Causer is restricted due to the grammatical properties of the respective *-fien* derivatives.

Concerning transitivity and the causative/inchoative alternation, it is essential to elaborate on a commonly made typological distinction between two different types of intransitive verbs. Researchers who focus on the interface between syntactic and semantic components typically distinguish between two types of intransitive verbs: *unaccusative* verbs and *unergative* verbs (Perlmutter, 1978, p. 160; Burzio, 1986, p. 178; Levin & Rappaport Hovav, 1995, p. 82). Perlmutter (1978) formulated the so-called Unaccusative Hypothesis. This is a syntactic hypothesis that says that intransitive verbs differ in terms of their underlying syntactic configuration and, therefore, a distinction between two classes of verbs, *unaccusative* and *unergative verbs*, has to be made (Perlmutter, 1978, p. 161). For unergative verbs, the surface subject is at the same time the underlying subject, and for unaccusative verbs, the surface subject is the underlying direct object (Van Valin, 1990, p. 221).

Considering the difference between (7) *The woman jogs* and (8) *The snow melts*. In (7), the subject has the semantic role Agent, an entity that is acting volitionally (Palmer, 1994, p.25). In (8), the subject is a Patient since it is undergoing the event but is not actively doing something; it undergoes a change of state (Levin, 1993, p. 28). On that account, the verb *jog* is an unergative verb and the verb *melt* is an unaccusative verb (Beavers et al., 2021, p. 84). The distinction between these two types of intransitive verbs is of significant relevance in terms of causativity and the causative/inchoative alternation (Levin, 1993, p. 27; Levin & Rappaport Hovav, 1995, p. 79; Haspelmath, 1993, p. 90; 2016, p. 34). Levin and Rappaport Hovav (1995) point out, "the causative alternation has been claimed to be an unaccusative diagnostic" (p. 80). Prototypical verbs that participate in this alternation, such as *break*, *melt*, and *open*, are unaccusative (Levin, 1993, p. 28).

In order to explain the next characteristic of causative verbs, it is necessary to briefly elaborate on the grammatical distinction between manner and result verbs (Rappaport Hovav & Levin, 1998; 2010; Levin & Rappaport Hovav, 2014). Manner verbs such as *run*, *swim*, and *laugh* differ from result verbs such as *clean*, *freeze*, and *kill* in the patterns of argument realization in which they occur (Rappaport Hovav & Levin, 2010, p. 2). Result verbs typically involve a scalar change, which is "a set of degrees – points or intervals indicating measurement values

– on a particular dimension [...] with an associated ordering relation" (Rappaport Hovav & Levin, 2010, p. 7).

Rappaport Hovav and Levin (2010) argue that change of state verbs typically indicate scalar changes (p. 11). For instance, the change of state verb *freeze* does, in contrast to the manner verb *run,* specify a scalar change. It can be imagined how the physical state of an entity like a liquid becomes gradually converted to ice. From this it follows that causative verbs, which are typically change of state verbs, are at the same time result verbs rather than manner verbs because they usually denote gradable events with a resultant state (Beavers et al., 2021, p. 180).

Another relevant term that has to be introduced with regard to causativity is *Aktionsart*, also known as *Aspect* (Dowty, 1979; Smith, 1997). In the most general sense, "Aspect is the semantic domain of temporal point of view in languages" (Smith, 1994, p. 107). For this paper, it is essential to make a basic distinction between States, Accomplishments, and Activities. According to Levin and Rappaport Hovav (1995), causative verbs are typically classified as Accomplishments, which are "standardly analyzed as complex predicates involving a causing event that that brings about some change of state or location" (p. 107). For instance, the sentence (9) *Marry cut the apple*, denotes the event of cutting that is induced by the external Causer *Marry*, and this *causing* subevent initiates a second subevent (the *central* subevent), which results in a change of state of the Patient *the apple* (Levin & Rappaport Hovav, 1995, p. 83; 2014, p. 353).

Table 1 provides a brief overview of the main characteristic of the three situation types: States, Activities, and Accomplishments.

Table 1: Situation types – simplified version adapted from Smith (1997, p. 3)

Situation types	**Characteristics**
States	static, durative (*know the answer, love Mary*)
Activity	dynamic, durative, atelic (*laugh, stroll in the park*)
Accomplishment	dynamic, durative, telic, consisting of process and outcome (*build a house*)

As depicted in Table 1, Accomplishments as well as Activities present in contrast to States dynamic situations and are therefore defined as events. The main difference between Activities and Accomplishments lies in the fact that Accomplishments indicate an initial and a final endpoint, whereas Activities make no reference to an endpoint. For example, verbs such as *swim* and *walk* denote Activities since they present a dynamic event (Smith, 1997, p. 41). However, they do not constitute a complex event structure such as causative verbs like *cut* or *kill* since the event of *swimming* or *walking* does neither indicate a change of state nor does the events imply a natural or final endpoint. It should be noted that the characteristic to imply an endpoint is subsumed under the term telicity (Smith, 1997, p. 3).

Considering everything explained about causativity in the previous sections, Table 2 summarizes the main characteristics of causative verbs that will be used as a template for the classification of the *-fien* derivatives in this study.

Table 2: Characteristics of causative verbs

	10 Main characteristics of (lexical) causative verbs
I.	A causative construction is a transitive construction, which means 'cause to V_o' or 'make V_o' (Kulikov, 2001, p. 886).
II.	Causatives generally denote a change-of-state event (Wright 2002, p. 339).
III.	A change in the physical shape of appearance of an entity is indicated. This entity bears the semantic role Patient (Levin & Rappaport Hovav, 1994, p. 52; 1995, p. 93).
IV.	The argument expression options, whether a human and non-human causer is licensed to bring about the eventuality, is depended on the properties of an individual verb (Wright, 2002, p. 343).
V.	Causativity goes together with controllability (the external control of an Agent) (Beavers et al., 2021, p. 186).
VI.	Causatives are events that do not come about spontaneously (Haspelmath, 1993, p. 107).
VII.	A number of causative verbs specify a result state (Beavers et al., 2021, p. 180).
VIII.	Result verbs typically involve a scalar change (Rappaport Hovav & Levin, 2010, p. 7).
IX.	Causatives have a complex event structure (Levin & Rappaport Hovav, 1995, p. 107).
X.	Causative verbs are typically Accomplishments (Levin & Rappaport Hovav, 1995, p. 107).

4 Methodology

The previous sections laid the terminological foundation for the qualitative analysis. In the next step, the three corpora taken for the empirical investigation will be introduced.

4.1 The Middle English Corpora

The corpus data used in the present study comes from the following three diachronic corpora: *The Penn-Helsinki Parsed Corpus of Middle English 2* (Kroch & Taylor, 2000, henceforth PPCME2), *The Parsed Corpus of Middle English Poetry* (Zimmermann, 2015, henceforth PCMEP), and *The Parsed Linguistic Atlas of Early Middle English* (Truswell et al., 2018, henceforth PLAEME). The verbs are lemmatized and annotated with word-class in-formation. This is a relevant factor because annotation and lemmatization facilitate linguistic analysis on the word level (part-of-speech tagged files) and on the clause level (parsed files).

The largest of the three corpora is the PPCME2, which contains 1.2 million words (Kroch & Taylor, 2000). The PCMEP is regarded as the "sister corpus" of the PPCME2. This corpus includes "49 Middle English poems with a total of 215917 words" (Zimmermann, 2015). Beyond that, the PPCME2 and PCMEP are divided into the same periods ranging from 1150 to 1420.

The smallest of the three corpora is PLAEME. This corpus currently contains 189,713 words and has a covered period from 1250 to 1325. It should be noted that PLAEME is meant to fill "a gap in the existing English parsed historical corpora" (Truswell, 2022).

A representative coverage of written language will be provided for the current study taking the three corpora together. For the sake of methodological simplicity, the observed data will not be divided into several subperiods because it is for this study not of major importance to

make a difference between individual periods.

4.2 Formulation of the Query

To account for *-fien* derivatives, the query (`V* idoms *@l=*fien@*`) is compiled for each of the three corpora.[4] For the PPCME2, the output of this query is 228 hits and 198 true positives. The PCMEP provides 12 hits and 4 true positives, and the output of PLAEME is 3 hits and 2 true positives. This makes in total 204 true positives. Concerning the process of querying, it should be remarked that the following four verbs are identified as false positives: *affien, defien, tofien*, and *desafien*.

Moreover, the hits of the three corpora will be taken together for the investigation, even though it should be noted that the PCMEP and PLAEME provide only a very small number of relevant hits.[5] This is a general problem when working with diachronic corpora. Historical corpora are in contrast to 'most' Modern English corpora much smaller, and the smaller the size of the corpus, the greater is the risk that the output of the query provides only a very small number of hits (Trips, 2009, p. 34).

Since the available corpus data is very small, the Middle English Dictionary (McSparren et al., 2001, henceforth MED) will be used as a 'control corpus'. Apart from that, the MED will be taken as a source for the investigation of the semantic nature of the *-fien* derivatives.

Table 3 presents all verb lemmas detected in the corpora with the respective number of hits.

Table 3: The corpus data

Verb Lemma	Number of Hits	Verb Lemma	Number of Hits
signifien	52	*notifien*	5
glorifien	29	*reedifien*	4
crucifien	19	*clarifien*	4
edifien	17	*mortifien*	3
sacrifien	11	*fructifien*	3
magnifien	11	*verifien*	3
specifien	9	*ratifien*	2
justifien	8	*pacifien*	1
certifien	8	*thurifien*	1
fortifien	6	*testifien*	1
purifien	6	*modifien*	1
In total	**204**		

In the next step, the 22 *-fien* derivatives presented in Table 2 will be classified in terms of

[4]The three corpora have been queried with the help of the *Toolbox Anglistik IV* at `http://anglistik-toolbox.uni-mannheim.de/app/corpussearch/` (Trips et. al, n.d.). *Anglisitk Toolbox IV* provides a lemmatized version of each of the three corpora that also includes animacy information. *Anglisitk Toolbox IV* allows to execute search queries, and then to download the output files.

[5]The true positives of the PCMEP and PLAEME are in all instances the verb *signifien*.

their semantic properties with the help of the MED and the causativity schema developed in section 2.3. However, beforehand it will be taken a look at the etymological development of *-fien*.

5 Empirical Investigation of *-fien*

The MED indicates that *-fien*[6] is derived from Old French *-fier*, which is derived from Latin *-ficāre* ('fīen, suf.', McSparren et al., 2001). Additional information about the etymology of *-fien*, respectively Modern English *-(i)fy,* is provided by the Oxford English Dictionary ('-fy, suf.', Proffitt, 2015, henceforth OED).

> The older English verbs in *-fy* are adoptions of French vbs in *-fier*, which are either adapted from Latin verbs in *-ficāre* or formed on the analogy of verbs so originating. (The form *-fier* was used as the representative of Latin *-ficāre* on the analogy of words like *saintefier*:—*sanctificāre*.) The Latin verbs in *-ficāre* were originally derivatives of adjectives in *-fic-us* (see -fic suffix), though subsequently the suffix could be used to form verbs without the intervention of an adjective. They may be divided into three classes (corresponding to three classes of adjectives in *-ficus*: see -fic suffix), all of which are represented by adapted words in English: **(1) verbs < nouns, with the sense 'to make, produce', as *pācificāre* (originally *intransitive* to make peace) pacify, *ædificāre* edify, or 'to make or convert into something', as *deificāre* deify; (2) < adjectives, with the sense 'to bring into a certain state', as *santificāre* sanctify; (3) < verb-stems, with causative sense, as *horrificāre* horrify**. […] It is now used as the regular rendering of *-ficāre* in new words adopted from Latin or formed on assumable Latin types, and is also **freely added to English adjectives and nouns** to form verbs, mostly somewhat jocular or trivial, with the senses: 'to make a specified thing', as *speechify*; 'to assimilate to the character of something' (chiefly in past participle, as *countrified*); 'to invest with certain attributes', as *Frenchify*.

According to the OED, Latin *-ficāre*, the original form of the suffix, had the basic meaning 'make'. Beyond that, the OED indicates that derivatives built with this suffix can be divided into three classes. The first class has the meaning 'to make, produce' and 'to make or convert into something'. The second class has the meaning 'to bring into a certain state', and the third class bears a causative sense.

It is essential to take into consideration that the OED does not define a clear 'semantic dividing' line between Class 1, 2, and 3. Causatives typically have the meaning 'cause to become' or 'cause to make' (Kulikov, 2001, p. 886). Therefore, the question remains open how the verbs of the three groups can be semantically differentiated. It is crucial to point out this ambiguity

[6] It is indicated in the MED entry of *-fien* that the grapheme < i > is written with a macron (*-fīen*). For reasons of consistency and simplicity, the suffix is constantly written without a macron above the grapheme < i > in this paper.

because this aspect will be of relevance in terms of the classification of the *-fien* derivatives, which follows in the next section. It can be predicted that some difficulties concerning the classification will arise, simply because the underlying meaning of *-fien* derivatives is very similar.

5.1 Categorization of the *-fien* Derivatives

The following steps were undertaken to classify the 22 *-fien* derivatives in terms of their semantic properties. First of all, the MED entry of each derivative was investigated. This investigation revealed that every derivative has one or more senses, and additionally, most verbs have multiple subsenses. Secondly, the 22 derivatives were hierarchically arranged in a table with respect to their OED entry date because it has to be found a way of putting them into a clear order.

In a third step, the categorization schema for causative verbs developed in section 2.3 was taken and for each verb, it was decided whether it has a causative sense or not. This procedure revealed that several verbs have a meaning that goes either in an 'abstract causative direction' or in a 'physical/material causative direction', and some verbs have senses with both types of meanings. Apart from that, 7 verbs were identified as having no causative sense. Given these findings, it was possible to draw a dividing line between three classes of verbs.

The first class subsumes all verbs with a 'physical/material causative sense'. These are the most prototypical causative verbs with regard to the criteria of causativity developed beforehand. However, it should be noted that some verbs are more prototypically causative than others in this class. This observation will be taken up later again. Class 1 is defined as the Physical/Material Causative Class.

Class 2 contains verbs that do not have a 'prototypical' causative meaning, but causation is of relevance to this class nonetheless. The verbs in this class have an 'abstract causative sense' or a sense that indicates a 'change in mental status'. This class is called the Abstract Causative Class (cf. Pizzolante, 2017, p. 62).

Class 3 consists of verbs that have no causative meaning. Therefore, this class is defined as the Non-Causative Class.

Based on the difference in meaning, the 22 verbs were classified concerning the three developed classes. Table 4 presents just an overview of the classified verbs. A difference between more or less prototypical verbs is not indicated because such a difference must be well-founded and, therefore, further investigation is required beforehand.

5.2 Class 1: The Physical/Material Causative Class

The scope of this paper does not allow to provide a detailed semantic analysis of every single verb. For this reason, specific verbs of each class will be picked out and investigated qualitatively. In this regard, excerpts of the classification table are presented and explained.[7] The investigation will start with Class 1: The Physical/Material Causative Class.

[7]See appendices A.1, A.2, and A.3 for the three complete classification tables.

Table 4: Classification of the 22 verbs

Class	Labeling	*-fien* derivatives	In total
1	Physical/Material Causative Class	*crucifien; fructifien; sacrifien; mortifien; edifien; reedifien; justifien; thurifien; clarifien; purifien; modifien; fortifien*	**12**
2	Abstract Causative Class	*glorifien; magnifien; pacifien*	**3**
3	Non-Causative Class	*signifien; specifien; verifien; certifien; ratifien; testifien; notifien*	**7**

5.2.1 Purifien and Clarifien

The first two verbs which are semantically particularly interesting are *purifien* (PDE purify) and *clarifien* (PDE clarify). Both verbs have a physical/material causative sense and additionally an abstract causative sense, which are almost identical.

The following abbreviations are used in Table 5 as well as in the classification tables in the appendix: Physical/Material Causative Sense (CA), inchoative (IA), and Abstract Causative Sense (AS). A horizontal line '—' is put in the right column if a verb has according to the MED a causative sense, but no instance with a causative sense is detected in the corpora. The reason why such verbs do not occur with a causative sense in the corpora is simply because corpora contain only a limited amount of data. For this reason, such verbs are identified as causative nonetheless.

Table 5: Classification of *clarifien* and *purifien*

Verb	MED Definitions: Senses	Senses	Hits
clarifien	1. (a) To separate the clear part (of a liquid) from the dregs, free (honey, butter, liquids) from impurities causing opacity, clarify; refine (metal);	1a (CA)	1
	(b) fig. To free (sb.) from sin, **make morally pure**	1b (AS)	2
	2. Med. (a) To make (the complexion) fresh and bright	2a (CA)	1
In total		**6**	
purifien	1. (a) To remove impurities or noxious matter from (sth.), cleanse, clarify, make pure or clean	1a (CA)	—
	2. **(a)** To free (sb., the soul, the conscience) from sin or guilt, **make spiritually or morally pure**	2a (AS)	6
In total			**6**

It is apparent from Table 5 that the abstract causative sense of *clarifien* (sense 1b) and the abstract causative sense of *purifien* (sense 2a) are almost identical. The similarity between both senses can be seen in the following examples.

(10) *it **clarifies ti** **sawle**,*
it clarifies your soul,
'It clarifies your soul,'

(CMROLLEP,108.738)

(11) *When **a saule es puryfyede** by te lufe of Godd,…*
When a soul is purified by the love of God,…
'When a soul is purified by the love of God,…'

(CMROLLTR,17.413)

In (10) and (11), the entity that is undergoing the event is in both instances inanimate. *ti sawle* (10) (PDE soul) and *a saule* (11) (PDE soul) are the same abstract nouns. It should be noted that sentence (11) is a passive construction, which means that the entity undergoing the event is the grammatical subject, whereas it is in (10) the grammatical object (Pullum, 2014, p. 61). The causative constructions in (10) and (11) can both be paraphrased as 'cause to become morally *pure*', even though the entity affected by the event has in both instances a distinct syntactic function. Most importantly, it is not a change in the physical shape of appearance of an entity indicated, but the change proceeds on an abstract level, or rather on a mental level (Levin & Rappaport Hovav, 1995, p. 93). Despite the fact that these are instances with an abstract sense, they can be defined as causative constructions (cf. Pizzolante, 2017, p. 108). In (10) and (11), the event cannot be perceived as occurring spontaneously since the verb conceptualizes an external animate Causer (Rappaport Hovav & Levin, 1998, p. 116).

Purifien and *clarifien* are prime examples of verbs with an abstract causative meaning. However, as indicated in Table 5, both verbs have additionally one or, respectively two physical/-material causative senses. An example of *clarifien* is provided in (12).

(12) *& tan do **it to te** **fire** to it be wele **claryfied***
& then do it to the fire to it be truly clarified
'& then do it to the fire to truly clarify it.'

(CMTHORN,13.353)

The sentence presented in (12) denotes in contrast to (10) and (11) that an entity actually undergoes a change of state. In (12), an inanimate entity, most probably *metal*, is put into the fire to become clear (sense 1a). Therefore, the sentence could be paraphrased as 'cause to become *clear*'.

Even though the affected entity is in (10), (11), and (12) an Undergoer, the physical/material causative sense denotes a more patient-like Undergoer than the abstract causative sense because only the former type indicates physical affectedness (Van Valin, 1993, p. 69).

Considering everything said so far, it can be stated that *purifien* and *clarifien* are polysemous verbs. The term polysemy defines that "a word has a range of meanings in different local contexts but in which the meaning differences are taken to be related in some way" (Cann, 2019, p. 188). The investigation revealed that *clarifien* and *purifien* have multiple senses that are related in terms of a shared underlying causative meaning.

Coupled with polysemy, the notion of *underspecification* is of relevance. If a word is not underspecified to a certain degree in its meaning, multiple senses cannot evolve (Cann, 2019, p. 189). This aspect will be taken up again because *clarifien* and *purifien* are not the only *-fien* derivatives that can be identified as verbs with multiple senses.

Another relevant observation with regard to causativity is the fact that a scalar change is more clearly indicated in (12) than in (10) and (11). Considering the event of 'causing something to become clear', it can be imagined that an entity is moving along a path of *becoming clear*, and the resultant state is an entity that is *clean* or *clarified* (Rappaport Hovav & Levin, 2010, p. 8). However, concerning the abstract causative sense in (10) and (11), it is up for interpretation whether a scalar change is indicated or not.

It can be concluded that *clarifien* and *purifien* have different causative senses that go in two distinct 'directions', namely in a physical/material and an abstract causative direction. Therefore, it would be reasonable to ask why these verbs are labeled as Physical/Material Causative Verbs (Class 1) since they incorporate both types of causative senses.

Clarifien has in two instances a physical/material causative sense and in two instances an abstract causative sense. The decision was made to put this verb into Class 1, but the fact that *clarifien* is not a prototypical member of this class has to be kept in mind. The causativity scale that will be presented in section 5.7 was, among other things, developed in order to account for the precise classification of unclear instances such as *clarifien*.

Purifien is also put into Class 1 because this verb is semantically very similar to *clarifien*, and, therefore, both verbs are treated alike in terms of the developed classification schema.

In this context, it should briefly be elaborated on the terms *physical/material causative* and *change in mental status*. The former term was developed to account for animate (physical) and inanimate (material) entities that undergo a change of state. For this reason, *physical/material causative* is a cover term that subsumes both instances.

Concerning the term *change in mental status*, it has to be taken into account that previous literature made a distinction between *change-of-state events* and *change-of-psych-state events* (Varchetta, 2010, p. 114; Kawaletz & Plag, 2015, p. 291; Plag et al., 2018, p. 472). Most importantly, verbs that denote a *change-of-psych-state* belong to one specific class of verbs, which are called *psych-verbs* (Levin, 1993, p. 189). These verbs must not be equated with the *-fien* derivatives in the current study that denote a *change in mental status*. Exclusively *pacifien* (PDE pacify) can be regarded as a *psych-verb* that denotes a *change-of-psych state*. However, the same does not apply to the other *-fien* derivatives. To indicate *a change in mental status* is only one type of causative event that these verbs can express because they are not *psych-verbs*. As a consequence, the term *change in mental status* was chosen to set a clear terminological boundary between the class of *psych-verbs* that can exclusively *express a change-of-psych state* but cannot express *change of state* and the verbs investigated in this study that can occur with both types of meaning (Plag et al., 2018, p. 472).[8]

In the subsequent section, a verb will be presented that is exclusively used with animate beings that are physically affected. This verb is the most prototypical causative *-fien* derivative

[8]It has to be noted that only a few number of psych-verbs participate in the causative/inchoative alternation in English (Levin, 1993, p. 30).

detected in the corpus.

5.2.2 Crucifien

The verb *crucifien* (PDE crucify) occurs in 19 instances in the corpus and has exclusively physical/material causative senses. It is found either with sense 1a " to crucify somebody" or with the sense 1b "Christ crucified" ('crucifien, v.', MED, McSparren et al., 2001). The semantic difference between both subsenses lies in the realization of the subject, the entity that undergoes a physical change of state. Subsense 1b specifies that *Christ* is crucified, whereas such as specification is not indicated in sense 1a.

(13) *..., and worse thane* ***Jewis and hethene men, that crucifieden Crist.***
..., and worse than Jews and heathen men, that crucified Christ.
'..., and worse than Jews and heathen that crucified Christ.'
(CMPURVEY,I,32.1571)

(14) *...* ***Marie was pyned and crucified*** *and* ***suffrede death*** *on te crois,*
... Marie was tortured and crucified and suffered death on the cross,
'... Mary was tortured and crucified and suffered death on the cross,'
(CMEDVERN,249.411)

The underlying causative meaning in (13) and (14) is 'cause to become crucified' or 'cause to die on a cross'. Therefore, it is semantically indicated that *Crist* (13) and *Marie* (14) undergo a change of state. As explained earlier, change of state verbs are typically result verbs, which "express the attainment of a result" (Beavers et al., 2021, p. 180). The verb *crucifien* is identified as a result verb since it entails a result. This aspect becomes apparent with regard to example (14) because this instance contains the resultative phrase *suffrede death on the crois* (PDE suffered death on the cross). According to Levin and Rappaport Hovav (1995), "the resultative construction differs from lexically simple accomplishments in that both the activity and the result state are lexically specified, each by a different predicate [...]" (Levin & Rappaport Hovav, 1995, p. 50). As Levin and Rappaport Hovav (1995) explain, resultative constructions contain two distinct predicates. The verb *crucified* (PDE crucified) specifies in (14) the activity event, and the result state is specified by the dependent clause *suffrede death on the crois.* From this it follows that *crucifien* is a prototypical causative verb in terms of the developed causativity schema since this verb is compatible with a result-XP and can, therefore, additionally be defined as a result verb (Beavers et al., 2021, p. 195).

In light of this, it should be mentioned that (13) and (14) are passive constructions in which an external Causer is not syntactically realized but semantically implied and required (Wechsler, 2015, p. 87). *Crucifien* occurs in 12 of 19 instances in passive. This aspect has to be taken into consideration, even though it should be remarked that other verbs, which are not identified as causatives, are also used in passive. Nonetheless, *crucifien* is the verb that occurs far more frequently than all the other verbs in this kind of construction. A passive construction is typically used to give an entity a "topic status" (Schwarz, 2018, p. 11). The entity causing the

event is 'informationally uninteresting' compared to the entity undergoing the event. Consequently, the affectedness is highlighted since the Patient is provided with a topic status in such a construction, whereas the Agent argument remains unexpressed (Schwarz, 2018, p. 12).

In view of these findings, it can be stated that *crucifien* is one of the most prototypical causative verbs of the current investigation. It indicates the total affectedness of an animate entity and lexicalizes the most prototypical Undergoer, realized as a Patient (Van Valin, 2005, p. 54).

5.2.3 Fructifien

In this section, the verb *fructifien* (PDE fructify) will be investigated, which differs from *crucifien* on a semantic and syntactic level. *Fructifien* is particularly interesting because it denotes not an externally caused event, but lexicalizes an internally caused eventuality (Levin & Rappaport Hovav, 1995, p. 81). The verb has in two instances the sense "to bear fruit, be fruitful; produce (fruit)" and in one instance the sense "to grow or grow strong, prosper, flourish" ('fructifien, v.', MED, McSparren et al., 2001). In the following, the specific semantic and syntactic properties of *fructifien* will be explored. It will be explained why *fructifien* is a verb that participates in the causative/inchoative alternation.

(15) *Ich am in Godes hous as* ***oliue fructifiand,***
I am in God's house as olives are fructifying,
'I am in God's house as olives are fructifying.'

(CMEARLPS,63.2743)

The instance provided above is an example of sense 1a "to bear fruit, be fruitful; produce (fruit)" ('fructifien, v.', MED, McSparren et al., 2001). It should be noted that (15) is a compound sentence. It contains the two main clauses *Ich am in Godes hous* and *oliue fructifiand* that are joined by the conjunction *as.* According to the MED, the conjunction *as* has the meaning "in the way that" or "in the same way as" ('as, conj.', MED, McSparren et al., 2001). For this reason, *as* connects the two main clauses on a semantic and syntactic level. However, they could also occur on their own and would be grammatical nonetheless.

Fructifien is used intransitively in this context and is identified as an unaccusative verb rather than an unergative verb.[9] The grammatical subject *oliue* (PDE olives) is an inanimate entity, which does not act volitionally and has no agentive properties (DeLancey, 1984, p. 181). The event of growing denotes that "some property inherent to the argument of the verb is 'responsible' for bringing about the eventuality" (Levin & Rappaport Hovav, 1995, p. 91).

An external entity could for instance, water the plant and facilitate that the event of growing can occur, but only the internal properties of the entity undergoing the event can actually 'cause the event'. Thus, the event results from a theme-internal cause rather than a theme-external cause (Rappaport Hovav & Levin, 1998, p. 116). According to Haspelmath (1993),

[9] In the MED, the same example as in (10) is provided for the intransitive sense of *fructifien.* From this it follows that the verb is definitely intransitive in (10).

such an event must be intransitive. He posits the co-called *spontaneity condition*, which defines that inchoative verbs describe an event as occurring spontaneously and have a theme-internal cause (p. 94). Such verbs participate in contrast to non-altering transitive verbs in the causative/inchoative alternation.

The fact that *fructifien* participates in this alternation becomes apparent regarding the following example taken from the MED.

(16) *God ought not to sende* ***rayne****, son..* ***that shulde fructifie the goodis in the land****.*
God ought not to send rain, soon.. that should fructify the crops in the land.
'God ought not to send rain soon that should fructify the crops in the country.'
Scrope DSP (Bod 943) 204/24
(as cited in 'fructifien, v.', MED, McSparren et al., 2001)

Example (16) is in the same way as (15) a causative event. It has the sense "to make (something) prosper" ('fructifien, v.', MED, McSparren et al., 2001). The main difference between the two instances is that the former is intransitive whereas the latter is transitive. In (16), the causative event is expressed by the relative clause *that shulde fructifie the goodis in the land*. The antecedent *rayne* (PDE rain) refers to the relative pronoun *that*. The direct object is in (16) a Patient rather than a Theme because it undergoes a change of state, and is "moved, located or given to another entity" (Van Valin, 2005, p. 54). However, comparing the Undergoer of *fructifien* with the Undergoer of *crucifien*, it becomes apparent that *fructifien* denotes a less prototypical Undergoer than *crucifien*.

Since there is only a limited amount of data available, example (16) had to be taken from the MED to provide a complete picture of the specific semantic and syntactic properties of *fructifien*. The verb occurs solely in intransitive constructions in the corpora. It has in two instances a physical/material causative sense and in one instance an abstract causative sense.

From this it follows that *fructifien* is in the same way as *clarifien* and *purifien* a polysemous verb. It has not a single meaning but multiple meanings that are related in terms of causativity (Vicente & Falkum, 2017, p. 13). In all instances, the underlying meaning is causative, but the physical/material causative sense is more prototypical than the abstract causative sense.

5.2.4 Edifien and Reedifien

The last verb pair of Class 1 that is semantically particularly interesting is presented in Table 6, which shows that *edifien* (PDE edify) has two physical/material causative senses, one abstract causative sense, and multiple subsenses. This verb is polysemous since it incorporates a multiplicity of meaning (Rainer, 2014, p. 1).

Reedifien (PDE re-edify) is in contrast to *edifien* not polysemous because it has only a single sense, which is physical/material causative. An example of a physical/material causative sense of both verbs is provided in (17) and (18).

Table 6: Classification of *edifien* and *reedifien*

Verb	MED Definitions: Senses	Senses	Hits
edifien	1. (a) To build or erect (a structure, a city); also, to make or erect (an image)	1a (CA)	3
	2. (a) To found or establish (a city, a religious house); build up, settle, or cultivate (a region)	2a (CA)	7
	4. (a) To strengthen or confirm (someone) spiritually or morally; also, to instruct in Christian conduct or doctrine	4a (AS)	7
In total			**17**
reedifien	To build up again (a destroyed dwelling, church, etc.); reconstruct (a ruined city)	1 (CA)	4

(17) *he* ***edified auteres*** *onto fals goddis;*
he edified altars to false gods;
'He edified altars to false gods.'

(CMCAPCHR,37.173)

(18) *... to serue god in this* ***materyall Temple whyche they*** *thenne to goddis honoure*
... to serve god in this material temple which they then to god's honour
reedifyed *...*
reedified ...
'...to serve god in this church, which they then reedified to God's honour.'

(CMFITZJA,A5V.76)

Both examples express a change-of-state event, which is dynamic and inherently temporally bounded (Van Valin, 2005, p. 32). Therefore, the identified situation type is in (17) and (18) an Accomplishment (Smith, 1997, p. 20). In addition, both instances denote a scalar change, which indicates measurement values on a material dimension since *auteres* (PDE altars) (17) as well as a *temple* (18) are constructed step by step (Rappaport Hovav & Levin, 2010).

Beyond that, it is in both instances an animate entity indicated, an external causer, who exhibits a high degree of control and brings about the change-of-state event. (Levin & Rappaport Hovav, 1995, p. 90). *Edifien* and *reedifien* are exclusively found in transitive constructions and differ in this respect from *fructifien* which can be used transitively and intransitively.

A significant difference between *edifien* and *reedifien* exists in terms of the semantic properties of the entity that is affected by the event. *Reedifien* denotes an affected entity that is an Undergoer. The event of *reconstructing* something presupposes that something had been constructed beforehand, was then destroyed, and can be build up again. On that account, the affected entity undergoes 'a material change of state'. Such an interpretation evolves from (18) because a *temple* is reconstructed in this instance. However, this is different concerning (17), where nothing preliminary exists in the external world, but something comes into existence. Because of this, *edifien* and *reedifien* differ concerning the semantic realization of the entity

that 'undergoes' the event. *Reedifien* (18) lexicalizes an Undergoer that is more prototypically a Patient, whereas *edifien* (17) lexicalized an Undergoer that is more prototypically a Theme (Van Valin, 2005, p. 54).

Another aspect that should be taken into consideration is the fact that *edifien* has multiple senses. Sense 4a "to strengthen or confirm (someone) spiritually or morally" ('edifien, v.', MED, McSparren et al., 2001) is an abstract causative sense that indicates a 'change in mental status' (Pizzolante, 2017, p. 127).

(19) *and gretely* ***his techyng edefyed in the people*** *that all people had grete devosyon*
and greatly his teachings edefied in the people that all people had great desire
to hyre his prechyng.
to hear his sermons.
'and his doctrines greatly edified the people that all people had a strong desire to hear his sermons.'
(CMEDMUND,169.173)

In (19), the causative event proceeds on an abstract level. The *people* are mentally rather than physically affected. This aspect becomes apparent with regard to the relative clause, which is semantically connected to the main clause. The whole sentence can be paraphrased as follows: *His doctrines had such an impact on the people that all people had the desire to hear his sermons.* The event in (19) expresses a strong mental affectedness. Consequently, the causative meaning is in this instance 'cause to undergo a change in mental status'.

The question arises why *edifien* is found with multiple senses, whereas *reedifien* has only a single sense. This difference can be explained by investigating the meaning components as well as the etymology of both verbs.

The semantic difference between *edifien* and *reedifien* is intertwined with the difference in the morphological shape of both verbs. According to the OED, the verb *reedifien* is etymologically derived from *edifien* ('re-edify, v.', OED, Proffitt, 2015). Because of this, they have a related but not identical underlying meaning. The difference in meaning evolves due to the prefix *re-*, which has the meaning 'again' ('re-, prefix', OED, Proffitt, 2015). Something is 'caused to become *constructed*' or, respectively, it is 'caused to become *reconstructed*'.

It can be hypothesized that the prefix *re-* adds semantic meaning to the base and in this way the meaning of the derivative is modified. For this reason, the question becomes even more apparent whether *-fien* has a core lexical meaning or whether it is just a functional suffix.

Concerning the investigation of *edifien* and *reedifien*, it can be concluded that both verbs have an underlying causative meaning, but they differ morphologically as well as semantically, and this difference in meaning manifests itself in the causative senses that both verbs lexicalize. *Edifien* is in contrast to *reedifien* polysemous, which makes the classifica-tion for *edifien* less clear cut than for *reedifien*. It follows that *reedifien* is a more prototypical verb of Class 1 than *edifien* because *reedifien* has exclusively a physical/material causative sense. Nonetheless, it should be remarked that the abstract causative sense of *edifien* differs from the abstract causative senses denoted by prototypical class members of Class 2. This aspect will be picked up again in the next section that is concerned with the classification of *-fien* derivatives of

Class 2.

5.3 The Abstract Causative Class

In the previous subsections, six verbs of Class 1 were investigated in terms of their causative senses. In the next step, two *-fien* derivatives of Class 2, the Abstract Causative Class, will be looked at.

5.3.1 Glorifien

The most prototypical *-fien* derivative of Class 2 is *glorifien* (PDE glorify), which occurs exclusively with abstract causative senses. *Glorifien* has in 22 of 29 instances sense 1a "to praise (sb. or sth.), honor, extol; praise or honour (God) in worship, ascribe glory to" ('glorifien, v.', MED, McSparren et al., 2001).[10]

(20) *And terfore hooly men tat turneden to God* ***glorifien hym***
And therefore holy men that turned to God glorify him
'And therefore holy men that turned to God glorify him.'
(CMWYCSER,325.1769)

The example above is a transitive construction, consisting of the subject *hooly men tat turneden to God* and the direct object *hym*. The subject is a prototypical Agent, an animate entity that is acting volitionally (Palmer, 1994, p. 27). However, the direct object is not a prototypical Patient that undergoes a change in the physical shape of appearance (Levin & Rappaport Hovav, 1995, p. 93). The sentence cannot be paraphrased as 'cause to *become* x', but it instead has the underlying meaning 'make x *go* to *someone*' (Lieber, 2004, p. 77). The example provided in (20) can be paraphrased as 'make *glory* go to God'.

A similar causative meaning is proposed by Lieber (2004) for the *-(i)fy* derivative *glorify*, namely "make x go to/in/on something" (Lieber, 2004, p. 77). Lieber's (2004) classification is adapted from Plag (1999), who classifies verbs such as *glorify* as ornatives (p. 196). Section 6 will elaborate on Plag's ornative class as well as Lieber's (2004) framework.

The relevant observation is that the underlying causative meaning of *glorifien* is different from the typical causative meaning 'cause to become x' (Wunderlich, 1997 p. 31). The first difference between 'cause to *become* x' and 'make x *go* to someone' lies in the realization of the predicate that denotes the causing event, which is either *become* or *go*. The second difference concerns the realization of the semantic role of the entity that is affected by the event. The verb *become* clearly indicates that an entity undergoes a change of state. Consequently, the entity that is 'caused to become x' is identified as a Patient. This is quite different if the underlying meaning is 'make x go to someone'. In this instance, it is indicated that someone receives something. The Undergoer is neither a Theme nor a Patient but rather a Recipient (Van Valin, 2005, p. 54). Most importantly, the Recipient in (15) does not receive something material but something immaterial, namely *glory*.

[10] See appendix A.2 for the classification of *glorifien*.

It should be remarked that the abstract causative sense of *glorifien* differs from the abstract causative senses of the verbs in Class 1. Verbs like *clarifien*, *purifien*, and *edifien*, have an underlying abstract meaning that denotes 'a change in mental status'. As a consequence, an animate entity is actually affected by the event, even though the affectedness proceeds on a mental level (Pizzolante, 2017, p. 128; Plag et al., 2018, p. 472). It is essential to keep this difference in mind because such differences indicate that *-fien* derivatives with abstract causative senses cannot be treated alike in terms of causativity since they differ on a semantic level.

5.3.2 Magnifien

The second *-fien* derivative of Class 2 that is special in terms of its semantic properties is *magnifien* (PDE magnify).

Table 7: Classification of *magnifien*

3 Verbs	MED Definitions: Senses		Senses	Hits
magnifien	1.	(a) To make (sb. or sth.) famous, spread the fame of (sb.)	1a (AS)	3
		(b) To praise (sb. or sth.), give glory to (sb.), honor; respect (sth.)	1b (AS)	4
		(c) To praise (God, Christ, the gods, the Virgin Mary), honor (Christ's passion), celebrate (a feast day)	1c (AS)	2
	2.	(c) To consider (sth.) important; follow (an example), obey (a command)	2c	1
	3.	To enlarge (sth.)	3 (CA)	—
In total				**10**

In light of Table 7, it can be stated that *magnifien* exhibits a "polymorphic behavior" (Pustejovsky, 2002a, p. 189). The verb has three abstract causative subsenses, a physical/ material causative sense, and even a non-causative sense. Therefore, *magnifien* incorporates a multiplicity of meanings. From this it follows that the underlying semantic representation of *magnifien* must be highly underspecified because otherwise, it could not be explained why the verb exhibits a 'polymorphic behavior' (Pustejovsky, 2002a, p. 189). It is generally assumed that polysemous words have a single lexical entry with multiple subentries (Rainer, 2014, p. 9). Sense 1b of *magnifien* is especially interesting because it is synonymous with sense 1a of *glorifien*. It has the underlying causative meaning 'make x *go* to *someone*'.

(21) *and Y schal* ***magnyfie thi name***
and I schal magnify your name
'and I schal magnify your name.'

(CMOTEST,12,1G.398)

In (21), the Agent 'causes *glory* to go to *someone*'. In this regard, it should be noted that (21) is an instance of metonymy. The term describes "the use of a word in a non-literal way, often

based on a partwhole of 'connected to' relationship" (Cann, 2019, p. 190). Due to the religious context of the file, it can be assumed that *thi name* (PDE your name) is a meronym of *God*, who receives on an abstract level *glory*. Another example of *magnifien* is presented in (22).

(22) ***Thei*** *alargen her filateries..* *and* ***magnyfie hemmys***.
They enlarge her phylacteries.. and magnify hems.
'They enlarge her phylacteries and magnify hems.'

WBible(1) (Dc 369(2))
(as cited in 'magnifien,v.', MED, McSparren et al., 2001)

This instance is an example of the physical/material causative sense 3 "to enlarge sth." ('magnifien, v.', MED, McSparren et al., 2001). The grammatical object *hemmys* (PDE hems)[11] undergoes a change of state by being *magnified*.

Apart from that, the verb *magnifien* is identified as a result verb, which denotes in terms of its physical/material causative sense a scalar change. According to Beavers et al. (2021), result verbs "express the attainment of a result but do not specify how that result comes about" (p. 180). The researchers take *widen* as an example, which has a similar meaning to *enlarge* (sense 3 of *magnifien*). Verbs like *enlarge* and *widen* express not how something changes its size but they instead indicate that something changes its physical/material shape (Beavers et al., 2021, p. 179). A change is processing along a scale, which is in the instance cited above a scale that is of material nature. Because of this, the underlying causative meaning of (22) is 'cause to become x', respectively, 'cause to become *enlarged*'. On that account, it can be stated that (22) presents in contrast to (21) a more prototypical causative event because an entity actually undergoes a change of state.

Even though *magnifien* has a physical/material causative sense, it is not classified as a verb belonging to Class 1 for the following reasons: *Magnifien* occurs in no instance with a physical/material causative sense in the corpora, and the MED provides only two examples for the physical/material causative sense but 69 examples for the abstract causative senses ('magnifien, v.', MED, McSparren et al., 2001). In view of this, it can be assumed that *magnifien* is more productive in terms of its abstract causative meaning than in terms of the other types of meaning. Consequently, the verb is classified as belonging to Class 2 rather than Class 1 or Class 3. Nonetheless, it should be kept in mind that *magnifien* is polysemous and differs from *glorifien* which has exclusively an abstract causative meaning.

5.4 The Non-Causative Class

In a final step, it is relevant to have a look at the *-fien* derivatives of Class 3, which are identified as having exclusively a non-causative meaning. The Non-Causative Class consists of the following seven verbs: *signifien*, *specifien*, *verifien*, *certifien*, *ratifien*, *testifien*, and *notifien*. All these verbs have something semantically in common. In the following, it will briefly be

[11] According to the MED, the noun *hem* has in the example cited above the following sense: It denotes "the edge of a cloth or garment [...] [worn] as a symbol of pride or ostentation" ('hem, n.', MED, McSparren et al., 2001).

elaborated on this similarity. Additionally, a comment on the verb *signifien* (PDE signify) will be made, which occurs to a larger number of instances in the corpus than any other verb.

According to the MED, each of the seven verbs in Class 3 has multiple senses identified as non-causative. The important observation in this regard is the fact that every verb has a sense that denotes a *transfer of information* or is related to *communication* (Levin, 1993, p. 37). Table 8 provides an overview of these senses.

Table 8: Different senses of *transfer of information* or *communication*

Verb	MED Sense: *Transfer of information* or *communication*
signifien	**5.** **(a)** To make mention, declare, narrate, tell; make known (sth., that sth. is so, that sth. should be done), declare, proclaim; make (sth.) known (to sb.)
specifien	**1.** **(a)** To speak specifically, make plain, say explicitly
verifien	**1.** **(a)** To assert (that sth. is the case, sth. is so), aver; also, affirm (a fact) formally or under oath, testify to the truth of; also, in parenthetical constructions: assert, testify
certifien	**1.** **(a)** To certify (an official finding, report, etc.); report or record (sth.) officially
ratifien	**1.** **(a)** To confirm (sth.), approve, sanction, ratify; also, condone (simony)
testifien	**1.** **(a)** To give legal testimony; swear (that sth. is so); attest to (sth.); also, certify (sth.)
notifien	**1.** **(b)** To inform (sb.), tell; also, tell (sb. sth.)

It is not clear whether the similarity between the seven *-fien* derivatives is a 'semantic coincidence' or whether the similarity has something to do with the underlying meaning of the individual bases and is an indicator of a relevant semantic pattern. It can be hypothesized that even the non-causative *-fien* derivatives are related in terms of their underlying meaning. However, it were necessary to investigate and compare the semantic properties of all non-causative instances in order to testify this hypothesis. Due to the limited scope of this paper, it will be left open for future research to account for this observation.

Nevertheless, it can be concluded that no verb of Class 3 has a causative sense. It is in no single instance an entity involved that is either physically affected, 'undergoes a change in mental status', or is on a figurative level a Recipient of an abstract value such as *glory*. Considering the following example:

(23) *And* ***Poule specifie more of six synnes*** *tat men don.*
And Paul specifies more of six sins that men did.
'And Paul specifies more of six sins that men did.'

(CMWYCSER,478.3650)

The verb *specifien* (PDE specify) denotes in (23) not a causative event. It has the meaning "to name (sb. or sth.) specifically, specify, identify" ('specifien, v.', MED, McSparren et al., 2001). The event presented in (23) cannot be regarded as a change-of-state event with a complex event structure since the entity that is *specified* is neither affected by the event nor does it

undergo a change of state (Schäfer, 2009, p. 652). The underlying meaning of the event could in principle be paraphrased as 'cause x to become *specific*'. However, the predicate CAUSE does in this instance not denote a change of state event but rather indicates that an animate entity is *communicating* something. In the example provided above, a human being specifies *synnes* (PDE sins) and, therefore, CAUSES them to become *communicated.* On that account, the direct object *synnes* has the semantic role Theme and can be regarded as a topic but not as a Patient that is undergoing a change of state or 'change in mental status' due to a causative event (Wright, 2002, p. 342).

The verb *specifien* can be defined as a *verb of communication* and the same applies to *verifien*, *cerifien*, *ratifien*, *testifien*, and *notifien* (Levin, 1993, p. 202).

As shown in Table 8, the verb *signifien* has a sense that expresses *transfer of information* (sense 5a of *signifien*). However, it should be pointed out that *signifien* differs from the other non-causative verbs on a semantic level because it has multiple non-causative senses.[12] It has in 21 instances the sense "to be a symbol of (sb. or sth.)" ('signifien, v.', MED, McSparren et al., 2001).

Assuming that *-fien* is a causativizing suffix, the question arises why a verb that has not a single causative sense is the one with the largest number of hits in the corpora. In the following, this question will be answered, and it will be discussed whether *-fien* can be regarded as a causativizing suffix or not. In addition, a brief outlook on future developments of the suffix will be provided.

5.5 The Productivity of *-fien* as a Causativizing Suffix

An initial objective of this study was to measure the productivity of *-fien* as a causativizing suffix. 204 items were obtained from the corpora. 111 of these instances have some kind of causative sense, and 93 instances have no causative sense.[13] It could be assumed that *-fien* is not a productive causativizing suffix by considering these raw numbers of occurrences because almost half of all instances are identified as having a non-causative sense. However, productivity can be measured quite differently, and the term itself has no fixed definition (Trips, 2009, p. 27).

Typical measurements of productivity, such as counting hapax legomena, would not provide a conclusive picture about the productivity of *-fien* due to the limited amount of obtained data (Bauer et al., 2013, p. 581). Because of this, the question of whether *-fien* is a "productive" causativizing suffix or not will be addressed by taking the evidence of the qualitative investigation into account.

At the beginning of section 5, the etymology of *-fien* was examined. In this regard, it was detected that the origin of *-fien* can be traced back to Latin *-ificāre*, which is related to *facere* 'make' (Marchand, 1969, p. 300). With this in mind, it can be assumed that *-ificāre* has a core causative meaning, and the same applies to *-fien* since this suffix is derived from the former.

[12] See appendix A.3 for the classification of *signifien*.

[13] These numbers were calculated by taking together all instances that are identified as causative and are therefore marked as either CA or AS and by counting all instances that are not marked as causative. See appendices A.1, A.2 and A.3 for the classification tables.

Evidence for this assumption comes from Miller (2006). According to Miller (2006), derivation is one way of expressing causative change of state in Latin (p. 18). He takes *clāificāre* as an example and explains that this verb has the meaning "make clear, clarify" (Miller, 2006, p. 15). From this definition it can be concluded that *clāificāre* has in the same way an underlying causative meaning as Middle English *clarifien*.

An explanation for the non-causative meaning of *signifien* comes from De Vaan's (2008) *Etymological dictionary of Latin and the other Italic languages*. It is indicated in the entry of *sīgnum* (PDE sign) that this noun has multiple derivatives, and one of these derivatives is the verbal derivative *significare*. The core meaning of the verb is defined as "to indicate by signs, mean" (De Vaan, 2008, p. 563). This definition does not denote that *significare* has an underlying causative meaning. Therefore, it can be hypothesized that the Middle English simplex *signifien* has no causative sense because Latin *significare* and French *signifier* are non-causative verbs too ('signify, v.', OED, Proffitt, 2015).

In this context, it has to be explained that it is generally assumed in rule-based frameworks that word-formation such as derivation is a rule-based mechanism (Arnoff, 1976; Jackendoff, 1975; Plag, 2004; Bybee, 2007). Plag and Winther Balling (2020) explain that "word forms that do not conform to the rules are taken to be idiosyncratic exceptions […] that need to be listed in the lexicon, while regular forms are not listed" (p. 311). It is essential to consider the term "idiosyncratic exceptions" because the verb *signifien* seems to be an 'idiosyncratic exception'. This could also apply to the other *-fien* derivatives with a non-causative sense.

Another observation that is of relevance in terms of productivity is the fact that the suffix attaches to adjectival as well as nominal bases. For instance, *clarifien* derives from Old French *clarifier*, which derives from Latin *clārificāre*, and Latin *clārificāre* derives from the adjective *clārus* (Skeat, 1911, p. 92). An example for a derivative with a nominal base is *glorifien* ('glorify, v.', OED, Proffitt, 2015). This verb is originally derived from the Latin verb *glōrificāre*, which derives from the noun *glōria* (Skeat, 1911, p. 215).

The fact that *-fien* attaches to nouns and adjectives is relevant because the more flexible an affix is concerning the selection of the base, the more possible bases for deriving new words exist (Plag, 2003, p. 93). Consequently, it is more likely that speakers use the suffix productively to build new verbs than a suffix that is in its choice of bases semantically highly restricted (cf. Plag, 1999, p. 29; 2003, p. 93).

Considering everything that has been said so far, it can be concluded that the raw numbers of occurrences do not provide a clear picture about the productivity of *-fien*. It is fundamental to take all pieces of evidence into account. Some qualitative evidence exists that speaks for the fact that *-fien* was a productive causativizing suffix in Middle English. However, it has to be emphasized again that the terms *productive* and *productivity* have to be taken with caution.

5.6 An OED Outlook on Subsequent Developments of *-fien*

The current study has only examined the derivational suffix *-fien* but not its Modern English counterpart *-(i)fy*. In order to account for the diachronic development of *-fien*, the following section shows the results of a dictionary-based study using the OED.

In a first step, the search query **ify* is performed. This query has an output of 600 hits. In a second step, the OED entry of the 600 *-ify* derivatives is investigated to detect whether they have a causative sense or not. The results are presented in Tables 9 and 10.

Table 9: Derivatives of *-ify* with a causative sense

Attested date	Hits
1300-1400	10
1400-1500	12
1500-1600	42
1600-1700	61
1700-1800	35
1800-1900	68
1900-2003	28
In total	**256**

Table 10: Remaining *-ify* derivatives

Remaining instances	Hits
Non-causative meaning and false positives	178
Causative but obsolete	79
Categorization is unclear	87
In total	**344**

As shown in Table 9, 256 of 600 *-ify* derivatives have a causative sense, and 79 of the observed instances have a causative sense but the verb itself with its causative sense is marked as obsolete with respect to Modern English (Table 10). It should be remarked that 87 verbs could not be categorized because the categorization was unclear for these instances. 195 instances are either identified as false positives, or they simply have no causative meaning. For instance, *studify* ("to study") is an intransitive verb without a causative sense ('studify, v.', OED, Proffitt, 2015).

What stands out in Table 9 is the fact that the number of instances with a causative sense continually increases from 1300 onwards. Between 1300 and 1400 only 10 verbs are identified as verbal derivatives with a causative sense, whereas 68 instances are detected between 1800 and 1900. It should also be noted that *-ify* attaches increasingly to native bases. For example, *manify* and *gamify* are verbs with a Germanic base. This is a relevant observation in terms of the productivity of an affix. It is an indicator of morphological transparency if an affix attaches to native as well as non-native bases (Plag, 2004, p. 201). If a pattern is transparent, it is more likely that this pattern is used productively (Trips, 2009, p. 31).

Table 9 attests a decrease of causative verbs in the period between 1700 and 1800 as well as 1800 and 1900. It should be taken into account that many instances that could not clearly be categorized have their first attested date within these periods. Therefore, these numbers have most certainly no significance.

Even though it is not possible to make any precise predictions about the development of *-fien* concerning the investigated data from the OED, it can be concluded that the absolute number of *-fien* derivatives, respectively *-ify* in Modern English, with a causative sense increased over time. This investigation aimed to provide a general overview of future developments of *-fien* from Middle English onwards.

5.7 The Causativity Scale

This section presents a causativity scale, which is developed in light of the findings of the qualitative investigation. The inspiration for creating this scale comes from Haspelmath's (1993; 2016) *spontaneity scale*. He shows that verbs can be put on a scale in terms of their likelihood to occur spontaneously (Haspelmath, 2016, p. 36). Haspelmath's idea to develop such a scale can be transferred to the findings of the current study to account for 'varying degrees' of causativity denoted by different -*fien* derivatives. The Causativity Scale is presented in Figure 1.

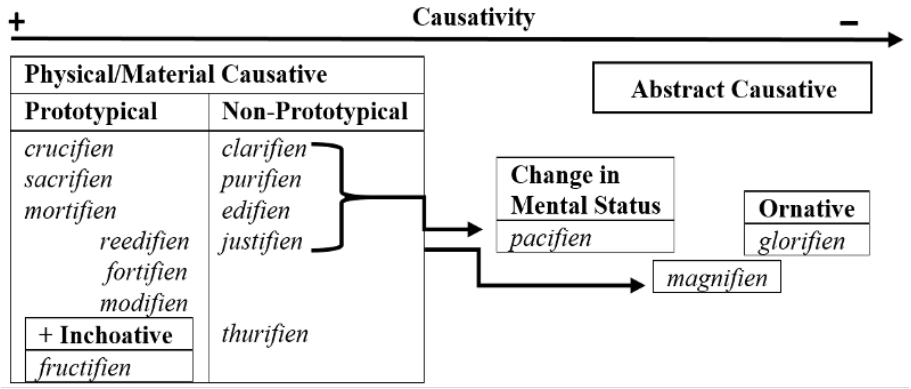

Figure 1: The Causativity Scale

As can be seen in Figure 1, the -*fien* derivatives of Class 1 and Class 2 are aligned along a scale concerning their degree of causativity. The categorization is based on the main characteristics of causative verbs presented in section 2.3.

Verbs identified as having a salient physical/material causative sense are regarded as more prototypical causative verbs than verbs with an additional abstract causative sense. The most prototypical causative verbs indicate that an entity undergoes a change of state (Rappaport Hovav & Levin, 1998, p. 102). Such verbs are *crucifien*, *sacrifien*, and *mortifien*.

The verb *fructifien* is classified as a prototypical causative verb because it can be used transitively as well as intransitively and has in all instances a causative meaning. [14]

The verbs *reedifien*, *fortifien*, and *modifien* denote an inanimate entity that undergoes a change in its material shape. Therefore, these instances are regarded as less prototypical causative than verbs with an affected entity that is animate. Apart from that, some verbs with a physical/material causative sense have an additional abstract causative sense that indicate a 'change in mental status'. These verbs are *clarifien*, *purifien*, *edifien*, and *justifien*. They are considered as less prototypical than the former class of verbs due to this additional abstract causative sense (cf. Pizzolante, 2017, p. 108).

The verb *thurifien* is placed separately from the other non-prototypical causative verbs because it expresses a change-of-state event but has idiosyncratic semantic properties. The af-

[14]The intransitive use of *fructifien* is regarded as the inchoative construction. The box "+ Inchoative" in Figure 1 indicates that *fructifien* has this additional intransitive meaning and is not exclusively used transitively.

fected entity is specified in the meaning of the verb and cannot be replaced by another entity: "to burn or offer incense in a religious rite" ('thurifien, v.', MED, McSparren et al., 2001).

It could be argued that the 'change in mental status' senses are less abstract than the second type of abstract senses exhibited by the verbs *glorifien* and *magnifien*. If an entity undergoes a 'change in mental status', it *undergoes a change* on a mental level. However, this does not apply to an abstract causative meaning such as 'make *glory* go to someone' since an entity is not *undergoing a change* in this instance (cf. Pizzolante, 2017, p. 109). For this reason, verbs that indicate a 'change in mental status' are defined as indicating a higher degree of causativity than *glorifien* and *magnifien*, the ornative class.

Magnifien is a special instance because it has a physical/material causative sense and multiple abstract causative senses. As explained earlier, this verb is defined as belonging to the Abstract Causative Class. Nonetheless, it is essential to account for the difference between *magnifien* and *glorifien*. Because of this, it is indicated in the table that *magnifien* has an additional physical/material causative sense.

The causativity scale presented in this section accounts for the most important finding of the current study: *Causativity is a matter of degree*. It has been shown that *-fien* derivatives differ in their degree of causativity since they have different semantic properties and occur therefore with different senses. In view of this, the question arises of how the findings can be best modulated on a theoretical base. Lieber (2004) provides a lexical-semantic framework that allows to account for the different properties of the *-fien* derivatives investigated in this study. However, it is necessary to take a closer look at the role of the Cause argument in a first step in order to interpret the findings appropriately in terms of Lieber's (2004) lexical-semantic framework in a second step.

5.8 The Role of the Cause Argument

In section 3, it was briefly elaborated on the main characteristics of causative verbs. In this regard, it was explained that *externally* caused eventualities imply the existence of an *external cause* "with immediate control over bringing the eventuality denoted by the verb" (Levin & Rappaport Hovav, 1994, p. 50). The previous qualitative analysis did only peripherally account for the realization of the Cause argument. This section seeks to add further aspects to the conception of causation by investigating the semantic realization of the Causer. In this respect, it will be discussed why and in how far the semantic realization of the Cause argument differs for the investigated *-fien* derivatives. This brief discussion prepares the ground for the theoretical interpretation and modulation of the findings in terms of Lieber's (2004) framework.

Levin and Rappaport Hovav (1995) investigate the relation between causation, transitivity, and agentivity with respect to *internally* and *externally caused* eventualities. The researchers point out that morphologically complex verbs built with the suffixes *-ize* and *-ify* typically "describe eventualities that cannot come about spontaneously without the external intervention of an agent" (p. 104). The Agent is, in terms of Van Valin's (2005) Actor-Undergoer Hierarchy, the most prototypical Actor, an entity that is "acting intentionally and volitionally and is in

control of his or her actions" (p. 56). Beyond that, Levin and Rappaport Hovav (1995) explain that *-ize* and *-ify* derivatives denote commonly causative events that require a volitional Causer (p. 104). From this it follows that a prototypical Agent denoted by causative verbs is at the same time a volitional Causer. However, a Causer does not has to be a prototypical Agent. Koontz-Garboden (2007) emphasizes, "it is possible to have causation, without agentivity" (p. 273). As noted in section 3, a Causer can also be a natural force or an instrument (Levin & Rappaport Hovav, 1994, p. 50). Based on what has been explained so far about the Cause argument, the next section will take a closer look at some *-fien* derivatives.

Almost all *-fien* derivatives of the current study occur exclusively with an animate Causer, a prototypical Agent that is acting volitionally (Van Valin, 2005, p. 56).[15] Considering the verbs *crucifien*, *sacrifien*, and *mortifien*; they are defined as the most prototypical causative verbs of the investigated *-fien* derivatives. These verbs denote eventualities that require the external control of a volitional Agent (Wright, 2002, p. 344). For instance, to *crucify* or *mortify* somebody requires in the strongest sense a volitional Causer that is "volitionally exerting physical energy on a second participant, which is [...] a highly individuated participant. The participant absorbs the energy, whereby it undergoes a change of state that would not have taken place without the exertion of energy" (Kemmer & Verhagen, 1994, p. 126).[16]

Van Valin (2005) takes the verb *murder*, which has a related sense to Middle English *crucifien* and *mortifien* to show that "agency is lexicalized in the meaning of the verb" (p. 56). Consequently, such verbs cannot detransitivize because the lexical meaning of the verb forbids an intransitive interpretation. The same applies to the *-fien* derivatives *edifien, reedifien, justifien, thurifien, modifien, fortifien, pacifien, magnifien, and glorifien.* All these verbs lexicalize, with regard to the investigated data, a volitional Causer exerting energy on a second entity, even though this energy is not in all instances of physical nature but can also be an abstract property. For example, the verb *glorifien* entails in its lexical meaning that an animate being praises or worships someone or something else ('glorifien, v.' MED, McSparren et al., 2001).

In the human understanding of the world, inanimate or non-human beings are not capable of *glorifying* another entity, *pacifying* somebody, or *fortifying* something. These are all activities that can only be carried out by human beings (Wright, 2002, p. 342). For this reason, such verbs are restricted in their lexical meaning by only allowing a volitional Agent as Causer. Beyond that, these verbs cannot detransitivize and consequently do not participate in the causative/inchoative alternation (Levin & Rappaport Hovav, 1994, p. 62). However, this does not apply to all investigated *-fien* derivatives of the current study. The verbs, *purifien,*

[15] It should be noted that the Cause argument could not be identified for a number of instances because the Causer was syntactically not employed in the sentence construction. Apart from that, the Non-Causative Class had to be excluded from the investigation.

[16] According to Kemmer and Verhagen (1994) causatives can be subdivided in the following types: *physical* versus *non-physical* causation, and *direct* versus *indirect* causation (p. 120). The distinction between *direct* and *indirect* causation is commonly made by researchers (cf. Givón, 1975; Shibatani, 2002; Levin, 2009; Martin & Schäfer, 2014). However, there is no overall consensus among researchers concerning the precise semantic as well as syntactic characteristics of these constructions. For the sake of terminological simplicity, such a differentiation was not made in terms of the current thesis because the main purpose of the study was to come up with a general categorization of the investigated *-fien* derivatives. The scope of this thesis does not allow to go further into detail in this respect.

clarifien, and *fructifien* behave differently than the other verbs.

The previous qualitative analysis revealed that *purifien* and *clarifien* have related senses.[17] In contrast to the *-fien* derivatives mentioned above, these verbs are less restricted in the semantic realization of the Causer. They allow apart from volitional Agents also natural forces, which lack volitionality, as Cause arguments. Considering the following example:

(24) ***Lyght clarifies*** *oure skyll;*
Light clarifies our mind;
'Light clarifies our mind.'

(CMROLLEP, 109.767)

(24) is an example of an abstract causative sense of *clarifien*: Sense 3b "to enlighten (sb., someone's mind) mentally; throw light on (sth. obscure)" ('clarifien', v.', MED, McSparren et al., 2001). The Causer, which is the grammatical subject *lyght* (PDE light), can in this instance not be defined as an Agent that is acting volitionally since *lyght* is an inanimate entity, a natural force ('light, n.', OED, Proffitt, 2015). Van Valin and Wilkins (1999) explain that "Forces are inanimate effectors which [...] are capable of independent motion and action, and they are not subject to the control of another effector, animate or inanimate" (p. 317).[18] This characterization applies to the natural force argument *lyght*, which is conceived as an inanimate but independently motive effector of the causative event in (24) (Van Valin & Wilkins, 1999, p. 318). Van Valin and Wilkins (1999) introduce the binary feature *motive* to account for inanimate Effectors that are either self-energetic, such as natural forces like *wind* and *light* (i.e. independently motive) or they are not self-energetic and, therefore, dependently motive (p. 314). For example, *stones* are dependently motive Effectors because they are not self-energetic but require energy from the outside to function as Effectors (Van Valin & Wilkins, 1999, p. 315).

Most importantly, the verb *clarifien* does not only allow in its abstract causative sense a Causer that is non-human but also in its physical/material causative sense. The following example is taken from the MED:

(25) *As golde ys purede and* ***claryfyede be fyre****.*
As gold is purified and clarified by fire.
'As gold is purified and clarified by fire.'

Treat.GBattle (Hrl 1706)431
(as cited in 'clarifien,v.', MED, McSparren et al., 2001)

In (25), *clarifien* has the underlying meaning to "free from impurities causing opacity, clarify, refine (metal)" ('clarifien,v.', MED, McSparren et al., 2001). The Cause argument *fyre* (PDE fire) is in the same way as *lyght* a natural force that instigates the causative event, even though

[17] See appendix A.1 for the classification of *purifien* and *clarifien*.

[18] Van Valin and Wilkins (1999, p. 319) differentiate between three types of arguments that occur in causal sequences: Agents, Forces, and Instruments. Forces bear the features [concrete], [-living], and [motive]. Apart from that, they subsume Agents, Forces, and Instrument under the more basic role, which is called Effector (Van Valin & Wilkins, 1999, p. 317).

the underlying meaning is physical/material causative in this instance. This leads to the conclusion that a verb like *clarifien* is generally more flexible in terms of the realization of the Cause argument than verbs like *crucifien* or *mortifien*. Consequently, it can be hypothesized that the lexical meaning of the verb determines whether a human or non-human Causer is allowed or required.

Because of this, it is relevant to take a closer look at the base of the different *-fien* derivatives. Section 6 will shed more light on the semantics of the base by interpreting and modulating the findings by means of Lieber's (2004) framework. However, beforehand, a brief look will be taken at the verb *frucitifen*.

(26) *God ought not to sende* ***rayne****, son..* ***that shulde fructifie*** *the goodis in the land.*
God ought not to send rain, soon.. that should fructify the crops in the land.
'God ought not to send rain soon that should fructify the crops in the country.'
Scrope DSP (Bod 943) 204/24
(as cited in 'fructifien, v.', MED, McSparren et al., 2001)

Example (26) was already investigated in terms of the realization of the Patient without going into detail about the realization of the Cause argument. In the example cited above, the Causer *rayne* (PDE rain) is in the same way as in (24) and (25) a natural force (Van Valin & Wilkins, 1999, p. 317). Levin and Rappaport Hovav (1994) explain that "transitive verbs that detransitivize are those in which the eventuality can happen spontaneously without the volitional intervention of an agent" (p. 61). As shown in section 5.2.3, the verb *fructifien* participates in the causative/inchoative alternation and can be used transitively and intransitively. The eventuality of *growing* or *bearing* fruit ('fructifien, v.', MED, McSparren et al., 2001) can, in contrast to an eventuality such as *crucifying* somebody, be conceived as occurring spontaneously (Haspelmath, 1993, p. 90).

With all that said, it is essential to elaborate on the precise semantic difference between non-agentive natural force subjects that function as Cause arguments and volitional agentive Causers. Non-agentive natural force subjects such as *rain*, *fire*, or *light* are less strongly involved in the causing subevent than an agentive volitional Causer (Levin & Rappaport Hovav, 1994, p. 62; Van Valin & Wilkins, 1999, p. 318). For instance, *rain* is responsible for providing the necessary condition that crops can *fructify*, but the *rain* is not actively exerting physical energy on another entity. The Causer and Undergoer are only indirectly in contact.

However, the involvement of the Causer in the causative event is different for verbs such as *crucifien*, *glorifien*, or *edifien*. For example, if someone is *crucified*, the volitional human Causer is directly in contact with the second entity denoted by the eventuality, which is identifiable as a Patient (Van Valin, 2005, p. 57). The Patient is either physically (e.g. *crucifien*) or, on an abstract level, mentally affected by a volitional Causer (e.g. *glorifien*).

Going one step further, it can even be argued that non-animate Causers such as natural forces represent one subclass of Cause arguments, which are involved in the causing event to a varying degree. Considering the difference between (25) and (26). As mentioned above, the natural force subject *rayne* is only indirectly in contact with the affected entity the *goodis* (PDE crops). In contrast to (26), the natural force subject *fire* is in (25) physically exerting energy on

the Patient *gold* (PDE gold). In this instance, the Causer and Undergoer are in direct physical contact since the *gold* is clarified by being *in* the *fire*. In contrast to (25), the event of *raining* can be conceived as a prerequisite, which makes it possible that crops can fructify.

Considering everything said so far it can be concluded that the majority of *-fien* derivatives take a volitional Agent as Causer and, therefore, denote in terms of Van Valin's (2005) Actor-Undergoer Hierarchy, the most prototypical Actor. In light of the data presented above, it can additionally be stated that non-prototypical Cause arguments (i.e. natural forces) are to a varying degree involved in the causative event. To account for this observation, it would be necessary to extend the qualitative investigation of the Cause argument. However, the scope of this thesis does not allow for a thorough qualitative investigation of the role of the Causer.

Summing up, the vast majority of *-fien* derivatives allow exclusively an agentive volitional Causer, whereas only a few verbs allow additionally non-human Causers such as natural forces. In terms of these findings, it can be assumed that the lexical meaning of the verb restricts the semantic realization of the Cause argument since otherwise it could not be explained why the *-fien* derivatives do not behave alike (Levin & Rappaport Hovav, 1994, p. 64). DeLancey (1984) explains that "languages will treat causal entities as agents or as something other than true agents on the basis both of properties inherent in the entity (i.e. volition) and aspects of the overall causation schema being coded" (p. 206).

The 'overall causation schema' denoted by a verb can be best investigated with the help of a theoretical framework. Therefore, the findings of this study will be modulated and interpreted in terms of Lieber's (2004) lexical-semantic framework in the next section in order to account for the assumptions stated above. In this regard, it will be taken a closer look at the interplay between the Cause argument and the semantics of the base.

6 A lexical-semantic analysis of word-formations with *-fien*

In the field of morphology, one of the major debates concerns the question of how words are built up. There are essentially two models of grammatical description: Item and Process (IP) and Item and Arrangement (IA) models (Hocket, 1954). In contrast to Item and Process theories, Item and Arrangement theories take word formation as an operation that constitutes complex words. It is assumed that a word is composed by the addition of morphemes with a distinctive meaning (Hocket, 1954, p. 223). Lieber's framework that will be explained in the following falls within Item and Arrangement theories.

6.1 Lieber's (2004) Approach

Lieber (2004) provides a framework of lexical semantic description that has three main distinctive properties: it is decompositional, it comprises a small number of primitives, and it accounts for the meaning of complex words (p. 4). Beyond that, her framework is cross-categorical. It is possible to discuss the semantic characteristics of nouns, verbs, adjectives, and even affixes within her framework. Lieber (2004) emphasizes that "[…] a descriptive frame-

work must allow us to concentrate on *lexical* semantic properties, rather than semantic properties that manifest themselves at higher levels of syntactic structure" (p. 4).

As mentioned above, Lieber's (2004) framework is decompositional. The decomposi-tional part of the lexical semantic representation is called Semantic/Grammatical Skeleton, abbreviated as *skeleton*. It is hierarchically arranged and in this regard similar to Jackendoff's (1990) Lexical Conceptual Structure.

The Semantic/Pragmatic Body, the second part of the semantic representation, is defined as "encyclopedic, holistic, nondecompositional, [and] not composed of primitives" (Lieber, 2004, p. 10).

The two basic conceptual categories within her framework are referred to as SUBSTANCE/THING/ESSENCE and SITUATIONS. The first category comprises nouns and the second category includes verbs and adjectives (Lieber, 2004, p. 23). Lieber introduces various features that are used in a cross-categorical way and allow to build up skeletons. These features will be explained in the next section with regard to the proposed semantic skeleton of *-fien*.

The last aspect that is of significant relevance in terms of Lieber's (2004) framework is the Principle of Co-indexation. Lieber (2004) introduces this principle as a device "in order to tie together the arguments that come with different parts of a complex word to yield only those arguments that are syntactically active" (p. 45). This principle allows to explain the creation of complex words. It is defined as follows:

> In a configuration in which semantic skeletons are composed, co-index the highest non-head argument with the highest (preferably unindexed) head argument. Indexing must be consistent with semantic conditions on the head argument, if any (Lieber, 2004, p. 61).

In general terms, the Principle of Co-indexation accounts for the fact that skeletons of complex words, such as verbal derivatives, are composed of two components. The first component is the affixal skeleton and the second component is the skeleton of the base. Co-indexation is basically the mechanism by which the skeleton of the base is subordinated to the skeleton of the affix. It should be taken into account that this principle can be violated (Lieber, 2004, p. 60). The reason why Lieber defines this principle as a violable one will be demonstrated in the next section by applying her approach to the investigated data of the current study.

6.2 Lieber's Approach Applied to the Investigated Data

The findings of the qualitative investigation revealed that the majority of the *-fien* derivatives have multiple senses. Some verbs even incorporate an abstract as well as a physical/material causative sense. Additionally, it has been shown in section 5.8 that the Cause argument must be realized as a volitional Agent for the vast majority of *-fien* derivatives (Levin & Rappaport Hovav, 1994, p. 61). Considering these findings, the question arises whether it is possible to account for the different types of *-fien* derivatives in terms of Lieber's (2004) approach. In addition, the question of whether *-fien* has a 'core lexical meaning' or not is still unanswered. For this reason, the following section seeks to provide an answer to both questions.

First of all, it has to be noted that Lieber (2004) developed a generalized skeleton to account for the core cases of *-ize* and *-ify* derivatives, which are the Modern English equivalents to Middle English *-isen* and *-fien*. She explores the issues of "affixal polysemy and the existence of multiple affixes with the same meaning" (Lieber, 2004, p. 76). The current investigation has shown that *-fien* is a polysemous affix, even though it may not comprise the same range of polysemy as *-ify*. Lieber (2004) adapts and slightly modifies Plag's (1999) labels for the different classes in which the suffix occurs: causative, resultative, ornative, locative, similative, performative, and inchoative (Lieber, 2004, p. 77).

Apart from that, Lieber (2004) claims that *-ize* and *-ify* have a unitary skeleton, and the "polysemy displayed by their derivatives arises from a combination of factors including the semantic category of the base and the positions in the affixal skeleton with which the base argument is co-indexed" (p. 81). This aspect is of main relevance in terms of the findings of the current study. It will be possible to account for the semantic properties as well as argument structure patterns in which the *-fien* derivatives occur by assuming that the different types of meaning arise from the interplay between the semantics of the baes and the different types of co-indexing. In the following sections, it will be demonstrated that it is possible to modulate the findings based on this assumption.

As a starting point, it can be assumed that the core sense of all *-fien* derivatives is a causative one. Class 3 has to be excluded for the moment, but the final part of this chapter will account for this.

As explained previously, the underlying causative meaning of the investigated *-fien* derivatives is not identical. For instance, *glorifien* and *magnifien* incorporate a meaning that can be paraphrased as 'cause x *go* to someone', whereas verbs such as *mortifien* and *purifien* have the core meaning 'cause to *become* x'. The former type of meaning is defined as abstract causative, and the latter type represents the prototypical causative meaning. This underlying meaning accounts for the physical/material causative senses and the abstract causative senses that denote a 'change in mental status' such as 'cause to become morally *pure*'.

The second type of abstract meaning is defined as the *ornative class* by Lieber (2004, p. 84) and Plag (1999, p. 125). Lieber (2004) explains concerning the *ornative class* that "the base nouns [...] are not the end states or the final positions in the causative act, but rather themes: they are what gets transferred by the action." (p. 84). It has been shown in section 5.2 that *glorifien* and *magnifien* occur precisely with this type of argument structure pattern, even though it should be kept in mind that *magnifien* cannot be regarded as a typical abstract causative verb.

From this it follows that the composed skeleton of verbs with the meaning 'cause x *go* to someone' is not identical to the skeleton of verbs with the meaning 'cause to *become* x'. Lieber (2004) solves this problem by proposing one single skeleton for *-ize* and *-ify* with different indexing patterns and by defining the Principle of Co-indexation as a principle that can be violated (p. 84).

In the following, Lieber's (2004) basic causative skeleton will be presented, and in the subsequent sections, it will be accounted for the different types of *-fien* derivatives.

(27) *-fien*
[+dynamic ([volitional – i], [j])]; [+dynamic ([i], [+dynamic,
+IEPS ([j], [+Loc ([ ])])]), <base>]

The skeleton provided for *-fien* is an an adaption of Lieber's (2004) proposed skeleton of *-ize* and *-ify* (p. 82). Lieber assumes that *-ize and -ify* are causative suffixes with a causative skeleton. This assumption is consistent with the findings of the current study concerning the suffix *-fien* since the investigated *-fien* derivatives denote predominantly a causative interpretation.

The skeleton presented in (27) has the features [+dynamic], [+IEPS], and [+Loc]. The feature [+dynamic] denotes a dynamic event. The feature [+IEPS], which is the abbreviation for Inferable Eventual Position or State, accounts for change of location and change of state (Lieber, 2004, p. 82). The third feature, [+Loc], indicates a Goal or Location. Beyond that, Lieber (2004) states that verb-forming affixes such as *-ize* and *-ify* "place a condition of volitionality on any argument with which they might be co-indexed" (p. 82). However, she also notes that some derivatives occur with an inanimate Causer, even though such instances are marginal (Lieber, 2004, p. 82). It has been shown in terms of the investigation of the Cause argument of the suffix *-fien* that this verbal suffix takes in the vast majority of instances a volitional Agent as Causer, but verbs such as *fructifien* and *clarifien* allow additionally natural force subjects as Cause arguments. Nonetheless, it can be assumed that the Agent must be generally volitional. For this reason, it is appropriate to take "the condition of volitionality" as proposed by Lieber (2004) for the basic causative skeleton of *-fien.* This assumption is relevant for explaining the different indexing patterns of the investigated *-fien* derivatives.

Moreover, it has to be noted that all *-fien* derivatives are simplexes. Therefore, the suffix can in principle not simply be separated from the base (Miller, 2006). However, Uth (2008) demonstrates in her study *the division of the causative eventive chain by means of -ment and -age* that a separation between the base and the suffix is from a theoretical perspective necessary to identify the functional and semantic properties of individual morphemes of morphologically complex verbs such as verbal derivatives. Otherwise, it is not possible to explain how the underlying mechanisms of word formation work in terms of Lieber's (2004) lexical-semantic framework.

In the next step, the skeleton of *crucifien* will be presented, which is a prototypical causative verb that occurs exclusively with a volitional Agent as Causer.

(28) [+ dynamic ([$_{\text{volitional - i}}$], [$_{\text{j}}$])]; [+ dynamic ([$_{\text{i}}$], [+ dynamic, + IEPS ([$_{\text{j}}$],
[+ Loc ([$_{\text{k}}$])])]), [+ material ([$_{\text{k}}$])]]
-fien *cruci-*

The skeleton above is an adaption of the skeleton provided by Lieber (2004, p. 84). It comprises the nominal base *cruci-* (dative of *crux*) and the suffix *-fien* (Skeat, 1911, p. 121). The base bears the feature [+material] since it denotes the presence of materiality (Lieber, 2004, p. 24). Abstract nouns have the feature [-material]. In addition, it is assumed that all nouns have an "R argument" (Lieber, 2004, p. 16). This term was introduced by Williams (1985) in order "to name that argument of the noun which is external […]. The label R is meant to suggest

'referential' since it is this argument position R that is involved in reverential uses of NPs as well" (p. 83). This single R argument of the noun must be co-indexed to the highest (preferably unindexed) head argument of the suffix (Lieber, 2004, p. 61).

In (28), the skeleton of *-fien* is co-indexed with the skeleton of the nominal base *cruci-*. The first part of the skeleton denotes an activity event, which incorporates a volitional Agent that initiates the event. The second part of the bipartite representation depicts the causative event, which brings about the effecting of a result (Lieber, 2004, p. 82). The highest non-head argument of the noun *cruci-* is co-indexed with the highest (preferably unindexed argument) of the head, which is in (28) the head of the suffix *-fien*. The underlying meaning that evolves from this type of co-indexing is "[x does something to y] such that [x causes y to *become* z]" (Lieber, 2004, p. 84), or more precisely "[x does something to y] such that [x causes y to *die on a cross*]".

In the next step, the verb *clarifien* will be examined more closely. This verb does in contrast to *crucifien* not place "a condition of volitonality" on its Cause argument (Lieber, 2004, p. 83). It can also occur with natural force subjects, as has been shown in section 5.8. This difference in behavior between the two *-fien* derivatives can be explained by investigating the two bases with which the suffix *-fien* is co-indexed. The skeleton of *clarifien* is provided in (29).

(29) [+ dynamic ([$_{\text{volitional - i}}$], [$_{\text{j}}$])]; [+ dynamic ([$_{\text{i}}$], [+ dynamic, + IEPS ([$_{\text{j}}$], [+ Loc ([$_{\text{k}}$])])]), [- dynamic, ([$_{\text{k}}$])]]
-fien *clari-*

The difference between the two *-fien* derivatives can be traced back to the grammatical realization of the base and its semantic properties. The base of *clarifien* is adjectival, Latinate *clari-*, which corresponds to Modern English *clear* (Borror, 1960, p. 26). Therefore, the base bears the feature [-dynamic] because adjectives are, according to Lieber (2004), "conceptually identical to stative verbs" (p. 25). Lieber (2004) takes the verb *purify*, which has an adjectival base and is related in is meaning to *clarifien*, to explain that the base *pure* indicates the end state of the causative act (p. 83).

In (29), the highest nonhead argument of *clari-* (PDE clear) is co-indexed with the highest (preferably unindexed) argument of the suffix *-fien*, which is the head. However, the first two arguments of the activity and causative subevent are already indexed. Therefore, the argument of *clear* is co-indexed with the Goal argument of the second subevent and consequently, *clari-* is depicted as the end state of the causative event (Lieber, 2004, p. 83). The event denoted by *clarifien* can be paraphrased as [x does something to y] such that [x causes y to become *clear*] (Lieber, 2004, p. 83). Such an interpretation accounts for the physical/material causative and abstract causative senses of *clarifien*.

The semantic difference between the two different types of senses of *clarifien* refers to the realization of the Actor and Undergoer (Van Valin, 2005, p. 54). The physical/causative sense allows animate (physical) and inanimate (material) Undergoer. The same applies to the semantic macrorole Actor, which can be realized as an inanimate entity, such as a natural force, or as a volitional animate entity.[19] In the human understanding of the world, inanimate beings

[19]See subsections 5.2.1 and 5.8 for the qualitative investigation of *clarifien*.

such as natural forces can "make something or someone *clear*". This has been shown in the previous section, with the instance in which *gold* becomes *clarified* by *fire*. Because of this, it can be stated that the condition of volitionality is "dormant" for *-fien* derivatives such as *clarifien* and *purifien*, but nonetheless, it seems theoretically appropriate to assume that this feature is part of the basic causative skeleton.

An abstract causative interpretation is for *clarifien* and *purifien* only possible with a human being as Undergoer and it is also more typical to have a volitional Agent as Causer because non-human beings cannot "make somebody morally *pure*" ('clarifien, v.', MED, McSparren et al., 2001). [20]

Crucifien does, in contrast to *clarifien,* not allow natural force subjects as Cause arguments. This *-fien* derivative has a nominal base (*cruci-*) with the feature [+material] (Skeat, 1911, p. 121). The base *cruci-* indicates a Goal rather than a resultant state as denoted by adjectives such as *clear* and *pure* (Lieber, 2004, p. 83). As has been shown above, the event denoted by *crucifien* can be paraphrased as [x does something to y] such that [x causes y to *die on a cross*]. Even though this interpretation might be very abstract, it nonetheless shows that *clarifien* and *crucifien* denote a different underlying meaning. This difference in meaning results, among others, from the grammatical realization of the base and its co-indexing with the suffixal skeleton.

At the beginning of this section, it has been explained that Lieber's (2004) framework is based on the assumption that the Principle of Co-indexation can be violated under specific circumstances (p. 83). In the current investigation, verbs like *glorifien* and *magnifien* are examples for verbs that "generate" such specific circumstances (Lieber, 2004, p. 84). Considering the skeleton of the *-fien* derivative *glorifien* provided below:

(30) [+ dynamic ([$_{\text{volitional - i}}$], [$_{\text{j}}$])]; [+ dynamic ([$_{\text{i}}$], [+ dynamic, + IEPS ([$_{\text{j}}$], [+ Loc ([ ])])]), [- material, ([$_{\text{j}}$])]]
-fien *glory-*

The base of *glorifien* is nominal, namely Latinate *gloria* (Skeat, 1911, p. 209. Therefore, *glorifien* is in terms of the grammatical realization of the base similar to *crucifien.* However, *gloria* is in contrast to *cruci-* an abstract noun with the feature [- material]. Lieber (2004) notes that abstract nouns like *glory* and *apology* "denote moveable or transferrable entities, that is, entities which are more compatible with a theme interpretation" (p. 84). Because of this, the co-indexed arguments are different for these *-fien* derivatives than for *crucifien* and *clarifien.*

Lieber (2004) states that the Principle of Co-indexation must be violated "if the semantic properties of the base argument and the semantic properties of the highest available affixal argument are not compatible" (p. 84). This semantic condition applies to *glorifien.* The abstract noun *gloria* does neither denote a state nor a location but can be regarded as an abstract transferrable entity, which bears the semantic role Theme.[21] Because of this, the base noun is

[20] In principle, it is possible to have a natural force subject as Cause argument with an abstract causative sense. For instance, *light* could 'enlighten someone's mind' ('clarifien, v.', MED, McSparren et al., 2001). However, instances in which the Causer is non-human are even much more marginal for the abstract causative senses than for the physical/material causative senses.

[21] See subsection 5.3 for the qualitative investigation of *glorifien.*

in (30) co-indexed with the already indexed Theme argument and not with the highest (preferably unindexed) head argument (Lieber, 2004, p. 85).

In addition, it can be stated that the "condition of volitionality" that is placed on the Cause argument is with regard to *glorifien* an absolute condition (Lieber, 2004, p. 83). Only human volitional Agents can *transfer* abstract entities such as *glory* to another entity. The underlying causative meaning of *glorifien* could be paraphrased as "make *glory* go to someone or something" (Lieber, 2004, p. 77).

Considering everything said so far, the question arises whether it is possible to account in terms of Lieber's framework for verbs that participate in the causative/inchoative alternation and can therefore be used transitively as well as intransitively (e.g. *fructifien*). Lieber (2004) provides a solution for accounting for such instances. She follows in this regard Levin and Rappaport Hovav (1995) because they extensively investigate the syntactic and semantic properties of verbs that participate in this transitivity alternation. Levin and Rappaport Hovav (1995) propose the following:

> [T]he intransitive form of externally caused verbs arises from binging the external cause within the lexical semantic representation, where binding is interpreted as existential quantification. The intransitive form will then be interpreted as asserting that the central subevent came about via some causing event, without any specification of its nature (p. 108).

Lieber (2004) takes precisely this mechanism of *binding* to develop a skeleton for verbs that alternate between causative and inchoative use. The following skeleton is an adaption of Lieber's proposed skeleton for the inchoative construction (p. 86).

(31) *fructifien* (inchoative)

[+dynamic ([volitional − $_{i}$], [$_{j}$])]; [+dynamic ([$_{i}$], [+dynamic, +IEPS ([$_{j}$],
⇓ [+Loc ([$_{k}$])])]), [+ material ([$_{k}$])]]
∅

In (31), the head argument of the activity event is eliminated due to the mechanism of *binding* (Levn & Rappaport Hovav, 1995, p. 108). This eliminated argument is co-indexed with the head argument of the second subevent, which will also be eliminated (Lieber, 2004, p. 86). As a result, the verb has the features [+ dynamic] and [+ IEPS], which are the main properties of inchoative verbs.

It should be noted that the base is in (31) nominal, namely *fructi-* (PDE fruit). This noun can be regarded as the end state of the causative act, which could be defined as *bearing* or *producing fruit* (Borror, 1960, p. 41). Therefore, the verb *fructifien* has in terms of its physical/material causative sense an underlying meaning that can be paraphrased as "[x does something to y] such that [x causes y to *bear fruit*]". The abstract causative sense could be paraphrased as "[x does something to y] such that [x causes y to *flourish/prosper*]".

Most importantly, *fructifien* is an unaccusative verb, which does not require an external Causer that initiates the event. This accounts for the physical/material and abstract causative subsenses. Because of this, the external cause argument is "dormant" since it can be realized,

but as shown in section 5.2.3, the verb is more typically used intransitively. This is the necessary condition for the mechanism of *binding* as defined above. The verb allows an intransitive form, which denotes that "the central subevent came about via some causing event, without any specification of its nature" (Levin & Rappaport Hovav, 1995, p. 108).

After having analyzed the four *-fien* derivatives: *crucifien*, *clarifien*, *glorifien*, and *fructifien*, which have different bases and display different types of indexing patterns, it can be stated that *-fien* has a unitary skeleton that incorporates the features [+dynamic], [+IEPS], and [+Loc]. However, the derived verbal skeleton of individual *-fien* derivatives is not identical. Depending on the properties of the base with which the suffix is co-indexed, different types of features are incorporated in the verbal skeleton, such as [+/- material] for nominal bases and [- dynamic] for adjectival bases. On that account, the different types of indexing patterns and underlying meanings are a result of the interplay between the semantics of the base and the co-indexing with the suffixal skeleton.

Taking all things together, it can be assumed that *-fien* has no lexical meaning and, consequently, no semantic body. Based on the findings of the previous qualitative investigation and the theoretical modulation, it can be assumed that this suffix is exclusively a functional suffix. This assumption is supported by Lieber (2004), who shows that *-ize* and *-ify* are polysemous verbal derivational suffixes with a single fixed skeleton but without a semantic body (p. 93).

The investigation revealed that several *-fien* derivatives are polysemous, and polysemy goes together with underspecification and the abstractness of meaning (Pizzolante, 2017, p. 65; Plag et al., 2018, p. 479). Plag et al. (2018) point out that "one of the central problems in the semantics of derived words is polysemy" (p. 467). It is challenging to detect the underlying core meaning of a word if this word has multiple senses, and it is even more challenging to uncover the meaning of the individual morphemes of complex polysemous words such as verbal derivatives.

Finally, the question arises whether it is possible to account for Class 3, the non-causative class, in terms of Lieber's framework. Lieber (2004) explains concerning her anatomical metaphor that skeletons are less amenable to changes than bodies (p. 10). Assuming that the suffix *-fien* is a causativizing suffix with a unitary causative skeleton, it follows that the co-indexed affixal part of non-causative verbal derivatives is identical to causative verbal derivatives. As will be shown in the following, Lieber provides even a solution for instance that can be regarded as non-causative.

The relevant process in this regard is *sense extension*. According to Lieber (2004), this process allows to drop the second subevent (p. 86). Consequently, only the first subevent remains, which is the skeleton of an activity verb. The current investigation showed that all *-fien* derivatives of the non-causative class have a sense that denotes *transfer of information* or *communication*.[22] These senses denote an Activity event, which has the properties *dynamic*, *durative*, and *atelic* (Smith, 1994, p. 3). To *transfer information* or to *communicate* something does not denote an endpoint and, therefore, such events cannot be regarded as having a complex event structure (Levin & Rappaport Hovav, 1995, p. 50).

Smith (1997) remarks that "Activities are processes that involve physical or mental activity,

[22]See subsection 5.4 for the comparison between the different non-causative *-fien* derivatives.

and consist entirely in the process" (p. 23).

The underlying meaning of non-causative verbs like *testifien (*PDE testify) or *specifien* (PDE specify) could be paraphrased as "do *testify*" and "do *specify*", but these verbs do not denote an endpoint or resultant state (Smith, 1997, p. 19). In addition, all non-causative verbs occur exclusively with a volitional Agent as subject. Only human volitional Agents can, for example, *testify* or *specify* something. In the following, the skeleton of *testifien* is provided, which is adapted from Lieber (2004, p. 87).

(32) [+ dynamic ([$_{\text{volitional -i}}$], [ ]), [+material ([$_{\text{i}}$])]]
-fien extension *testi-*

The proposed skeleton of *testifien* differs from the skeletons of the causative *-fien* derivatives presented in the previous subsections since the second subevent is simply eliminated. Because of this, the question arises: why is it possible to drop the second subevent, and why do verbs such as *testifien* and *specifien* not denote a causative event? A preliminary answer to both questions can be provided by taking the interplay between the semantics of the base and the co-indexing with the suffixal skeleton into account.

The Latinate base *testi-* is nominal and is translated into Modern English as the noun *witness* (Borror, 1960, p. 101). It can be stated that *testifien* denotes an underlying meaning such as "do *testify*" or "act like a *witness*". This meaning is similar to Plag's (1999) performative and similative class (p. 125). Lieber (2004) regards performatives and similatives as non-core cases of the verbal derivatives *-ize* and *-ify* (p. 86). In terms of the current study, it can be maintained that all verbs of the non-causative class denote an Activity event, which is similar to Plag's (1999) performative and similative class (p. 125).

In this regard, the relevant observation is that the underlying meaning of the individual. *-fien* derivatives evolves due to an interplay between the grammatical and semantic properties of the base and the different types of co-indexing with the suffixal skeleton. In (32), the "R" argument of the nominal base *testi-* is compatible with volitionality because it denotes a person, namely a *witness* (Lieber, 2004, p. 87). For this reason, the base argument is co-indexed with the highest argument of the affixal skeleton. In terms of Plag's (1999) classification, the *-fien* derivative *testifien* could precisely be defined as a similative, with the core underlying meaning "act like a *witness*" (p. 125).

Consequently, it seems to be likely that the grammatical and semantic nature of the base is the primary reason for the non-causative meaning of some *-fien* derivatives. A piece of evidence for this hypothesis comes from Pustejovsky (2002b; 2006; 2011). He takes the verb *bake* as an example to demonstrate that verbs can have different meanings depending on the sentence context and the specific arguments with which they occur (Pustejovsky, 2002b, p. 422). In this regard, Pustejovsky explains that the sentence (33) *John baked the potato* has a change-of-state reading and (34) *John baked the cake* has a process reading. He states that the meaning of the verb shifts due to the semantics of the noun *potato* (33), respectively *cake* (34) (Pustejovsky, 2002b, p. 422). This idea can be transferred to the underlying mechanisms of verbal derivation and the co-indexation of the base and suffix. If the semantics of a noun can shift the meaning of a verb, the semantics of a base can most probably shift and restrict the

meaning of a verbal derivative.

In summary, it can be said that it is possible to account for the findings of the current study on a theoretical level. Lieber's (2004) framework can not only be applied to *-fien* derivatives with an underlying causative meaning but also to *-fien* derivatives that denote "non-causative events". In the previous subsections, it could be demonstrated that Lieber's (2004) lexical-semantic framework contributes to a better understanding of word-formation in terms of historical language data.

7 Conclusion and Outlook

The purpose of the current study was to investigate the Middle English derivational suffix *-fien* to detect the different types of meanings exhibited by this suffix. The first major finding was that *-fien* derivatives can be divided into three classes in terms of their semantic properties. The qualitative investigation revealed that some verbs have a causative meaning that proceeds on an abstract level, other verbs are identified as typical change of state verbs, and still others incorporate both types of meanings. In addition, some of these verbs have more characteristics that are prototypical for causative verbs than others. Based on these findings, three main classes were developed that represent the three main patterns in which the suffix *-fien* occurs. It either denotes a causative meaning, an abstract causative meaning, or a non-causative meaning.

Another relevant observation was that several verbs with a physical/material causative sense (Class 1) have additionally a sense that indicates 'a change in mental status'. For instance, *purifien* and *clarifien* are verbs with both types of meaning. Apart from that, it was shown that a distinction between semantic macroroles and thematic relations is quite helpful to account for the semantic difference between different types of causative verbs (Van Valin, 1993, 2005). Prototypical causative verbs express a change-of-state event and denote an Undergoer that is strongly affected and non-prototypical causative verbs do not express a change-of-state event and indicate an Undergoer that is less strongly affected (Van Valin, 1993, p. 72). The scope of this thesis did not allow to go further into detail in terms of situation types (Smith, 1997). Nonetheless, it could be shown that causative verbs constitute a complex event structure and typically denote a resultant state.

In light of these findings, it is now possible to say that the Middle English derivational suffix *-fien* is a causativizing suffix. However, as the investigation revealed, causativity is a matter of degree, and consequently, some *-fien* derivatives are more prototypical causative than others. Due to these findings, it can be assumed that *-fien* has no lexical meaning. If the suffix had *one* core lexical meaning, the different *-fien* derivatives would not incorporate a multiplicity of meanings, and senses that are not related to each other (Plag, 1999).

Apart from that, it was possible to account for the findings in terms of Lieber's (2004) lexical-semantic framework. In this regard, it has been shown that the interplay between the grammatical and semantic properties of the *base* and the different types of co-indexing with the suffixal skeleton is of significant relevance to account for the polysemantic nature of the investigated *-fien* derivatives. In addition, the qualitative investigation revealed that the majority

of *-fien* derivatives place a condition of volitionality on their Cause argument and cannot detransitivize (Levin & Rappaport Hovav, 1994, p. 61). However, it has to be noted that some *-fien* derivatives are less restricted regarding the semantic realization of the Causer and allow natural force subjects as Cause arguments (e.g. *clarifien* and *purifien*).

The findings of this study are subject to at least four limitations. The major limitation concerns the amount of observed data. The three Middle English corpora provided only a small amount of hits, especially the PCMEP and PLAEME. As a consequence, the productivity of *-fien* was not measured statistically. It is necessary to extend the scope of this study in order to draw valid conclusions in terms of productivity.

Another limitation concerns the qualitative investigation of the individual *-fien* derivatives. The scope of this thesis did not allow to provide an analysis all 22 verbs. It is especially important to extend the qualitative investigation of the non-causative *-fien* derivatives to investigate whether these verbs share even more semantic properties than detected in this study. In this respect, it would be relevant to analyze the argument structure patterns in which the non-causative *-fien* derivatives occur. This could be an indicator for another function exhibited by the derivational suffix *-fien*, which is has not been detected yet. The first indicator for another kind of function exhibited by the derivational suffix *-fien* was detected in this thesis. All non-causative verbs were identified as having a sense that indicates *transfer of information*.

The same limitation concerns the investigation of the *-fien* derivatives in terms of Lieber's (2004) lexical-semantic framework. Only an outlook could be provided of how such a framework could be applied to the investigated historical data.

As a final point, it should be remarked that the current study has thrown up a number of interesting questions in need of further investigation. Firstly, the study provided only one piece to the much larger puzzle of the unexplored semantics of verbal derivational suffixes of historical stages of English. It was not possible to account within the scope of this thesis for the derivational suffixes *-ize* and *-ate* as well as the prefix *en-* that were also copied from Old French in medieval times (van Gelderen, 2018, p. 95). For this reason, the question arises whether these suffixes occur in similar patterns as *-fien*, and whether they can also be classified with regard to the three classes developed in this thesis. The research project *SILPAC*[23], which started in January 2022, addresses among other things changes in valency and the lability of verbs with respect to the language-contact situation with Old French. This project "aim[s] to provide an empirically and theoretically sound explanation of the relationships between language processing, language acquisition and language change" (DFG, 2021). Therefore, *SILPAC* will undoubtedly add further pieces to this puzzle.

In terms of this question, it is relevant to explore the development of verbal derivational suffixes diachronically. Such an investigation allows to account for the productivity and semantic development of suffixes in the course of history. In order to answer all these questions, it would be necessary to either modify Lieber's (2004) framework or to work on a new framework of lexical-semantic description that explains the mechanisms of word formation with native as well as non-native affixes. Even though Lieber's (2004) Principle of Co-indexation

[23] *SILPAC* is the abbreviation for the research project *Structuring the Input in Language Processing, Acquisition, and Change.*

and the assumption that this principle is a "violable principle" works well for accounting for the polysemous behavior of verbal derivatives, it would, from a theoretical standpoint, be interesting and relevant to explore whether a "more compelling explanation" exists, which accounts for the complexity of meanings exhibited by derivational suffixes without defining the underlying mechanism at work as a "violable principle" (p. 60). Uth (2010) expresses a similar point of criticism regarding the Principle of Co-indexation and hints even at further limitations in terms of Lieber's (2004) framework (Uth, 2010, p. 21).

As emphasized at the beginning of this study, derivational morphology has especially in terms of the diachronic study of the English language "a kind of Cinderella status" (Dalton-Puffer, 1996, p. 1). There is much more to discover in the 'morphological history' of English. Morphology is interrelated with semantics, syntax, and phonology. Therefore, studying morphology and morphological changes of earlier stages of English allows not only to gain further insights about one linguistic subfield, but such an investigation enables to explore the connection between all of them. Furthermore, studying word formation processes and structural changes of previous stages of English also facilitates the understanding of current word formation processes and allows to predict future developments.

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Appendix

Table A.1: Class 1: Physical/Material Causative Class

12 Verbs	OED entry date	MED Senses: Definitions	Senses	Hits
crucifien	a1320	1. (a) To crucify (sb.)	1a (CA)	11
		(b) Crist crucified, Christ on the cross	1b (CA)	8
In total				**19**
fructifien	a1325	1. (a) To bear fruit, be fruitful; produce (fruit)	1a (IA)	2
		(b) grow	1b (IA)	—
		2. (a) To grow or grow strong, prosper, flourish	2a (IA)	1
		(b) make (something) prosper	2b (CA)	—
		(c) produce a good or desirable result, be profitable or beneficial	2c (CA)	—
In total				**3**
sacrifien	a1325	1. (a) To offer a sacrifice before a deity, perform sacrificial rites; ~ togeder,? make a collective sacrifice	1a (CA)	3
		(b) To offer (sb. or sth., the life of a victim) to a deity as a sacrifice	1b (CA)	6
		(c) To offer (sb. or sth., the life of a victim) to a deity as a sacrifice	1c (CA)	1
		(d) theol. of Christ: ben sacrified, to be offered as a sacrifice for the sins of mankind	1d (CA)	1
In total				**11**
edifien	a1340	1. (a) To build or erect (a structure, a city); also, to make or erect (an image)	1a (CA)	3
		2. (a) To found or establish (a city, a religious house); build up, settle, or cultivate (a region)	2a (CA)	7
		4. (a) To strengthen or confirm (someone) spiritually or morally; also, to instruct in Christian conduct or doctrine	4a (AS)	7
In total				**17**

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12 Verbs	OED entry date	MED Senses: Definitions	Senses	Hits
clarifien	a1340	1. (a) To separate the clear part (of a liquid) from the dregs, free (honey, butter, liquids) from impurities causing opacity, clarify; refine (metal); ?also, become clear	1a (CA)	1
		(b) fig. to free (sb.) from sin, make morally pure	1b (AS)	2
		2. Med. (a) To make (the complexion) fresh and bright	2a (CA)	1
In total				**4**
purifien	a1350	1. (a) To separate the clear part (of a liquid) from the dregs, free (honey, butter, liquids) from impurities causing opacity, clarify; refine	1a (CA)	—
		2. (a) To free (sb., the soul, the conscience) from sin or guilt, make spiritually or morally pure; purify (sb.) through baptism	2a (AS)	6
In total				**6**
mortifien	a1382	1. (a) To kill (sb.); ~ and quikenen, of God: take and give life;	1a (CA)	—
		2. Med. & surg. (a) To extirpate (cancer, a fistula, an ulcer), remove (infected tissue, a diseased part of the body) by use of caustic medicines or surgery	2a (CA)	—
		3. (b) To nullify the value of (good works); vitiate (the effects of one's moral training).	3b	3
		4. Alch. To chemically alter (a substance), as by an acid or through oxidation.	4 (CA)	—
In total				**3**
justifien	a1382	1. (c) To punish an offender; bring (sb.) to justice, punish; correct (sb. or his heart); refl. discipline (oneself).	1c (CA)+(AS)	4

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12 Verbs	OED entry date	MED Senses: Definitions	Senses	Hits
		2. (a) To govern; rule (a kingdom or country); control (sb.); have (sth.) in charge; refl. govern oneself; ppl. justified in, bound or subject to (a religious order)	2a	1
		3. (a) To prove or find (God or His judgments) to be righteous or just refl. reckon or declare oneself righteous	3a	1
		5. (b) To absolve (the sinner) by his free gift of divine forgiveness and grace and for man's faith in Christ; also, to win God's grace for (sb.)	5b	2
In total				**8**
modifien	c1385	1. (b) To lessen the severity of (a law or punishment, someone's rigor or vengeance); temper with mercy	1b (CA)	1
In total				**1**
thurifien	c1400	1. (a) To burn or offer incense in a religious rite; offer incense (to a god or an idol)	1a (CA)	1
In total				**1**
reedifien	a1425	To build up again (a destroyed dwelling, church, etc.); reconstruct (a ruined city).	1 (CA)	4
In total				**4**
fortifien	?c1450	1. (a) To strengthen (a castle, town, etc.) against attack; to furnish with means of defense; esp., to provide with walls, towers, etc.; also, to strengthen existing means of defense	1a (CA)	4
		2. (a) To strengthen (a person); to support, encourage; to aid, assist, abet	2a	2
		3. (b) To improve or increase (a bodily condition or function); to increase the efficacy of (a medicine)	3b (CA)	—
In total				**6**

Table A.2: Class 2: Abstract Causative Class

3 Verbs	OED entry date	MED Senses: Definitions	Senses	Hits
glorifien	a1340	1. (a) To praise (sb. or sth.), honor, extol; praise or honor (God) in worship, ascribe glory to	1a (AS)	22
		(c) refl. To glorify oneself, be puffed up, be proud, boast; take pride in (being able to do sth.)	1c	3
		3. (a) To exalt (sb.); esp. to invest (the good, the elect, the soul) with heavenly bliss, admit to heaven	3a (AS)	4
In total				**29**
magnifien	a1382	1. (a) To make (sb. or sth.) famous, spread the fame of (sb.)	1a (AS)	3
		(b) To praise (sb. or sth.), give glory to (sb.), honor; respect (sth.)	1b (AS)	4
		(c) To praise (God, Christ, the gods, the Virgin Mary), honor (Christ's passion), celebrate (a feast day)	1c (AS)	3
		2. (c) To consider (sth.) important; follow (an example), obey (a command)	2c	1
		3. To enlarge (sth.)	3 (CA)	—
In total				**11**
pacifien	1474	1. (a) To appease (sb.); ben pacified with, be reconciled with (sb.)	1a (AS)	1
In total				**1**

Table A.3: Class 3: Non-Causative Class

7 Verbs	OED entry date	MED Senses: Definitions	Senses	Hits
signifien	c1275	1. (a) To be a symbol of (sb. or sth.), be an emblem of, symbolize; represent symbolically (that sth. is so)	1a	21
		2. (a) To be a sign or an omen of (sb. or sth.), presage, augur; be a sign or omen (that sth. occurs or will occur)	2a 8	
		(b) of a prophetic statement or dream: to foreshadow (sth.); also, of a person: prophesy (sth.)	2b	3
		3. (a) To be an indication or symptom of (sth.), indicate; indicate (sth. to be sth., that sth. is so); ~ to (upon), indicate (sth.); ~ of, astrol. influence the predominance of (black humor, black bile); signified thing, medical diagnosis	3a	16
		4. (a) To have verbal meaning; mean (sth.), denote; of a word in one language: translate (a word in another language); ben signified under, be denoted by (a name or term)	4a	3
		5. (a) To make mention, declare, narrate, tell; make known (sth., that sth. is so, that sth. should be done), declare, proclaim; make (sth.) known (to sb.), make known (to sb. that sth. is so); tell (sb. sth.)	5a	1
In total				**52**
specifien	c1300	1. (a) To speak specifically, make plain, say explicitly; ~ of (o), make explicit mention of (sth.)	1a	7
		(c) ?To appear specifically, be specifically apparent; -- in as clause	1c	2
In total				**9**
verifien	a1325	1. (a) To assert (that sth. is the case, sth. is so), aver; also, affirm (a fact) formally or under oath, testify to the truth of; also, in parenthetical constructions: assert, testify	1a	2

Table A.3: Class 3: Non-Causative Class

7 Verbs	OED entry date	MED Senses: Definitions	Senses	Hits
		2. To bear out (an assertion, a principle, proverb, etc.), confirm by reality, realize; conform to (a generalization or description), exemplify; also, fulfill (a prophecy)	2	1
In total				**3**
certifien	c1330	2. (a) To certify (an official finding, report, etc.); report or record (sth.) officially; vouch for, attest, confirm; also ~ up	2a	3
		3. To notify or inform (sb.) officially; give (sb.) official certification.	3	3
		4. (a) To inform (sb.) as to fact; tell	4a	1
		(b) To assure or reassure (sb.); convince; ben certified, be reassured or convinced, feel sure.	4b	1
In total				**8**
ratifien	1357	1. (a) To confirm (sth.), approve, sanction, ratify; also, condone (simony); also fig.	1a	2
In total				**2**
testifien	1377	1. (a) To give legal testimony; swear (that sth. is so); attest to (sth.); also, certify (sth.); ~ for god, vouch for the goodness of (sb.); ~ for treuth, certify (words) as true	1a	1
In total				**1**
notifien	c1390	1. (b) To inform (sb.), tell; also, tell (sb. sth.)	1b	3
		(d) To signify (sb. or sth.), betoken; indicate	1d	1
		(e) To take notice of (sth.), note.	1e	1
In total				**5**