Phrasal verbs and the causative verb alternation:

A diachronic investigation of phrasal labile verbs with up and down

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1 Introduction

The aim of this research paper is to construct an inventory of phrasal labile verbs with the particles up and down. Such an inventory can be used for diachronic research concerning the phenomenon of verb-lability, and concerning the way in which phrasal verbs originate.

We say that verbs are ‘labile’ when they allow the ‘causative verb alternation’, which can be illustrated by heal in the following clauses: The doctor healed their wounds and Their wounds healed. The theoretical background of this alternation is addressed in chapter 2. This chapter gives an overview of the various ways in which linguists have attempted to describe the phenomenon. Many of them refer to it as the ‘ergative alternation’, because they observe a link with the typological notion of ‘ergativity’. In order to explain their viewpoint, the concepts of typological and lexical ergativity will be briefly touched upon. Other linguists, however, object to the use of the term ‘ergative’ in this area. In this regard, I refrained myself from using it, and opted for the more neutral term ‘causative alternation’ instead.

The theoretical frameworks that aim to explain the causative verb alternation can be divided into two groups. There is the syntax-oriented tradition of Government and Binding, and the more semantically inclined approach of Functional and Cognitive Grammar. For each group, I will present the work of some notable linguists, as well as a short evaluation. The objective is to find the theory that best explains why certain verbs can participate in the alternation, while other ones cannot. We will conclude that the functional account by Davidse (1992) – based on earlier work by Halliday (1968) – is the most useful framework. According to her theory, the most significant aspect of the participating verbs is that they represent processes that can be instigated both internally and externally.

In chapter 3, phrasal verbs are drawn into the discussion. A brief look at the behaviour of ‘phrasal labile verbs’ shows that they constitute an interesting topic for linguistic research. In this light, I will refer to a dissertation by Cappelle (2005). He describes how the addition of a phrasal particle can have a significant impact on verb-lability: certain verbs that used to allow the causative alternation can no longer participate, or the other way around. But his findings only reflect the situation for present-day English. Therefore, this chapter ends with a list of reasons why diachronic investigation of phrasal labile verbs would be useful as well.
And finally, the construction of the inventory of phrasal labile verbs – which can be used for such diachronic research – is discussed in chapter 4. The inventory contains 72 verbs and was made in a Microsoft Excel-file. For the selection of verbs, I used a list of ergative verbs provided by Cobuild’s Dictionary. Due to the limited scope of this paper, I decided to include only verbs with the particles up and down. Next, for the process of data collection, I consulted the Oxford English Dictionary online. We will address the kind of data that was collected, and the way in which it is represented in the actual inventory.

To demonstrate the type of research that can be conducted with the inventory, this chapter also presents a small case study. By analysing the data with an application called TimeFlow, we attempt to discover patterns (in terms of verb-lability) for the way in which phrasal verbs originate. And while I was successful at describing such patterns, the results should be taken with a grain of salt. The reason for this, evidently, is that this study has several limitations. They will be discussed in the final section, along with the difficulties I encountered along the way and some suggestions for future research.

The Microsoft Excel-file that contains the inventory can be downloaded from:
https://www.wetransfer.com/downloads/491a139f916641c7b56c64851096444620160802104447/1850477a44ecba0ead8e0a2428a2019220160802104447/28aa92
2 Labile Verbs in the Causative Verb Alternation: Theoretical Background

The focus of this research paper is on a group of verbs that allow the following alternation:

(1) The doctor healed their wounds.
(2) Their wounds healed.
(3) The sun is melting the snow.
(4) The snow is melting.

As illustrated by the examples above, this is a systematic alternation between transitive and intransitive clauses with the same morphological verb. The most crucial feature, however, is that “the subject of the intransitive and the object of the transitive have the same lexical content or refer to the same entities” (Davidse 1998: 96), in this case *their wounds* and *the snow*. These two criteria can be summarised schematically in this way:

<table>
<thead>
<tr>
<th>transitive: Subject / Verb / <strong>Object</strong> (=)</th>
</tr>
</thead>
<tbody>
<tr>
<td>intransitive: <strong>Subject</strong> (=) / Verb</td>
</tr>
</tbody>
</table>

Figure 1: The causative verb alternation in English.

Not all English verbs can participate in this alternation. Consider the following pairs:

(5) Father painted the fence.
(6) *The fence painted.
(7) Jane sneezed.
(8) *The flowers sneezed Jane.
(9) The boys are playing hide-and-seek.
(10) The boys are playing.

Example (5) represents a transitive clause with the verb *paint*. If we transform it into an intransitive clause, the result is ungrammatical. Similarly in (7) we find an intransitive with *sneeze* which cannot be transformed into a transitive. For the alternation to be valid, the two clauses must be grammatical. This is the case for *play* in examples (9) and (10), but here it is the second criterion of the alternation that is not met: the subject of the intransitive *[the boys]* does not have the same lexical content as the object of the transitive *[hide-and-seek]*.
Different linguistic traditions have analysed this phenomenon in different ways, using distinct terminology. Some call it the ‘ergative verb alternation’, establishing a link between verbal behaviour and ergativity, a concept from linguistic typology. This connection will be discussed later on in this chapter. But because the association with the field of typology is so strong, I have decided to adopt the more neutral name ‘causative verb alternation’ (Haspelmath 1993). We say that the meaning of a verb is ‘causative’, when it includes an agent participant who causes a certain action or situation to take place: the doctor causes the wounds to heal and the sun causes the snow to melt. An ‘anticausative’ verb meaning, on the other hand, is more ambiguous, as it excludes such a causing agent participant.

There is also a great deal of discussion among linguists about the exact nature of the verbs that allow this alternation. To date, no consensus has been reached on how to identify or classify them. Some call them ‘ergative verbs’, again due to the connection with the typological notion of ergativity. Once more, I opt for a more neutral term: ‘labile verbs’. While the name ‘ergative’ is mostly used to talk about verbal behaviour in general, the name ‘labile’ is linked more directly to the phenomenon of verb alternations. In that regard, it also fits the scope of this research paper better.

The term ‘labile’ was introduced by Haspelmath (1993: 92) to denote a sub-type of the causative verb alternation where the exact same morphological verb is used for both the transitive and intransitive clauses. As such, heal (1-2) and melt (3-4) from our original examples are classified as labile verbs. Two other types of the alternation that were mentioned by Haspelmath, can be illustrated by these pairs:

(11) Who is raising oil prices?
(12) Why are oil prices rising?
(13) This prisoner killed three people.
(14) Three people died.

The verbs raise (11) and rise (12) have the same origin, but the actual forms are slightly different, while kill (13) and die (14) are two completely different verb forms altogether. Haspelmath would classify them as instances of the ‘equipollent’ and ‘suppletive’ alternation respectively (1993: 91-92). While these clauses are clearly examples of the causative verb alternation, they are not labile, and will therefore not be included in this study.
To sum up: this research paper presents an investigation of ‘labile verbs’, which are said to participate in ‘causative verb alternations’. Linguistic categories are of course defined by the correlations they propose between form and meaning, and not by the labels we assign to them (Davidse 1998: 96). But in this case, it is not unimportant to explicitly state which terminology will be used: studying the domain of causative verb alternations in English inevitably means entering the ongoing and highly complex debate of ‘ergative verbs’. And the notion of ergativity has been applied to such different linguistic phenomena by researchers from such different theoretical backgrounds, that the selection of terminology and the selection of a theoretical framework go hand in hand.

It is also in that regard, that the continuation of this chapter addresses the ergativity question in more detail. An overview is offered of the main theoretical tendencies that have attempted to explain ‘ergative verbal behaviour’ in English – some of which do not even take the concept of verb alternations into account. Note that these theoretical aspects are not essential for understanding the investigation that will be presented later, but are meant to give an idea of the bigger picture. They will help situate this research paper within the wider context of the ‘ergativity debate’ and shed some light on what the causative verb alternation actually means on a deeper level.

First, we will look at ‘morphological ergativity’ (§ 2.1) to see how the term is applied in linguistic typology. Ergativity originated in this field of study, as a structural feature for the classification of languages, based on differences in morphological patterning. However, later scholars have argued that ‘ergative patterning’ is not exclusive to the morphological level: it can also be found at the level of syntax, lexicon and discourse (McGregor 2009: 480). The area that we are interested in is ‘lexical ergativity’ (§ 2.2), since it is here that the causative verb alternation for English comes into play. The theoretical frameworks for lexical ergativity can be divided into two groups. On the one hand, there is the syntactic analysis of Government & Binding (§ 2.3.1), for which I will present the work of Perlmutter, and Levin & Rappaport Hovav. On the other hand, there are the more semantic approaches of Functional and Cognitive Grammar (§ 2.3.2), where I will refer to studies by Halliday, Davidse and Langacker. After having presented each group of frameworks, I will take a moment to evaluate them: how useful are they for understanding the causative verb alternation that we are interested in? And along the way, I will also justify why I prefer the term ‘labile’ – and discard the term ‘ergative’ – for the verbs that will be investigated.
2.1 **Morphological Ergativity (in Linguistic Typology)**

The term ‘ergativity’ first emerged in the field of linguistic typology. It is used to distinguish between groups of languages based on differences in morphological patterning. The most common type of ‘morphological ergativity’ can be found in case-marking (McGregor 2009: 480-481). Some languages have a nominative-accusative case system, while others have an ergative-absolutive one. The two are illustrated by the following example pairs respectively:

(15) **She** embraced **him**.
    NP-nom  V-trans.  NP-acc

(16) **He** smiled.
    NP-nom  V-intrans.

(17) **mirtawa-lu**  **kuyi- Ø**  **kampa-rna**  
    woman-*ERG*  **meat-*ABS***  **cook-NFUT  [= non-future]**
    ‘The woman cooked the meat’.  
    (McGregor 2009: 480)

(18) **partany- Ø**  **karnti-nyi**  **mungka-nga**  
    child-*ABS*  **climb-NFUT  tree-LOC  [= locative]**
    ‘The child climbed the tree’.  
    (McGregor 2009: 481)

Most European languages, such as English, are ‘accusative’. This means that the subject of a transitive clause (15) patterns like the subject of an intransitive clause (16). Both subjects, **she** and **he** in this case, have the (unmarked) nominative case. The object of the transitive clause, **him**, on the other hand, patterns differently and has the (marked) accusative case. The situation for ‘ergative’ languages, such as Nyangumarta (Pama-Nyungan, Australia) is different. There it is the object of a transitive clause (17) that patterns like the subject of an intransitive clause (18): **meat** and **child** are both in the unmarked absolutive case, while the subject of the transitive clause, **woman**, receives the ergative case marker -**lu**.

<table>
<thead>
<tr>
<th>Nominative-Accusative Patterning</th>
<th>Ergative-Absolutive Patterning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tr.</td>
<td>Subject / Verb / Object</td>
</tr>
<tr>
<td>NOM.</td>
<td></td>
</tr>
<tr>
<td>intr.</td>
<td>Subject / Verb</td>
</tr>
<tr>
<td>NOM.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2: One type of ‘morphological ergativity’ in linguistic typology: case-marking.
While most languages are accusative in this sense, ergative case-marking is still a fairly common phenomenon. A second type of morphological ergativity, however, observed in ‘cross-reference morphology’ (McGregor 2009: 482-483) is quite rare. It will not be explored here but the principle is the same: “the subject of a transitive clause behaves differently to the subject of an intransitive clause, which behaves like the object of a transitive clause” (480).

2.2 **Lexical Ergativity in English**

Let us now compare the typological concept of morphological ergativity to the causative verb alternation that we wish to investigate, by revisiting these examples:

<table>
<thead>
<tr>
<th>mirtawa-lu  kuyi-Ø  kampa-rna</th>
<th>The woman cooked <em>the meat</em>.</th>
<th>The doctor healed <em>their wounds</em>.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>partany</em>-Ø  karnti-nyi  mungka-nga</td>
<td><em>The child</em> climbed the tree.</td>
<td><em>Their wounds</em> healed.</td>
</tr>
<tr>
<td><strong>ergative (morphological) patterning</strong></td>
<td><strong>causative verb alternation</strong></td>
<td></td>
</tr>
<tr>
<td>tr.</td>
<td>Subject (abs.) / Verb / <strong>Object</strong> (erg.)</td>
<td></td>
</tr>
<tr>
<td>intr.</td>
<td><strong>Subject</strong> (erg.) / Verb</td>
<td></td>
</tr>
</tbody>
</table>

This quick comparison makes visible the connection that is argued to exist between the two phenomena, causing some linguists to talk about the ‘ergative verb alternation’. They observe a parallel between “participants having the same morphological patterning” [ergativity] and participants “having the same lexical content” [verb alternation]. Their explanation, as mentioned earlier, is that ergative patterning is not limited to the morphological level, but can be extended to other levels, such as syntax, lexicon and discourse.

Note that other linguists – often typologists – object to this extension of the term ergativity (Dixon 1994: 20; Matthews 2007: 126, paraphrased in McGregor 2009: 483). They believe that languages should only be called ‘ergative’ when they display some very “clear-cut patterns […] of ergative grammar” (Davidse 1992: 107). Applying the label to other phenomena, such as verb alternations, where patterns are manifested on a deeper (less clear-cut) level, is then deemed incorrect and confusing.
This division among scholars can be linked to a bigger, overarching debate in linguistics: the question whether or not there is a ‘level distinction’ between syntax and semantics. Can the term ‘ergativity’ – that originally denoted syntactic phenomena, such as case-marking and cross-reference morphology – be extended to more semantic areas, such as lexicon and discourse? The consequence is that some linguists classify English as an accusative-only language, while others analyse it as a mixture of accusative and ergative tendencies. Moreover, as we will see in the next section, this question about the relation between syntax and semantics also constitutes the biggest difference between the two groups of frameworks: Government & Binding (§ 2.3.1), who keep them separate, versus Functional and Cognitive Grammar (§ 2.3.2), who see no level distinction.

Linguists who argue that English does have some ergative features, usually share Halliday’s opinion that all languages are a mixture. Langacker has supported this claim, writing that “every language probably uses both patterns [accusativity and ergativity] in one fashion or another, though the mixture varies and a particular pattern is often predominant” (Langacker 1989: ix p.3, cited in Davidse 1992: 107). English is then said to manifest ergative behaviour only on the lexical-semantic level, which is why the causative verb alternation has often been called an ‘ergative alternation’ – or a manifestation of ‘lexical ergativity’. Still, as has been demonstrated in this subsection, the use of the label ‘ergative’ in this area is problematic. Therefore I will avoid the term in the actual research that will be presented later, and describe the verbs as ‘labile’ – a name more appropriate for a study that focuses on verb alternations, and not on the actual debate of lexical ergativity.

2.3 Theoretical Frameworks for Lexical Ergativity in English

2.3.1 GOVERNMENT & BINDING

- 1. Perlmutter (1978)

One of the scholars in the linguistic tradition of Government & Binding that proposed a theory for explaining ergative behaviour in English, was Perlmutter (1978). In his study titled “The Unaccusative Hypothesis” he divided intransitive verbs into two distinct groups: ‘unaccusative’ and ‘unergerative’ ones. Consider the following examples:

(19) Britney fell.
(20) Thomas ate.
The distinction between the two types is based on a difference in “underlying syntactic configuration” (Alexiadou, Anagnostopoulou & Everaert 2004: 2). By this we refer to the ‘deep structure’ where verbs assign theta-roles to the arguments they take. The subject of an unaccusative verb, such as fall (19), is said to originate as an initial direct object. Yet it takes the nominative case, instead of the accusative one – which is why we call it unaccusative. For unergative verbs on the other hand, such as eat (20), the initial subject is also the final one. Figure 3 provides a schematic representation:

<table>
<thead>
<tr>
<th>Unaccusative</th>
<th>Unergative</th>
</tr>
</thead>
<tbody>
<tr>
<td>[≈ ergative]</td>
<td>[≈ accusative]</td>
</tr>
<tr>
<td>Initial</td>
<td>Subject / Verb / Object</td>
</tr>
<tr>
<td>Final</td>
<td>Subject / Verb</td>
</tr>
</tbody>
</table>

Figure 3: Unaccusative versus unergative verbs.

Initial research on the topic of unaccusativity was mainly concerned with its syntactic aspects (Levin & Rappaport Hovav 1995: 4). Therefore, a variety of syntactic diagnostics have been proposed for classifying intransitive verbs as either unaccusative or unergative. For European languages, the most common diagnostics are: [1] the selection of “perfective auxiliary” be (unacc.) versus have (unerg.); the impossibility (unacc.) or possibility (unerg.) to occur in [2] “impersonal passive constructions”; and the ability (unacc.) or inability (unerg.) to form [3] “adjectival passives” (Davidek 1998: 98). The situation for English is more complex, as it is said to lack clear morphological clues that help us distinguish between the two types. Levin and Rappaport (1995) describe the ‘resultative construction’ and the causative verb alternation as two of the most reliable tests for English.

In any case, establishing syntactic diagnostics for unaccusativity proves to be problematic for many languages. Doubts about the reliability of said tests arise, because they provide “mixed results and mismatches within and between different languages” (Maekelberghe 2013: 17). We can illustrate this by applying the three diagnostics mentioned above to some Dutch and English examples. The Dutch verb vallen (‘fall’) in clauses (21), (22) and (23), for instance, is classified as unaccusative according to all three tests. The verb blijven (‘stay’) in clauses (24), (25) and (26), however, is classified as unaccusative according to tests [1] and [2], but as unergative according to test [3]. This simple set of examples quickly shows that the three diagnostics give mixed results for some verbs in Dutch.
Only test [3] can be applied to English. Let us revisit fall and eat from our earlier examples (19) and (20). We identified fall as unaccusative, which diagnostic [3] seems to confirm, since it can be turned into an adjectival passive: the fallen leaf. In this regard, this construction should be ungrammatical for eat, since we called it unergative. Yet, the phrase the eaten apple does not sound so strange, especially in a construction like the half-eaten apple. Other unergative verbs, however, are more straightforward. Take sleep for instance: both the slept night and the half-slept night are equally ungrammatical.

Still, it is fair to say that finding reliable syntactic diagnostics for ‘unaccusativity’ is quite difficult. That is why it has been argued by some that the matter should be approached from a semantic viewpoint instead. In this light, Pinker (1989: 87, paraphrased in Davidse 1998: 98) describes the subjects of unaccusative verbs as ‘undergoing’ some change of location or state, whereas the subjects of unergative verbs ‘perform’ some particular action or activity (ibid.). This description seems to be valid for Britney fell and Thomas ate respectively. Even Perlmutter (1983, cited in Alexiadou e.a. 2004: 12-13) attempted to provide a semantic foundation for his unaccusativity hypothesis, by making a classification of certain groups of verbs that are “generally” either unaccusative or unergative, based on some semantic features.

Although semantic aspects come into play, studies in the tradition of Government & Binding are usually grounded in syntax, which they believe to be a separate and superior level. The fundamental question is at which level unaccusativity manifests itself. While there is no consensus, most linguists in this tradition agree that unaccusativity is “semantically defined and syntactically encoded” (Alexiadou e.a. 2004: 11). As we will see later on, frameworks in the traditions of Functional and Cognitive Grammar are often less problematic, because they do not have to worry about this “fundamental” question: from their perspective, there is no level distinction between syntax and semantics.
2. Levin & Rappaport Hovav (1994)

A different classification of verbs was presented by Levin & Rappaport Hovav (1994: 52), involving two criteria: the kind of causation and the (im)possibility to detransitivise:

- Causative verbs [externally caused] that do not detransitivise
  
  (27) She sang a lullaby. \(\rightarrow\) *A lullaby sang.

- Causative verbs [externally caused] that detransitivise
  
  (28) We broke the glass. \(\rightarrow\) The glass broke. [\(\approx\) unaccusative]

- Intransitive verbs [internally caused]
  
  (29) / He died. [\(\approx\) unergative]  

Levin & Rappaport have tried to link their classification to the one proposed by Perlmutter, by saying that ‘detransitivised causative verbs’ are unaccusative, and that ‘internally caused intransitive verbs’ are unergative. Davidse (1998: 98) however, found some inconsistencies. Earlier we mentioned that fall is an unaccusative verb. Yet fall cannot be used in a transitive clause: one cannot fall something. Therefore, it ends up in the category of ‘internally caused intransitive verbs’, which Levin & Rappaport say are unergative. Another problem arises for unaccusative verbs such as walk in He walked home. How can one argue that He walked home is externally caused? The correlations proposed by Levin & Rappaport are curious.

Despite the questionable attempt at establishing a connection, their classification is quite different from Perlmutter’s. Where he distinguishes between two types of intransitive verbs [unaccusative versus unergative], Levin & Rappaport start by dividing transitive verbs into two groups [ones that do not detransitivise versus ones that do]. Moreover, the notion of ‘detransitivisation’ brings us closer to the phenomenon of the causative verb alternation, which was not taken into account by Perlmutter. Finally, Levin & Rappaport’s account is somewhat more semantic, by including the aspect of internal/external causation.

At least we can find one similarity between the two classifications: they are both flawed.

The study of Levin & Rappaport was actually based on earlier work by Smith (1970: 108, paraphrased in Davidse 1998: 97). She described the characteristics of ‘change verbs’, which can occur in both transitive and intransitive clauses; thereby distinguishing themselves from “purely” transitive and intransitive verbs. A summary of the description is given below:
A purely transitive verb such as *kill* in *He killed her* has a patient that undergoes the action, and an external agent that is in control, causing the activity to occur. For purely intransitive verbs such as *cry* in *He cried*, only the participant engaging in the activity can be said to be in control; the action does not depend on an external agent. Verbs such as *change* and *freeze*, belong to both groups, depending on whether they are used transitively or intransitively:

(30) Fame changed her. vs She changed.
(31) The cold froze the pipes. vs The pipes froze.

According to Davidse (1998: 96) this is one of the most insightful and important contributions to the field of (lexical) ergativity in English; probably due to the fact that Smith’s account is so simple and straightforward. It seems that Levin & Rappaport have tried to transform it, in a not so successful attempt at establishing a connection with the findings of Perlmutter. By doing so, they have created a theory that is complicated, confusing and inconsistent.

**EVALUATION**

Before we move on to Functional and Cognitive Grammar, let us take a moment to evaluate the frameworks in the linguistic tradition of Government & Binding. Have they given us any insightful information for better understanding the concept of causative verb alternations? For reasons of convenience, I repeat our original examples here:

<table>
<thead>
<tr>
<th>causative verb alternation</th>
<th>no causative verb alternation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) The doctor healed their wounds.</td>
<td>(5) Father painted the fence.</td>
</tr>
<tr>
<td>(2) Their wounds healed.</td>
<td>(6) *The fence painted.</td>
</tr>
<tr>
<td>(3) The sun is melting the snow.</td>
<td>(7) Jane sneezed.</td>
</tr>
<tr>
<td>(4) The snow is melting.</td>
<td>(8) *The flowers sneezed Jane.</td>
</tr>
<tr>
<td>(9) The boys are playing hide-and-seek.</td>
<td>(10) The boys are playing.</td>
</tr>
</tbody>
</table>
First, we discussed Perlmutter’s unaccusative hypothesis (1978). As mentioned earlier, subjects of unaccusative verbs are said to originate as initial direct objects. Some linguists therefore argue that this connection between subject and object is a manifestation of (lexical) ‘ergative behaviour’, in the sense that the subject of an intransitive clause behaves like the object of a transitive one. In this regard, Perlmutter’s label “unaccusative” basically means ergative, whereas “unergative” is synonymous with accusative. But how helpful is this theory and its terminology for us? Davidse lists both *melt* and *fall* as unaccusative verbs in one of her texts (1998: 98). As shown in example pair (3-4), *melt* can participate in causative verb alternations. *Fall* however, cannot: someone cannot *fall* something.

The conclusion is that the category of unaccusative verbs proposed by Perlmutter is not entirely compatible with our topic of interest. While one can argue that a connection exists between ‘lexical ergativity’ and ‘unaccusativity’ on the one hand, and between ‘lexical ergativity’ and ‘causative verb alternations’ on the other, that does not mean that causative verb alternations are best described in terms of unaccusativity. In other word: a link between X and Y, and a link between X and Z, do not necessarily imply a harmonious link between Y and Z. And that should be enough justification for disregarding the label ‘unaccusative’, and by extension also the label ‘ergative’, and choosing the less problematic name ‘labile’ for the verbs that will be investigated in this particular study – despite the similarities.

While Perlmutter’s categories do not help us, their description by Pinker (1989) might turn out to be more useful. He claimed that subjects of unaccusative verbs ‘undergo’ some change of location or state, whereas subjects of unergative verbs ‘perform’ some particular activity. If we analyse the intransitive clauses among our original examples, we see that there is a link between Pinker’s semantic features and our causative verb alternation. Intransitive examples (7) and (10), whose verbs DO NOT allow the alternation, are straightforward: Jane performs the activity of *sneezing* and the boys perform the activity of *playing*. Even example (6), although ungrammatical, is clear: the fence undergoes the change of being *painted*.

The intransitive examples that DO allow the alternation, however, are more ambiguous. In (2), we can say that the wounds ‘performed’ the activity of *healing* themselves but also that they ‘underwent’ the change of being *healed*. Similarly in (4), we can ask ourselves if the snow ‘performed’ the activity of *melting* spontaneously or if it ‘underwent’ the change of being *melted* due to some other reason. The corresponding transitive clauses clear up the confusion: they tell us that *the doctor* and *the sun* are performing the activities.
As such, the solution to explaining why certain verbs can or cannot participate, appears to lie in semantic descriptions of the constructions. In that light, the features of ‘internal’ and ‘external’ causation proposed by Levin and Rappaport Hovav (1994) allow us to analyse the original intransitive examples in a similar way: the ones with verbs that DO NOT participate in the alternation are clear: the forces that cause Jane to sneeze (7) and the boys to play (10) are internal, while the force that causes the fence to be painted (6) is external. The ones that DO participate in the alternation are, again, more ambiguous: the force that causes the wounds to heal (2) and the snow to melt can be argued to be either internal or external. In the end, wounds heal themselves of course, but the process might occur faster due to some kind of external intervention – such as a doctor. We could repeat the same analysis with Smith’s characteristics (1970) of ‘external control’ and ‘independent activity’, but the outcome would again be similar.

And so, the fundamental question is: In an intransitive clause that is part of a causative verb alternation, does the participant itself cause the situation to take place, or does some external agent cause it instead? In other words, is the verb meaning ‘causative’ of ‘anticausative’? After what we have learned about the phenomenon so far, it should now be apparent that ‘causative verb alternation’ is a better name for it than ‘ergative verb alternation’. Furthermore, we saw that semantic descriptions prove to be more useful than syntactic categories. This implies that the frameworks of Functional and Cognitive Grammar, which have a more semantic approach, might be able to teach us even more.

2.3.2 FUNCTIONAL AND COGNITIVE GRAMMAR

The main difference between Government & Binding and the traditions of Functional and Cognitive Grammar, is the way in which the relationship between syntax and semantics is explained. Formal theories, such as Government & Binding, see syntax as an autonomous level, while semantics is regarded as a separate field within the frame of ‘universal logical models’ (Davidse 1992: 105). Davidse claims that our area of research may have been held back by such a perspective (107). She explains this by using the ocean as a metaphor (106): it does not make sense to think that the visible waves and ripples [syntax] are completely unrelated to the more hidden, deeper currents [semantics].
Linguists from Functional and Cognitive Grammar then, do not keep the two concepts separate. They believe that syntactic forms are inherently motivated by some sort of semantic meaning, and that they are not just formal transformation rules. In Cognitive Grammar, this is explained by considering lexicon and grammar as a continuum of symbolic structures (Lemmens 1998: 8): ‘lexical structures’ simply express meaning in a more concrete way than the more schematic ‘grammatical structures’. Similarly, Functional Grammar describes the continuity between the two with Halliday’s term ‘lexicogrammar’: lexicon and grammar come together to “realise” the meanings that speakers wish to express. In this way, linguists of both traditions argue that the relation between syntax and semantics is non-arbitrary.

This particular perspective concerning syntax and semantics, can be linked to the more general theory of ‘conceptualization’. It states that “every difference in form constitutes a difference in meaning and conceptualization of an event” (Maekelberghe 2013: 13). In other words, the fact that the causative verb alternation exists as a “formal choice” for certain verbs, means that there must be some sort of inherent semantic meaning to be found in this phenomenon, most likely related to the way in which it ‘conceptualises’ verbal events.

This brings us to a second distinction between the different frameworks. With Government & Binding, the focus is on the classification of verbs: Perlmutter proposed two categories for intransitive verbs [unaccusative versus unergative], while Levin & Rappaport divided transitive verbs into two groups [ones that detransitivise versus ones that do not]. With Functional and Cognitive Grammar, on the other hand, the focus is on the constructions. These linguists attempt to describe what the different clauses mean beneath the surface: How do the clauses ‘conceptualize’ the verbal event that is expressed by them, and how is the ‘conceptualization’ altered when these clauses are transformed? In other words: the focus is not on the classification of verbs, but on the description of ‘event models’. We will discuss two functional accounts, by Halliday (1968) and Davidse (1992), and one cognitive approach by Langacker (1991).

1. Halliday (1968) [functional]

According to Davidse (1992: 108), Halliday’s description is one of the finest in the literature. For our discussion of his theory, I introduce the following examples:
Halliday (1968: 183, paraphrased in Davidse 1998: 100-101) states that a clause such as (32) can be explained in terms of an ACTION MODEL. The clause constitutes a paradigm that is ‘goal directed’: an Actor (*Kurt*) performs an action (*cutting*) that is directed on to a Goal (*the flowers*). Let us refer to it as the *cut* paradigm. However, Halliday’s action model is actually twofold: it includes a second paradigm that he calls ‘descriptive’ and is used to explain clauses such as (33). In said paradigm, an Initiator (*mother*) causes an Actor (*the baby*) to perform an action (*sitting up*) that is not directed on to a particular Goal.

We will refer to this one as the *sit up* paradigm.

The different nature of the two paradigms can be illustrated in two ways. Firstly, the left-most participant cannot be left out in the *cut* paradigm (*Flowers are cutting*), while this is possible for the *sit up* paradigm (*The baby sat up*). The explanation is simple: a Goal always needs an Actor (*Kurt*) who ‘directs’ an action on to it, while an Actor does not necessarily need an Initiator (*mother*) who ‘causes’ it to perform an action. Secondly, the two paradigms are paraphrased in different ways. In the ‘goal-directed’ one, an Actor does something to a Goal (*Kurt does something to the flowers*), whereas in the ‘descriptive’ one, an Initiator makes an Actor do something (*Mother makes the baby do something*).

In light of these descriptions, clauses such as (34) posed a problem for Halliday. The left-most participant can be left out (*The soup is boiling*), so it shifts towards the ‘descriptive’ *sit up* paradigm. Still, when we attempt to paraphrase it, the situation becomes more complex, as it can take both options. It can be paraphrased both as *she does something to the soup* or as *she makes the soup do something*. Because of this supposed flaw in his action model approach, Halliday (1968: 185, paraphrased in Davidse 1998: 101) proposed a second, more general model, based on CAUSATION. In this model, an Affected participant (*the soup*) is said to be affected by an action (*boiling*) that may be caused by an external and optional participant, called the Causer (*he*). In cases where the Causer is left out, the action is seen as internally caused, by the Affected itself. In this way, Halliday was able to provide a less ambiguous analysis for clauses such as (34) that challenged his original action model. We will refer to these clauses as a third group: the *boil* paradigm.
2. Davidse (1992) [functional]

As a follower of Halliday, Davidse praises his functional descriptions. Yet she has made some significant improvements to them, proposing two different, though highly similar event models (Davidse 1992). The issue with Halliday’s account is that he regards the cut and sit up paradigms as the two most important ones, bringing them together in one model. The boil paradigm is then seen as an exceptional case, associated with a second separate model. Davidse on the other hand, argues that the cut and boil paradigms are the two most important ones, both deserving their own separate model. The sit up paradigm is then considered to be the exceptional case, and is located somewhere in between the two models. This idea can be summarised by the following figure:

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1 → a) cut</td>
<td>Model 1 = a) cut</td>
</tr>
<tr>
<td>→ b) sit up</td>
<td>→ b) sit up [exceptional]</td>
</tr>
<tr>
<td>Model 2 = c) boil [exceptional]</td>
<td>Model 2 = c) boil</td>
</tr>
</tbody>
</table>

Figure 6: Illustration of the improvements to Halliday’s theory, proposed by Davidse.

Now, what are the two event models described by Davidse? To explain this, I will recycle the earlier cut, boil and sit up clauses, and reuse them in new example pairs:
(35) Kurt is crying.
(36) Kurt is cutting the flowers.
(37) The soup is boiling.
(38) She is boiling the soup.
(39) The baby sat up.
(40) Mother sat the baby up.

The first one, says Davidse (1992: 108), is called the ‘transitive system’ and realises a PROCESS AND EXTENSION model. Here, the starting point is an Actor performing a certain action. The story can end there, as in example (35), where Kurt is the Actor who performs the action of crying. But the action can also be ‘extended’ beyond the Actor and direct itself on to a Goal, which is said to be affected by it. That is what happens in (36), where the action of cutting, performed by Kurt [Actor], is directed on to the flowers [Goal].

The second one is referred to as the ‘ergative system’ (Davidse 1992: 109), and realises an INSTIGATION OF PROCES model. Here, the central participant is called the Medium, which is said to be engaged in some kind of process. It can be left at that, as in clause (37), where the soup is the Medium that is engaged in the process of boiling. But this structure can also be expanded by adding an Instigator: an external agent that ‘instigates’ the process. This occurs in (38), where she [Instigator] instigates the boiling of the soup [Medium].

<table>
<thead>
<tr>
<th>transitive system</th>
<th>ergative system</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTOR</strong> – Process ➔ <em>extension</em></td>
<td><em>instigation</em> ← Process - <strong>MEDIUM</strong></td>
</tr>
<tr>
<td><strong>ACTOR</strong> – Process – <strong>GOAL</strong></td>
<td><strong>INSTIGATOR</strong> – Process – <strong>MEDIUM</strong></td>
</tr>
<tr>
<td>e.g. Kurt – is crying.</td>
<td>e.g. the boiling – of the soup</td>
</tr>
<tr>
<td>e.g. Kurt – is cutting – the flowers.</td>
<td>e.g. She – is boiling – the soup.</td>
</tr>
</tbody>
</table>

Figure 7: The transitive and ergative systems, according to Davidse.

The sit up paradigm is then explained as a combination of both (Davidse 1998: 101-102). We say that example pair (39-40) includes an Actor [=str.] as well as an Instigator [=erg.]. The Actor is the baby, who is performing the action of sitting up. But an Instigator like mother can be added, as an external agent to ‘instigate’ the activity. This type of structure does not occur often: it is mostly used for situations where the Actor is not in full control.
Note that the name of the first system might be somewhat confusing: it is called ‘transitive’, despite the fact that it includes both transitives (36) and intransitives (35). Therefore, I will use the labels ‘one-participant’ and ‘two-participant’ to talk about all clauses from now on.

The name of the second system refers – again – to the notion of lexical ergativity. The link should be apparent, as demonstrated by the clauses of the ergative example pair: the subject of (37) has the same lexical content as the object of (38), namely the soup.

- Transitive vs Ergative

We can observe three notable differences between the two systems. The most obvious one is [1] the distinction between the principles of ‘extension’ and ‘instigation’. In the transitive system, the basic structure can be opened up to the right to include a second participant. The main question is whether or not the action is ‘extended’ on to a Goal. For the ergative paradigm, a second participant can be added to the left. The main question here, is how the process has been ‘instigated’. We say that extension and instigation are two different variables, linked to the two different event models.

The issue of ‘extension’ is simple: we always know that the Actor is the one performing the activity. We simply ask ourselves whether or not the action is extended on to something else. The issue of ‘instigation’, however, is not just a simple whether-or-not question: we do not always know what force is instigating the process. In the case of a TWO-participant ergative structure, we can be sure: it is the Instigator that provides ‘external’ force that causes the situation to take place. But what about ONE-participant ergative structures, where there is only a Medium? Is there some ‘external’ force in play – that simply is not mentioned – or is some ‘internal’ force – of the Medium itself, for instance – responsible? The latter would imply that the situation is somehow occurring spontaneously.

We can demonstrate this with our example pairs, to make the complexity more concrete. Transitive structures (35) and (36) do not pose any problems: in both cases, Kurt is the Actor who is performing the action. In one case, the action is simply ‘extended’ on to the flowers; no questions asked. The difficulties arise when we analyse ergative structures (37) and (38). While it is clear that she is the one who instigates the process in TWO-participant clause (38), ONE-participant clause (37) remains ambiguous. Is the idea that some ‘external’ force is causing the soup to boil, or is the situation presented as occurring spontaneously?
One might argue that soup cannot boil “spontaneously”: there has to be some human participant involved. This is true of course, and in that light, clause (37) may not be a perfect illustration of the problem. Let us therefore analyse an additional example:

(41) Her hair had brightened.
    [As in: “Jack had not seen his sister in years. But when he saw her again, he immediately noticed that her hair had brightened.] 

Did her hair brighten spontaneously throughout the years? – instigated by some ‘internal’ force possessed by the hair itself? Or is the implication that some ‘external’ force caused the situation to take place? – with an Instigator involved, such as a hairdresser or hair products? Suddenly, it becomes much harder to answer these questions.

As a consequence, a crucial feature of the ONE-participant ergative structures is that they ‘neutralise’ the distinction between internal and external instigation. In the words of Davidse: these clauses are “characterised by an essential vagueness” (Davidse 1992: 109). This ambiguity cannot be cleared up without extralinguistic context. Note that during our discussion of Halliday’s theory, also TWO-participant ergative structures created ambiguity: they could be paraphrased in two ways. If we illustrate this with our latest example, by turning it into a clause such as The hairdresser brightened her hair, we can say that someone did something to the hair or that someone made the hair do something. All of this brings us to a second difference between the two models: there seems to be a notion of inevitable ambiguity present in the ergative system – both in its ONE and TWO-participant constructions. Our analysis of the transitive system, on the other hand, did not pose any problems. There was no ambiguity to be found in its clauses.

And so it is time to address the final distinction between the two systems: [3] the (labile) causative verb alternation is possible only within the ergative system. Verbs that belong to this system allow the alternation: someone is boiling soup or soup is simply boiling. Similarly, someone can brighten hair or hair can simply brighten. And for the sake of having three examples: someone can open a door or a door can open spontaneously. For the transitive system, this is normally not the case. We can say that someone is cutting flowers but not that *flowers are cutting. In the same way, someone can cry but we do not say that *something cries someone. And as a final example, someone can eat a cake but we do not say that *a cake eats. For the transitive system the alternation is not possible.
• Pseudo-effective Structures

In both the transitive and ergative system, we found clauses that had two participants. They are called ‘effective’ – as opposed to one-participant structures – because there are two participants present that are directly involved in the process expressed by the verb. For the transitive model we call them Actor and Goal, whereas for the ergative one we call them Medium and Instigator.

Now, Davidse (1992: 124-129) also takes ‘pseudo-effective’ structures into account. This means that there are two participants present, but that their degree of ‘involvement’ in the process is different. Only one participant is said to be truly involved, while the other one is not. Pseudo-effective structures can occur in both systems, as illustrated by these two examples:

(42) They drove the whole distance. (ibid. 124).
(43) The cooling system burst a pipe. (ibid. 127).

Example (42) belongs to the transitive model, because we cannot say that *the whole distance drove. But it is pseudo-effective, because the whole distance is not a true Goal. It is not actually ‘affected’ by the action of driving, as in (36) where the flowers are most definitely affected by the action of cutting. A simple test can be used to illustrate the difference: we can say that what Kurt did to the flowers, was cut them but not that *what they did to the whole distance, was drive it. This proves that we are not dealing with a Goal, but with a participant called the Range, which specifies the extent (or scope) of the process that is taking place (Halliday 1985: 131, paraphrased in Davidse 1992: 125).

Example (43), on the other hand, belongs to the ergative model, because we can say that the pipe burst. But it is pseudo-effective, because the cooling system is not a true Instigator. It does not actually ‘instigate’ the process of bursting a pipe, as in (38) where she is clearly instigating the process of boiling soup. Once again, we can use a simple test to demonstrate the difference: we can say that she was responsible for boiling the soup but not that the cooling system was responsible for bursting a pipe. The cooling system is not seen as an ‘agent figure’ and can therefore not be held responsible. This proves that we are not dealing with an Instigator, but with a participant called the Setting, which specifies the circumstances under which the process occurs (Langacker 1989: viii p.8, paraphrased in Davidse 1992: 128).
The Range and Setting that we find in pseudo-effective clauses, are not participants in the true sense of the word. Because the Range is not affected by the process, it does not really ‘participate’ in it. And the Setting can be seen as a circumstance disguised as a participant. In other words, they are pseudo-participants with limited participant status.

Davidse (1992) includes these pseudo-effective structures in her description, by adding a third structure-type to both systems. This means that we now have to upgrade the representation that was given earlier in figure 7. An improved version is therefore provided here in figure 8:

<table>
<thead>
<tr>
<th>transitive system</th>
<th>ergative system</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTOR</strong> – Process → <em>extension</em></td>
<td><em>instigation</em> ↔ Process – MEDIUM</td>
</tr>
<tr>
<td><strong>ACTOR</strong> – Process – <strong>GOAL</strong></td>
<td><strong>INSTIGATOR</strong> – Process – MEDIUM</td>
</tr>
<tr>
<td>[<strong>ACTOR</strong> – Process – <strong>RANGE</strong>]</td>
<td>[<strong>SETTING</strong> – Process – MEDIUM]</td>
</tr>
</tbody>
</table>

| e.g. Kurt – is crying. | e.g. the boiling – of the soup |
| e.g. Kurt – is cutting – the flowers. | e.g. She – is boiling – the soup. |
| e.g. [They – are driving – the distance.] | e.g. [The system – burst – a pipe.] |

Figure 8: The transitive and ergative systems, according to Davidse. (Improved table)

3. Langacker (1991) [cognitive]

Langacker is yet another linguist who establishes a parallel between the typological notion of ergativity and verbal behaviour (Langacker 1991, paraphrased in Lemmens 1998: 30-33). In this regard, he proposes a nominative/accusative system, versus an ergative/absolutive one. The two can be illustrated by example pairs (44-45) and (46-47) respectively. In order to present his cognitive approach, I will label the participants accordingly:

(44) **Emma** is drinking.
    [nom.]

(45) **Emma** is drinking red wine.
    [nom.] [acc.]

(46) The window broke.
    [erg.]

(47) Sam broke the window.
    [abs.] [erg.]
In the **nominative/accusative** system, the unmarked case is the nominative one. Langacker therefore argues that the nominative-marked participant is the most important one, from a ‘conceptual’ point of view. In other words: that participant comes first in the mind of the speaker. If we apply this to example pair (44-45), we say that the focus is on *Emma* who is *drinking*. What she is drinking, is then considered to be less important. As a consequence, the [inferior] participant *red wine* is left implicit in one-participant structure (44), while the [superior] participant *Emma* is still present.

In the **ergative/absolutive** system, on the other hand, the unmarked case is the ergative one. Langacker therefore argues that the ergative-marked participant is the most important one, from a ‘conceptual’ point of view. If we apply this to example pair (46-47), we say that the focus is on *the window* that is *breaking*. Who or what is causing it to break, is then considered to be less important. As a consequence, the [superior] participant *the window* is said to have a ‘conceptual’ kind of autonomy or independence. That is why it can appear in one-participant structures (47), while the other [inferior] participant *Sam* is left implicit.

I would like to stress the fact that Langacker never talks about ‘superior’ or ‘inferior’ participants. I am simply using these labels to make his theory more easily understood. In any case, the main idea is that clauses can be described in terms of a CONCEPTUAL PATH. This means that in the mind of the speaker, one participant is considered to be more important than the other. According to Langacker, the important participants are normally marked in the nominative or ergative case, depending on which system the clause belongs to.

In addition, Langacker proposes another way in which clauses can be analysed. The second description is made in terms of an ENERGY FLOW. In clause (45) the head of the energy flow is *Emma*, as she is the one who starts the activity of *drinking*. Therefore, *red wine* is seen as the endpoint. In (47) on the other hand, *Sam* is the head of the energy flow, as he is the one who causes the *breaking* of the window. As a result, *the window* is seen as the endpoint.

After having described each model in two ways, we can finally identify the main distinction between them: in the nominative/accusative system, the conceptual path runs in the same direction as the flow of energy; while in the ergative/absolutive system, the conceptual path runs counter to the flow of energy (Lemmens 1998: 33). A schematic summary is given here:
The time has come to evaluate the frameworks of Functional and Cognitive Grammar. Keeping in mind the causative verb alternation that we wish to investigate, are they more useful than the theories in the tradition of Government & Binding?

As argued earlier, the best approach for explaining this alternation seems to be a semantic description of all the different structures. In this regard, one would expect that the more semantically inclined frameworks of Functional and Cognitive Grammar are the more useful ones. In my opinion, this is true. It is easier to explain the causative verb alternation in terms of different event models, than claiming it has something to do with the categories of unaccusative and unergative verbs. Especially since these categories are not entirely compatible with the groups of verbs that do (or do not) participate in the alternation.

Now, which semantic approach is more helpful? – the functional one or the cognitive one? Functional linguists, such as Halliday and Davidse, explain how different structure-types are linked to different ways of ‘conceptualising’ the event that is being expressed. The cognitive approach of Langacker is actually very similar, but focuses on how events are conceptualised ‘mentally’ in the mind of the speaker. In my opinion, the functional accounts are more useful, because their descriptions are more straightforward. They appear to be well-grounded, while the cognitive description is rather vague and possibly confusing. It is easier to explain the structures that do (or do not) constitute a causative verb alternation in terms of action, causation, extension and instigation, than in terms of ‘conceptual paths’ and ‘energy flows’.

Figure 9: Nominative/accusative versus ergative/absolutive system (Langacker).

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**EVALUATION**
I introduced the theory of Davidse by saying that it was an “improvement” of Halliday’s description. By doing so, I already expressed my preference for her two models, namely ‘process and extension’ and ‘instigation of process’. Out of all the different frameworks that I have referred to, I believe that hers is the most comprehensible, coherent and consistent one. Davidse’s description of the transitive and ergative systems is able to account for a variety of clauses, even ones that other linguists considered to be problematic – such as pseudo-effective structures or the sit up paradigm, which is a combination of both models. Of course, I must also give credit to Halliday, for laying a foundation which has been extremely significant for all later linguists in the Functional tradition.

Now, what does Davidse’s functional account teach us about the causative verb alternation? As I did for the evaluation of Government & Binding, I will repeat our original examples, for reasons of convenience:

<table>
<thead>
<tr>
<th>causative verb alternation</th>
<th>no causative verb alternation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) The doctor healed their wounds.</td>
<td>(5) Father painted the fence.</td>
</tr>
<tr>
<td>(2) Their wounds healed.</td>
<td>(6) *The fence painted.</td>
</tr>
<tr>
<td>(3) The sun is melting the snow.</td>
<td>(7) Jane sneezed.</td>
</tr>
<tr>
<td>(4) The snow is melting.</td>
<td>(8) *The flowers sneezed Jane.</td>
</tr>
<tr>
<td>(9) The boys are playing hide-and-seek.</td>
<td>(10) The boys are playing.</td>
</tr>
</tbody>
</table>

Let us first analyse the pairs that DO participate in the alternation. In (1-2), *their wounds* [Medium] is a participant ‘engaged’ in the process of *healing*. This process may have been instigated by an external agent such as *the doctor* [Instigator], or could be taking place spontaneously – self-instigated by *the wounds* [Medium] themselves. Similarly in (3-4), *the snow* [Medium] is a participant ‘engaged’ in the process of *melting*. This process may have been instigated by an external agent such as *the sun* [Instigator], or could be taking place spontaneously – self-instigated by *the snow* [Medium] itself.

The description works a little bit better for (1-2) than it does for (3-4). Saying that snow is melting spontaneously or *because of the sun* basically means the same thing. Still, it should be clear that all these clauses belong to the ergative system, proposed by Davidse.
Let us now turn to the pairs that DO NOT participate in the alternation. In (5-6), father [Actor] ‘performs’ the action of painting. This process can then be extended on to the fence [Goal], which is said to be affected by it. In (7-8) we find Jane [Actor] who ‘performs’ the action of sneezing. This process cannot be extended on to something else. Finally, in (9-10) we find the boys [Actor] who are performing the action of playing. This process can then be pseudo-extended on to hide-and-seek [Range]. We call this a pseudo-extension because hide-and-seek is not actually something that is affected by the process that is taking place. To sum up, all these clauses belong to the transitive system, proposed by Davidse.

Some people might argue that example pair (7-8) can also be explained in terms of the ergative system. Jane is then seen as a participant [Medium] ‘engaged’ in the process of sneezing, which cannot be instigated by some external agent. The reason for this confusion, is the assumption that there has to be a connection between the ideas of the sun causing snow to melt and flowers causing someone to sneeze. This assumption is wrong, as illustrated by two simple tests. On the one hand, there is a [1] double do-probe for the ergative system: what the sun DID, was melt the snow and what the snow DID, was melt. This test clearly does not work for pair (7-8), as we can say that what Jane DID, was sneeze, but not that *what the flowers DID, was sneeze Jane. On the other hand, there is a test for finding out whether or not a certain participant is a Medium. [2] The nature of a Medium is usually altered after the process has taken place: snow is no longer snow after melting, a pipe no longer functions after bursting, hair is no longer the same colour after brightening, and so on. That is why we know that Jane is not a Medium, as we cannot say that her nature has been drastically altered, after performing the simple act of sneezing.

So what did we learn after analysing our original examples? For one, the two models proposed by Davidse were able to provide a satisfactory description for every clause. Even the somewhat difficult pair (7-8) could be easily explained, after introducing two very simple tests. Therefore, this analysis should justify the claim that I made earlier: Davidse’s description is comprehensible, coherent and consistent. Secondly, we saw that the pairs belonging to the ergative system allow the alternation, while the pairs belonging to the transitive system do not. This finding is crucial for understanding the causative verb alternation. We can finally explain why certain verbs can participate, while others cannot: Verbs allowing the causative verb alternation represent processes that can be instigated both INTERNALLY (by the engaged participant) and EXTERNALLY (by an external agent figure).
Before we move on to the topic of phrasal verbs, I will recapitulate what we have seen so far in a short summary of the main theoretical aspects concerning the causative verb alternation.

2.4 Summary

This research paper aims to investigate verbs that are able to participate in the causative verb alternation. Since we are only interested in cases where the same morphological verb is used, we will refer to them as ‘labile verbs’. As illustrated below, these verbs can occur in both one and two-participant structures. The most crucial feature, however, is that the subject of the one-participant clause and the object of the two-participant clause have the same lexical content or refer to the same entities. Evidently, not all English verbs are labile.

\[
\begin{array}{ll}
\text{(causative verb alternation)} & \text{(no causative verb alternation)} \\
2 \text{ P} & \text{The doctor healed their wounds.} & \text{Father painted the fence.} \\
1 \text{ P} & \text{Their wounds healed.} & *\text{The fence painted.} \\
\end{array}
\]

This particular phenomenon has been described in many different ways, by linguists from different traditions, often using a distinct terminology. The main reason for this multitude of approaches, is that many scholars argue that there is a connection with the typological notion of ergativity. As a result, many explain the alternation in terms of lexical ergativity, despite objections from several typologists. And because this concept is still somewhat problematic, I have decided to avoid the label ‘ergative’ for this particular investigation.

Another reason for this multitude of approaches, is that the frameworks that have attempted to explain lexical ergativity in English can be divided into two major groups. The tradition of Government & Binding focuses on syntax, providing diagnostic tests for classifying verb as either unaccusative or unergative. The Functional and Cognitive traditions, on the other hand, are more semantically inclined, proposing different event models that represent different ways of ‘conceptualising’ the event that is being expressed by the verb.

The key to explaining our alternation, appears to lie in semantic descriptions. The best theory, in my opinion, was provided by Davidse (1992). Her functional account based on earlier work by Halliday, teaches us that labile verbs are part of the ergative system. The main idea is that processes expressed by verbs that allow the causative verb alternation, can be instigated both internally (by the engaged participant itself) and externally (by some external agent figure).
3 Phrasal Labile Verbs: An Interesting Topic for Linguistic Research

Up to this point, we have been focusing on the notion of verb-lability. We know what labile verbs are and why they can participate in the causative verb alternation. But this study aims to investigate only labile verbs that are ‘phrasal’: verbs that co-occur with a particle, forming a single semantic unit. Therefore, it is time to draw phrasal verbs into the discussion. In this chapter I will explain why a diachronic investigation of phrasal labile verbs can be useful. To avoid confusion, I will refer to non-phrasal verbs as “simplex verbs” from now on.

3.1 Phrasal Labile Verbs

In this paper we already came across one instance of a phrasal labile verb. That was sit up, in example pair (39-40), where mother sat the baby up. We saw that it was an exceptional case however, since the baby is an Actor and not a Medium. For that reason, I will introduce some new examples:

(48) Proper treatment pulled him through.  
    He pulled through.

(49) I hope you can cheer those girls up.  
    I hope those girls cheer up.

(50) The invaders are burning down the church.  
    The church is burning down.

There are two observations that we can make. The first one is that the Medium of these verbs is sometimes a human being: him/he in example (48) and those girls in (49). For simplex labile verbs on the other hand, the Medium is usually an inanimate object: we talked about healing wounds, melting snow and so on. Another thing worth noting is that these verbs can also have a figurative meaning: he is not literally being pulled through something in example (48). For simplex labile verbs, this is usually not the case: wounds are ‘literally’ healing and snow is ‘literally’ melting. There are always exceptions of course, as one can jokingly say I am melting or The sun is melting me. Still, these two characteristics are associated more strongly with phrasal labile verbs. This does not mean that they apply to all of them, as in (50) where an inanimate object [the church] is literally burning down.
In this regard, phrasal labile verbs make an interesting topic for further linguistic research. They are associated with two characteristics – [1] the Medium can be a human being and [2] the process meaning can be figurative – that are not normally associated with simplex labile verbs. And apart from that, there is also another reason: they constitute a rather large subgroup of labile verbs. Depending on the criteria that are used, there are an estimated 500-700 simplex labile verbs, and some 200-300 phrasal labile verbs (McMillion 2006: 7). Such an amount is definitely worth closer examination.

3.2 The Impact of Phrasal Particles on Verb-Lability

One linguist who has already examined this topic in some more detail, is Cappelle (2005). In one section of his dissertation titled “Particle Patterns in English” – which is to be read as an extension of Construction Grammar – he is interested in verb-particle combinations [i.e. phrasal verbs] that allow the causative verb alternation (Cappelle 2005: 315).

Cappelle identifies certain patterns for verb-particle combinations, by analysing the ‘impact’ of the particle. In other words, how does the addition of a particle alter the behaviour of the simplex verb? For this analysis he describes two types of impact: semantic and grammatical. ‘Semantic impact’ means that the lexical meaning of the verb changes, after adding a particle. ‘Grammatical impact’ on the other hand, means that the addition of a particle changes verbal behaviour in terms of lability: a verb that used to allow the causative verb alternation no longer allows it, or the other way around (Cappelle 2005: 322). I will quote some of his examples below, to make the analysis more clear:

(51) He broke the cup. / The cup broke.  (323)  ≠ He broke down the door. / *The door broke down.
(52) We shrank the size considerably. / The size shrank considerably.  (326)  ≠ *Fear shrank him back from the battle. / He shrank back from the battle.
(53) They lined the troops. / *The troops lined.  (329)  = They lined the troops up. / The troops lined up.
(54) She healed the wound. / The wound healed.  (330)  = She healed the wound up. / The wound healed up.
In examples (51) and (52), the phrasal particle has a semantic impact. *Breaking a cup* means that it breaks into several pieces, whereas *breaking down a door* does not necessarily imply such a result. We do not observe any semantic changes in (53) and (54). *Lining the troops* for instance, has the same meaning as *lining up the troops*. In these cases, we say that the particle has had no semantic impact. Grammatical impact then, can be observed in the first three examples. While *break* (51) and *shrank* (52) both allow the causative verb alternation, their phrasal counterparts *break up* and *shrank back* no longer do. The former can no longer occur in one-participant structures, and the latter no longer in two-participant structures.

In (53) we find a similar change, but the other way around: while *line up* can participate, simplex counterpart *line* cannot. And finally in (54), there is no grammatical impact at all: both *heal* and *heal up* allow the alternation without any problems.

In the end, Cappelle’s analysis provides several patterns for verb-particle combinations. The most important aspect for us, is that phrasal particles seem to have an impact on the lability of simplex verbs: the addition of a particle can cause labile verbs to become non-labile, or the other way around. This raises some interesting questions: Why do particles have this power? Should the feature of lability be attributed to the verb or to the particle in these cases? In this light, there are even more reasons to examine phrasal labile verbs.

### 3.3 The Importance of Diachronic Research

The patterns identified by Cappelle only reflect the situation for present-day English. But it would be interesting to investigate them from a diachronic point of view as well. Evidently, phrasal verbs develop out of existing simplex verbs. And as demonstrated in the previous section, this process is often accompanied by changes in terms of verb-lability. By studying the nature of these changes through time, we might discover similar patterns for the way in which phrasal verbs originate.

As a matter of fact, many linguists have argued that diachronic research is just as important as synchronic research (McMillion 2006: 4), when it comes to lexical ergativity in English. These claims are mainly motivated by the so-called process of ‘ergativisation’. This term refers to the fact that “the number of labile verbs in English has steadily increased since the Old English period, unlike any of the sister Germanic languages” (McMillion 2006: abstract). And many of those newer labile verbs are phrasal, as illustrated by the following examples:
I can level up my character, because I have earned 5000 points.
My character levels up, because I have earned 5000 points.

The waiter sat us down at a table near the fireplace.
We sat down at a table near the fireplace.

Speakers can develop new phrasal labile verbs for different reasons. Sometimes in order to refer to new modern situations, such as level up (55) in the context of playing video games. But phrasal verbs that have been around for centuries can also develop a new ‘labile meaning’ for certain contexts, such as sit down in (56). This is another instance of the sit up paradigm, where the Actor is not in full control. It is usually the waiter who decides where you will sit.

We can conclude that a diachronic investigation of phrasal labile verbs would be useful for multiple reasons. Firstly, it is an interesting subgroup of labile verbs, as they are associated with two characteristics that are deemed exceptional for simplex labile verbs. Secondly, they constitute a rather large subgroup, as there are approximately 200-300 to be found in English. Moreover, this number seems to be increasing due to the ongoing process of ‘ergativisation’. And finally, scholars might discover patterns for the way in which phrasal verbs originate. As a result, the aim of this research paper is to construct an inventory of phrasal labile verbs, that could be useful for such linguistic research.
4 An Inventory of Phrasal Labile Verbs with up and down

This chapter addresses the construction of the inventory of phrasal labile verbs. The first two sections focus on methodology: the selection of verbs and the process of data collection. For the selection of verbs (§4.1), I consulted a list of ergative verbs taken from “Collins Cobuild Grammar Patterns. Vol. 1: Verbs.” (Francis e.a. 1996). Due to the limited scope of this paper, I decided to restrict myself to phrasal verbs with up and down. Next, in the section about data collection (§4.2), I explain the kind of data that was included in the inventory, and the way in which it was collected. All data was taken from the Oxford English Dictionary online.

After the methodological aspects have been discussed, I will present a small case study (§4.3). My objective is to find patterns for the way in which phrasal verbs originate. In order to do so, I have analysed the collected data with an application called “TimeFlow”. This is just to give an example of the kind of research that can be conducted with the inventory of phrasal labile verbs. As we will see, this one case study already offers some interesting results. And then we move on to the final section (§4.4), where I address the difficulties I have encountered, the limitations of the inventory and some observations concerning future research.

4.1 Selection of Verbs (with Cobuild)

Evidently, the first step in creating the inventory was making a selection of phrasal labile verbs. In the previous chapter, we learned that there are an estimated 200-300 to be found in the English language. To examine such an amount in great detail would take a lot of work. Therefore, I decided to investigate only verbs with the particles up and down. My selection of verbs for the inventory, is presented on the next page in figure 10.

The starting point for my selection was a list of ergative verbs taken from “Collins Cobuild Dictionary” (Francis e.a. 1996) [henceforth, Cobuild]. The fact that the authors use the term ‘ergative’ instead of ‘labile’, means that we have to be extra critical when consulting this list. In this regard, a critical analysis of Cobuild is presented in the remainder of this section: I will examine the criteria on which their classification is based, as well as the overall structure. As we will see, Cobuild has some shortcomings, but also many favourable aspects. So when consulted carefully, it can definitely serve as a decent source for projects such as this one.
The Criteria

First, we look at the criteria on which Cobuild has based its classification. In the introduction, the authors explain that ergative verbs all have the following features (Francis e.a. 1996: 474):

- It has two patterns.
- Only one of these patterns has a noun group following the verb [i.e. an Object].
- The person or thing indicated by that noun group may also be indicated by the Subject of the other pattern.

As illustrated by these features, their classification is loosely based on the causative verb alternation: the verbs have two patterns (i.e. they allow an alternation), and the same noun group can be expressed as both Subject and Object (i.e. the Subject of the one-participant clause refers to the same entity as the Object of the two-participant clause).

As a consequence, one might assume that the verbs listed in Cobuild are actually ‘labile’, despite the fact that the authors refer to them as ‘ergative’. Unfortunately, the situation is somewhat more complex. In order to illustrate, I quote two examples of ergative alternations taken directly from Cobuild (Francis e.a. 1996: 477-478):

| 01 | add up | 18 | clog up | 37 | match up | 56 | slow down |
| 02 | ball up | 19 | close down | 38 | open up | slow up |
| 03 | beam down | close up | 39 | perk up | 57 | sober up |
| 04 | block up | 20 | cool down | 40 | pile up | 58 | speed up |
| 05 | blow up | 21 | crease up | 41 | prick up | 59 | split up |
| 06 | bog down | 22 | crumple up | 42 | pull up | 60 | start up |
| 07 | boil down | 23 | double up | 43 | quiet down | 61 | stiffen up |
| 08 | break down | 24 | dry up | 44 | quieten down | 62 | strike up |
| 09 | break up | 25 | fill up | 45 | ratchet down | 63 | tense up |
| 10 | brew up | 26 | firm up | 46 | rain down | 64 | tip up |
| 11 | brighten up | 27 | fog up | 47 | rev up | 65 | trip up |
| 12 | bulk up | 28 | fold up | 48 | ruck up | 66 | turn up |
| 13 | bunch up | 29 | freeze up | 49 | screw up | 67 | wake up |
| 14 | burn down | 30 | fur up | 50 | sharpen up | 68 | waken up |
| 15 | calm down | 31 | hang up | 51 | show up | 69 | warm up |
| 16 | cheer up | 32 | jumble up | 52 | shut down | 70 | wear down |
| 17 | clear up | 33 | light up | 53 | sign up | 71 | wind down |
| 18 | clog up | 34 | line up | 54 | silt up | 72 | zip up |
| 19 | close down | 35 | liven up | 55 | slim down | 73 | |
Earlier on, we established that the causative verb alternation always implies a question of ‘instigation’. With a clause such as *The boat sailed up the river* (57) for example, we can ask if the process of *sailing* was instigated internally [because of the wind] or externally [because of some human agent]. However, this question does not apply to a clause such as *The chair folds flat* (58). The reason for this, is that the clause focuses on the fact that the chair possesses a certain quality: it can be *folded flat*. It does not express that the process of *folding* is actually taking place. And for that reason, we say that the question of instigation is not valid here: there is no process to be instigated. In other words, *fold* does not appear to be a ‘labile verb’, according to how the term has been defined throughout this paper. Still, Cobuild includes it as an ‘ergative verb’, because it meets the criteria proposed by the authors.

The main problem is that Cobuild attempts to include every verb that displays some type of ergative behaviour. But such verbs are not necessarily ‘labile’ in the true sense of the word. The classification of Cobuild is often considered to be too inclusive (McMillion 2006: 5), because it contains cases that are highly exceptional or downright problematic. And it is often in these instances that we get verbs that can no longer be considered labile.

In light of this complication, I revisited our selection of phrasal verbs, to determine whether or not they are truly labile. Fortunately, there do not appear to be any problems. As explained above, problems usually arise with ergative alternations that are considered to be exceptional or problematic. But most of our verbs allow basic types of alternations, where the question of instigation is most definitely valid. Therefore, we can rest assured that the phrasal verbs that we selected for our inventory are truly labile.

- The Structure

While Cobuild’s criteria may be considered somewhat problematic for our objective, the structure of their classification is actually very beneficial. The main reason for this, is the fact that they subdivide ergative verbs into general ‘meaning groups’, such as the *change* group, the *cook* group, the *open/close* group, and so on. For every group Cobuild also provides a general definition and some examples of possible alternations. A screenshot of the *divide* group is shown as an illustration, on the next page in figure 11:
As can be seen in the figure above, phrasal verbs are listed separately from simplex verbs in Cobuild’s list. This made it very easy for me to single out the verbs that I was interested in. But there is another reason why this division in meaning groups is so beneficial. To explain why, I introduce the following two examples:

(59) We broke the mirror. / The mirror broke.
(60) We broke the record. / *The record broke.

*Break is often mentioned as a prototypical labile verb. But if this is the case, then why does it allow the causative alternation only in one of these two examples? The explanation is that breaking a mirror (59) is not the same thing as breaking a record (60).

As a consequence, linguists agree that “it is particular senses of verbs that can be viewed as labile rather than the verb form” (McMillion 2006: 205). In other words, the verb form break is only labile in the particular sense of ‘literally breaking into several pieces’ such as in (59). Other, non-labile senses of the verb—such as ‘beating a record’ in example (60)—are not relevant to us. In this regard, McMillion states that the most optimal method for classifying labile verbs is a “sense enumeration approach” (ibid.). And this kind of semantic approach is exactly what Cobuild’s classification provides, through their use of ‘meaning groups’.
By subdividing the verbs into general meaning groups, the authors of Cobuild already indicate in which sense the verbs are considered to be labile. Furthermore, if a verb has multiple labile senses, it will be listed multiple times under different meaning groups. This semantic aspect will turn out to be of great help for the construction of our inventory.

In conclusion, Cobuild’s list has both positive and negative aspects. While the structure is very useful, the criteria may cause problems. Then again, every classification is bound to have its shortcomings with a phenomenon as complex as verb-lability. But since we consulted Cobuild in a critical way, we can be sure that our selection of phrasal labile verbs will be adequate for our investigation.

4.2 Data Collection

- Overview: What Data?

After the verbs had been selected, I could start gathering data. But what data does one need to investigate phrasal labile verbs diachronically? Let us quickly recapitulate the situation.

What we are interested in, is verbs that can occur in both one and two-participant structures. If we wish to examine them diachronically, we have to know when exactly the verb started displaying this behaviour. This means that we have to find the oldest occurrences of both one and two-participant structures for every single verb. Not only do we need to examine the phrasal verbs, we also have to consider their simplex counterparts. In this way, we can learn if and how verbal behaviour changed when the simplex verb developed into a phrasal one. At the same time, we must also take the aspect of ‘meaning’ into account, because it is particular senses of verbs that are considered to be labile, and not the verb forms themselves. And finally, we are also interested in additional information, like etymology or the question whether or not the verb meaning is figurative. By studying these variables, we may discover factors that have an impact on the verbal process of becoming labile (or becoming phrasal).

In short, we need a source that can provide the oldest occurrences of our selected verbs, as well as information on meaning and many other aspects. In this regard, I decided to use the online version of the Oxford English Dictionary (Oxford University Press, 2016. Web.). An extract of their entry for the verb close, is shown below in figure 12:
As demonstrated above, all the necessary information can be found in the Oxford English Dictionary online. Every entry provides several quotations for different senses of the verb. The dictionary also mentions if a certain sense is normally expressed by means of transitive or intransitive clauses. In that way, we can quickly locate one and two-participant structures. Even figurative senses are clearly marked in the OED, although this cannot be observed in the illustration. In any case, the dictionary appears to be a suitable source for our objective.
By consulting the Oxford English Dictionary online, I was able to find the oldest one and two-participant structures, for both phrasal and simplex variants, of all the verbs that I had selected – 72 in total. While doing so, the meaning groups proposed by Cobuild helped me identify the particular verb senses that I had to focus on. In this regard, the process of data collection was conducted by bringing these two sources together (i.e. OED and Cobuild).

- Structure of the Inventory

In this subsection, I will explain how the data (taken from the OED online) was incorporated into the inventory (for which I used a Microsoft Excel-file). Two screenshots can be found on the following two pages, in figures 13 and 14. As these screenshots illustrate, the inventory is quite big. Therefore, I will give an overview of its structure by going through all the columns of the Excel-file. One by one, I will explain the kind of data that they contain.

To make the Excel-file more organised and transparent, every one of the columns was given a certain colour. The following list indicates what the different colours mean:

- Grey: basic verb information (verb form; simplex versus phrasal; etc.)
- Yellow: OED data concerning occurrences (quotation; sense; date of occurrence; etc.)
- Red: additional OED data (etymology; literal versus figurative meaning; etc.)
- Green: values that were used for the case study (discussed in the next section)
- White: columns from when the inventory was still under construction (less important data; remarks added by my promotor; etc.)

**GREY columns** contain basic information about the verbs that are included in the inventory. First, every verb form receives an identification number (from 1 to 72) in the column “ID”. These numbers correspond to our original selection of verbs, presented earlier in figure 10. The verb form itself is then listed under “Verb”, while column “sim/up/down” indicates if we are talking about a simplex variant, or a phrasal one. And finally, the corresponding meaning groups from Cobuild’s classification are listed under “Cobuild group”.
Figure 13: Screenshot 1 of the Inventory of Phrasal Labile Verbs, in Microsoft Excel.
Figure 14: Screenshot 2 of the Inventory of Phrasal Labile Verbs, in Microsoft Excel.

<table>
<thead>
<tr>
<th>Column</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column 1</td>
<td>Data 1</td>
</tr>
<tr>
<td>Column 2</td>
<td>Data 2</td>
</tr>
<tr>
<td>Column 3</td>
<td>Data 3</td>
</tr>
<tr>
<td>Column 4</td>
<td>Data 4</td>
</tr>
</tbody>
</table>

...
**YELLOW columns** contain data (from the OED online) concerning the oldest occurrences of the verbs. The actual occurrences and their corresponding verb senses, are listed under “Quotation” and “Sense OED” respectively. These columns are located more to the right, because they contain qualitative data; that is to say, descriptive data that cannot be used for statistical analyses.

The columns that contain quantitative data (which is more useful for linguistic research) are located on the left side of the Excel-file. These are: “#Part”, which indicates if the quotation is a one or two-participant structure; “Date OED”, which indicates the date of occurrence; and “Sense”, which indicates whether or not different quotations (of the same verb form) have different senses. This last column allows us to spot quotations of the same verb sense more quickly.

**RED columns** contain additional information from the OED online. They represent factors that may or may not have an impact on the verbal processes that we wish to investigate. The column “Origin” indicates the etymology of the verb form: did it originate from a Roman or Germanic language, from a Celtic dialect, or in English itself? Under “Origin (form)” is listed out of which word class the English verb form developed. If it developed out of a noun or adjective (such as pile and sharpen respectively), the noun/adjective in question will be mentioned in the column “orig. noun or adj.”.

In “Semantic Group”, every verb form receives a very general semantic description: manipulation [+tool], time phase, weather/atmosphere, open-close, produce (+fill), etc. In this way, it can be seen as an alternative to Cobuild’s meaning groups. If the name of the verb form is somehow associated with the idea of ‘form’ (such as ball, line, pile…), or with the idea of ‘changing the form of something’ (such as burn, crease, fold…), the verb is given value “1” in the column “… + form?”. If not, it gets value “0”.

For phrasal variants, the column “Particle” indicates the meaning of the phrasal particle. We say the particle is ‘directional’ when it expresses the idea of upward/downward motion (as in rain down), while it is ‘intensifying’ when it expresses that a result has been obtained (as in wake up). And finally, the column “Lit./Fig.” indicates if we are dealing with a literal or figurative verb sense. If the verb sense is figurative, we also mention the literal sense out of which it developed, under “Fig. origin”.
46

**GREEN columns** contain information or values that were used for the case study. Therefore, they will be discussed later, in the next section.

**WHITE columns** contain information that is less important. Therefore, they are located to the far right of the Excel-file, so that they are somewhat out of sight. They represent earlier stages of the inventory (while it was still under construction), remarks that were added by myself or by my promotor, and information which I did not end up using for this project.

### 4.3 Case Study: Looking for Patterns (with TimeFlow)

The aim of this paper was to construct an inventory of phrasal labile verbs that could be used for diachronic research concerning verb-lability and the way in which phrasal verbs develop. Now that we have constructed such an inventory, it is time to demonstrate the kind of research that can be conducted with it. In this regard, the current chapter presents a small case study: the objective is to find patterns (in terms of verb-lability) for the way in which phrasal verbs originate. To determine whether such patterns actually exist, the data of the inventory will be analysed with an application called “TimeFlow”.

#### 4.3.1 INTRODUCING TIMEFLOW

The actual case study will be presented in the next subsection. But first, I wanted to take a moment to introduce TimeFlow. The application – of which the full name is TimeFlow Analytical Timeline – is a visualisation tool for temporal data. This means that we can project our inventory onto a timeline, making it easier to examine the data.

Evidently, the first step is to import the data from our Excel-file into the application. TimeFlow will then turn every row of the Excel-file (i.e. every occurrence/quotation) into a dot that is projected onto the timeline accordingly. In this context, it was necessary to give every occurrence a unique identification code. In this way, we can easily see which particular occurrences the dots represent. This identification code was added in the green column “Code”. Two examples of this code are shown below, as an illustration:

- shut-up-S02 | 1p = one-participant occurrence of shut up; for particular verb sense #2
- open-sim-S08 | 2p = two-participant occurrence of open; for particular verb sense #8

---

3 Created by Fernanda Viégas and Martin Wattenberg (Flowing Media, Inc.) and Sarah Cohen (Duke University).
The data is imported into the application, by simply copy-pasting the entire Excel-file. There is, however, one important intermediary step: we have to let TimeFlow know what kind of data every column contains. A screenshot of this step is shown below in figure 15:

![TimeFlow Screenshot](image-url)

**Figure 15:** Screenshot 1 of TimeFlow: importing the data into the application.

Before TimeFlow is able to create the timeline, we must indicate which field it is that contains data involving time. Therefore, we select the option ‘Date/Time’ for the column that we named “Date OED”; since it is here that all the dates of occurrence are listed.

When this is done, we can mark the other fields as well: we are going to select the option ‘Text’ for most of them. This means that TimeFlow will treat them as ‘descriptive data’, which is exactly what we want. And finally, there is also the option ‘Ignore Field’, which we can select for columns that we are not going to use, such as the white ones.
Immediately after the data is imported, TimeFlow presents us with the timeline. Initially, there is not much to see: just a cluster of blue dots hovering chaotically above the timeline. A screenshot of this situation is provided below in figure 16:

![Screenshot of TimeFlow timeline](image)

Figure 16: Screenshot 2 of TimeFlow: timeline, immediately after importing the data.

The real fun begins when we start adjusting the controls and settings. TimeFlow allows us to rearrange the dots in many different ways. We can change their label, give them certain colours, divide them into separate groups, or even make some of them disappear by using the filter-option. And when arranged accordingly, the dots may yield interesting results. To illustrate the range of possibilities, we will now discuss three additional screenshots.

For the first screenshot in figure 17 [on the next page], the dots were divided into three groups: simplex forms (red dots), phrasal forms with *up* (orange dots) and phrasal forms with *down* (green dots). While this is a fairly simple way of rearranging them, it already gives us some useful information. It teaches us that (labile) phrasal verbs started appearing in the English language around 1300, and that their number increased significantly during the 16th Century. I have marked these boundaries with two black lines, so that it would be easier to see. The screenshot also show us that phrasal verbs with *down* developed much later than forms with *up*. 
Figure 17: Screenshot 3 of TimeFlow: simplex vs phrasal up vs phrasal down.

Figure 18: Screenshot 4 of TimeFlow: focusing on five verbs in particular.
For the second screenshot in figure 18 [on the previous page], all but five verb forms had been filtered out. I chose them randomly: *add, warm, hang, liven* and *strike*. This allows us to examine these five verbs in some more detail. The red dots represent simplex forms, and the orange dots represent phrasal forms with *up*. Now, what can we learn from studying the behaviour of these verbs? In the first place, it shows a curious difference between *warm* and *hang*, two forms that have been part of the English language for over a thousand years. While *hang* developed into a phrasal verb relatively quickly, *warm* needed twice as much time to do so. Secondly, we also see that verbs which originated much later, such as *liven*, developed into phrasal verbs quite fast. I indicated these observations on the screenshot, by marking the distances with arrows.

For the final screenshot in figure 19 [on the next page], I decided to focus on two factors: the red columns named “Semantic Group” and “Particle”. The dots are divided into separate groups, according to the general semantic description that was attributed to the verb form. The colour of the dots, on the other hand, represents the meaning of the phrasal particle. In this way, we can investigate if there might be a correlation between these two factors. One can easily see that phrasal particles with a ‘directional meaning’ (indicated by blue dots) appear in only four of the sixteen semantic groups. In other words, this screenshot seems to suggest that verbs belonging to the semantic categories of “fill/empty”; “deformation”; “weather/atmosphere” and “movement/appearance”, are more likely to receive a ‘directional’ particle, than verbs belonging to any of the other groups. Evidently, further research would be needed to substantiate this claim.

As these three examples have illustrated, there is a lot that we can do with the application. TimeFlow allows us to observe all the occurrences at once, or we can choose to focus on a few cases in particular. In addition, it enables us to search for possible correlations between any of the two factors. Given the limited scope of this research paper, however, it would be impossible to investigate the full potential of the data. That is why I decided to examine only one research question: can we find evidence for the existence of diachronic patterns for phrasal verbs, by analysing the inventory with TimeFlow?
4.3.2 DIACHRONIC PATTERNS FOR PHRASAL VERBS

The case study presented in the current subsection, will be discussed in two parts. First, I propose some specific patterns for phrasal variants: taking only occurrences with up/down into account. Next, I propose some more general patterns for the verb forms in their entirety (i.e. based on all the occurrences). For each set of patterns, I will also discuss whether or not there are correlations with any of the other factors.

- Five Specific Patterns for Phrasal Variants

Since the foundation of our inventory was a selection of phrasal labile verbs, it should be interesting to investigate when exactly these phrasal variants became ‘labile’. For this objective, we need to examine all the occurrences of phrasal variants, and consider the distance between one and two-participant structures (of the same verb sense). In this way, we can see how long it took before the phrasal variant was able to occur in both structures. In other words: we will know how long it took before it could participate in a causative verb alternation. To make this somewhat more concrete, I will discuss hang up and boil down below as an example:
Figure 20: When did phrasal variants *hang up* and *boil down* become labile?

In figure 20 above, we are not interested in red dots, because they represent simplex variants. We only wish to focus on the phrasal ones, coloured in orange and green. Now, one can see that it took more than 250 years [as indicated by the arrow] before *hang up* could be used in both one and two-participant structures. *Boil down*, on the other hand, could instantly appear in both types. Therefore, we say that they represent different patterns for the way in which phrasal verbs become labile.

Normally, we should be able to conduct this analysis with all the phrasal variants that are included in the inventory. But there is one complication: not every phrasal variant has both one and two-participant occurrences. In the case of *block up* for instance [figure 21 below], the OED provides only two-participant occurrences and no one-participant ones. Because there is no PAIR OF 1P/2P-OCCURRENCES, there is no distance for us to consider, no arrow to draw. In this regard, I added the green column “Labile Pair” to the inventory: occurrences that form a 1P/2P-pair receive the value “1”, while occurrences that do not (such as the ones for *block up*) receive the value “0”. By doing this, TimeFlow was able to filter out these problematic occurrences, making it easier to conduct the analysis.
Another problem that arose, is that some phrasal variants have more than one 1P/2P-pair of occurrences. This can be illustrated by build up, in figure 22 on the previous page. For verb sense #1, it took over 300 years before build up could occur in both one and two-participant structures. For verb sense #3, on the other hand, it could instantly appear in both types. In other words, we are dealing with two different patterns for the same phrasal variant. For these particular cases, I decided to always focus on the first pair, because it is that one that indicates when the phrasal variant “truly became labile”. The fact that it developed another labile verb sense at a later time, is not really relevant here.

Now that I have explained the context and conditions of this analysis, I can finally propose my five specific patterns for phrasal variants. Note that pattern A is clearly the dominant one:

Pattern A: \[ \text{PHR} \ 2 = \text{PHR} \ 1 \]

= ONE and TWO-participant structures appear around the same time; in less than 100 years

- burn down; boil down; blow up; beam up; bog down; fill up; crease up; firm up; clear up; cool down; double up; close down; fur up; fog up; cheer up; perk up; match up; open up; line up; prick up; quieten down; liven up; slow down; ratchet up; shut down; slim down; rev up; rain down; silt up; ruck up; sign up; tense up; start up; zip up; wind down; wake up; wear down; strike up; warm up

Pattern B: \[ \text{PHR} \ 2 > \text{PHR} \ 1 \]

= TWO-participant structure appeared first; one-participant structure appears after +100 years

- ball up; break up; dry up; light up; split up; turn up;

Pattern C: \[ \text{PHR} \ 2 >> \text{PHR} \ 1 \]

= TWO-participant structure appeared first; one-participant structure appears after +200 years

- add up; burn up; build up; break down; crumple up; fold up; close up; pull up; pile up; hang up; show up; waken up; tip up;

Pattern D: \[ \text{PHR} \ 1 > \text{PHR} \ 2 \]

= ONE-participant structure appeared first; two-participant structure appears after +100 years

- brighten up

Pattern E: \[ \text{PHR} \ 1>> \text{PHR} \ 2 \]

= ONE-participant structure appeared first; two-participant structure appears after +200 years

- shut up
Figure 23: Illustration of the 5 Specific Patterns for Phrasal Variants.

(fog up, dry up, tip up, brighten up and shut up respectively)

Now that these five patterns have been proposed, we can investigate why it is that certain variants belong to certain patterns. Are there correlations with any of the other factors? In order to examine this, I added the green column “Phrasal Pattern” to the inventory: it lists the corresponding pattern for every phrasal variant. In this way, we can import the information into TimeFlow and search for possible correlations more efficiently.

As shown in figure 24 on the following page, there might be a correlation between the five ‘phrasal patterns’ and the origin of the verb form. In this screenshot, orange dots represent phrasal variants with the dominant pattern A (i.e. they became labile in less than 100 years). One can see that this pattern was attributed to 65% of the variants that are Germanic in origin, and to 87% of those that are Romanic. So while this pattern appears to be the dominant one in general, it is even more so for Romanic phrasal variants. In other words, our data seems to suggest that Romanic phrasal verbs need less time to become labile than Germanic ones.
Figure 24: “Phrasal Patterns” versus “Origin”.

- **GERMANIC**: Pattern A
  - 64/98 dots = 65.31%

- **ROMANIC**: Pattern A
  - 40/46 dots = 86.96%

Figure 25: “Phrasal Patterns” versus “Origin (Form)”.

- **VERB**: Pattern A
  - 36/66 dots = 54.55%

- **NOUN**: Pattern A
  - 36/42 dots = 85.71%

- **ADJECTIVE**: Pattern A
  - 34/42 dots = 80.95%
Figure 25 on the previous page, illustrates a possible correlation between the five patterns and the word class out of which the English verb form developed. As before, orange dots represent phrasal variants with pattern A. Here we see that this dominant pattern applies to 55% of the phrasal variants that were already verbal in nature, to 86% of those that developed out of a noun, and to 81% of those that developed out of an adjective. As such, it would appear that the phrasal verbs which originated out of a noun or adjective, became labile more quickly than the other ones.

And lastly, figure 26 below shows a possible correlation between the five patterns and the two particles. Once more, orange dots represent phrasal variants with pattern A. One can observe that this patterns was attributed to all but four phrasal variants with the particle *down*. For variants with the particle *up*, however, there is more variation. In this regard, it seems that phrasal variants with down tend to become labile faster than those with *up*.

**up**: Pattern A

| 72/114 dots | = 63.16 % |

**down**: Pattern A

| 32/36 dots | = 88.89 % |

Figure 26: “Phrasal Patterns” versus “up/down”.
In sum, with our inventory and the application TimeFlow, I was able to propose five patterns for the way in which phrasal verbs became labile. One of these patterns is quite dominant, and suggests that most phrasal verbs became labile within 100 years after they first appeared. Moreover, there are three factors that might have influenced this process: it appears to have happened faster for phrasal verbs that [a] are Romanic in origin, [b] developed out of a noun or adjective, [c] have the phrasal particle *down*. Further research would be needed, of course, to provide more evidence for these claims.

- Nine General Patterns for Phrasal Verbs

The first set of patterns that was proposed, was limited to the situation for phrasal variants. We only examined “how long it took” for them to become labile. But now I wish to present some more general patterns, that capture the development of the verb forms in their entirety. This means that we are drawing simplex variants into the discussion as well, and that we are interested in some additional questions:

*Did the two variants become labile around the same time, or at different moments?*  
*If they became labile at different moments,) which variant became labile first?*  
*If (initially) one variant was not labile, did it become labile in the end?*

In short, we want to explore the relationship between:

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the moment in which the simplex variant became labile  
and  
the moment in which the phrasal variant became labile
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The reason that I am discussing this aspect in such an explicit and schematic way, is that these general patterns are a lot more complex than the previous ones. So by making their foundation abundantly clear, I hope that they will not confuse the reader. For the same reason, the nine patterns (A to I) have been divided into smaller groups: [A-B-C], [D-E], [F-G] and [H-I]. They are presented below, along with their description and an example, one group at a time:

| Pattern A: | SIM 1 → PHR 1  
SIM 2 → PHR 2 |
| Pattern B: | SIM 2 / → PHR 1  
/ → PHR 2 |
| Pattern C: | SIM 1 = PHR 1  
SIM 2 = PHR 2 |
A = simplex labile variant develops a phrasal labile variant after quite some time
B = simplex non-labile variant develops a phrasal labile variant after quite some time
C = simplex labile variant and phrasal labile variant originate around the same time

A → calm, trip, sharpen, quiet, bog, brew, dry, boil, fur, waken, strike, speed, beam, ratchet, brighten, liven, wake, wear, warm, double, freeze, burn down, stiffen, loosen, slow, rain, cool, close down, turn, clear, shut down, open
B → cheer, clog, prick, wind, add
C → silt, jumble, zip, screw, rev

Figure 27: Illustration of General Patterns A B and C (waken, prick and rev respectively).

D and E = simplex variant is initially non-labile, but becomes labile around the same time that it develops a phrasal labile variant

D → quieten, ruck, tense, fill, firm, fog, sober, crease, line, slim
E → bunch, sign, perk
Pattern D: 
\[\text{line} \quad \rightarrow \quad \text{SIM 1} \quad \rightarrow \quad \text{SIM 2} = \quad \text{PHR 1} \quad \text{PHR 2}\]

Pattern E: 
\[\text{bunch} \quad \rightarrow \quad \text{SIM 1} \quad \rightarrow \quad \text{SIM 2} = \quad \text{PHR 1} \quad \text{PHR 2}\]

Figure 28: Illustration of General Patterns D and E (line and bunch respectively).

Pattern F: 
\[\text{light} \quad \rightarrow \quad \text{SIM 1} \quad \rightarrow \quad / \quad \rightarrow \quad \text{PHR 2} \quad \rightarrow \quad \text{PHR 1} \quad \text{PHR 2}\]

Pattern G: 
\[\text{start} \quad \rightarrow \quad \text{SIM 1} \quad \rightarrow \quad \text{PHR 1} \quad \rightarrow \quad / \quad \rightarrow \quad \text{PHR 1} \quad \text{PHR 2}\]

Figure 29: Illustration of General Patterns F and G (light and start respectively).

F and G = simplex labile variant develops a phrasal non-labile phrasal variant; quite some time later the phrasal variant becomes labile as well.

F \(\rightarrow\) ball, show, tip, hang, light, break, burn up, fold, close up, split, match, blow
G \(\rightarrow\) shut up, start
Some of the individual patterns are quite similar to one another. The only difference between patterns D and E, for example, is the question whether a certain variant had one or two participants at a non-labile stage. The same is true for patterns F and G. As such, the nine patterns may be reduced to seven, or even less.

In any case, the most dominant pattern is A. This means that the “general development path” for phrasal labile verbs can be described as follows: the simplex variant became labile first, and quite some time later it developed a phrasal variant that was instantly labile.
As we did earlier for the other set, we can now investigate if there are factors that correlate with these nine patterns. Why is it that certain verb forms have different development paths? In order to look for possible correlations with TimeFlow, I listed the new information under the green column “Develop. Pattern” in the Excel-file.

I also added a second column called “Develop. Pattern 2”, because I conducted the analysis twice. The second time, I left out some particular verbs for which the attribution of a general pattern could be considered as problematic. But in the end, the results of the two analyses were the same. Therefore, I will only present the results of the first one, which included all the verb forms.

Firstly, there might be a correlation between the development path of a phrasal labile verb, and the word class out of which the English verb form originated. As shown in the screenshot in figure 31 below, 66.67% of the phrasal labile verbs that originated out of an adjective, belong to the dominant pattern A – as indicated by the orange dots. For those that originated out of a noun or that were already verbal in nature, the percentages are considerably smaller. Our data seems to suggest that phrasal labile verbs which originated out of an adjective, are more likely to have the (dominant) general development path, than those which originated in another way.

Figure 31: “Development Pattern” versus “Origin (Form)”.

Verb: Pattern A
12/30 dots = 40 %

Noun: Pattern A
6/22 dots = 27.27 %

Adjective: Pattern A
14/21 dots = 66.67 %
A second and final correlation that might exist, is between the development path and the semantic feature “+form/–form” that we attributed to the verb forms. An illustration is provided in figure 32 above. For phrasal labile verbs whose name is somehow associated with the idea of ‘form’ (e.g. ball, line, pile…), or with the idea of ‘changing the form of something’ (e.g. burn, crease, fold…), only 28.57% belongs to pattern A – again, represented by orange dots. For verb forms with no such association however, this percentage is 49.06%. As such, it would appear that phrasal labile verbs with the feature “–form” are more likely to have the (dominant) general development path, than the ones with the feature “+form”.

To sum up, we found nine patterns for the general development path of phrasal labile verbs. Most of them developed a phrasal variant that became labile rather quickly, quite some time after the simplex variant had become labile. Many of the verbs that belong to this dominant pattern, originated out of adjectives. Verbs that are associated with the idea of ‘form’ however, tend to belong to other patterns – although this correlation is the weakest one that has been suggested in this case study. In any case, further research is required to examine the validity of these claims.
Afterthoughts

After the presentation of this small case study, we can conclude that the inventory of phrasal labile verbs turned out to be quite useful – at least, in combination with an application such as TimeFlow. Twice we were able to discover a set of patterns for the behaviour of these verbs, and twice there appeared to be correlations with some of the other factors. Evidently, these results are merely suggestions. A much bigger corpus (with many more quotations) would be needed to test the validity of the proposed patterns and correlations. Yet, our data seems to suggest that we can be optimistic. And so, though the inventory alone is not enough, it still serves as a decent starting point for diachronic research concerning phrasal verbs and verb-lability.

4.4 Difficulties and Limitations

The construction of the inventory was not an easy task. There were several difficulties along the way, and decisions were made that may have had a significant impact on the data. Therefore, this section addresses the limitations of the study, as well as aspects that should be taken into account for future research.

The first step was making a selection of phrasal labile verbs, for which we used a list of ergative verbs provided by Cobuild’s dictionary. We already learned that their classification is considered to be too inclusive, when we analysed the clause *The chair folds flat* in example (58). Still, I decided to use it, because it also had some beneficial aspects. Moreover, with a phenomenon as complex as ergativity, there is no such thing as a perfect classification. This idea has also been expressed by McMillion, who writes that “previous lists of these verbs, e.g. the CCGPV’s list of ergative verbs [i.e. Cobuild], failed to adequately define and apply semantic criteria in the compilation of these verbs.” (McMillion 2006: 203).

A second limitation regarding the selection of verbs, is that we only considered the particles *up* and *down*. If one wishes to adequately examine the behaviour of phrasal labile verbs, one should include all 200-300 forms in the inventory. Due to the limited scope of this paper, that was not possible here. But it would be very interesting for future research: the analyses of our case study could be repeated with these additional verbs. If the results are different, we might have to discard the patterns and correlations that were proposed here.
The second step was the process of data collection, for which I consulted the Oxford English Dictionary online. This was quite difficult, as I had to discover the relevant [i.e. labile] senses for every one of the 72 verb forms. And since the identification of the right senses directly determined which quotations were added to the inventory, this was a highly important aspect. Now, some verbs that are very common in English – such as break, open, pull, etc. – have more than fifty different verb senses according to the OED. It was not always easy to find the sense that matched the ‘general definition’ provided by Cobuild. Another difficulty arose for newer verb forms, such as beam up. These forms have not yet been adequately defined by the OED, and therefore their senses are still somewhat vague. Conducting research that involves ‘lexical meaning’ is always tricky work.

Once the right verb sense had been discovered, I had to find the oldest occurrences of both one and two-participant structures. But for certain verb forms, this was easier said than done. We already mentioned that for some verbs, the OED only provides one type of structure: for block up, for instance, there are only two-participant quotations and no one-participant ones. Another difficulty, is that older verb forms – such as burn, dry and warm – have quotations in Old or Middle English. This makes it harder to determine the number of participants. And finally, the OED might put you on the wrong track. Sometimes they state that a certain sense is only found in one type of structure, when the quotations show that it is possible for the two types. In short, the search for the oldest occurrences had to be carried out very carefully.

While the Oxford English Dictionary online was a decent starting point for a small study like this one, it is not a corpus in the true sense of the word. Future research concerning the behaviour of phrasal labile verbs should be conducted with a “real” corpus that contains many more occurrences.

And lastly, there are some limitations to the case study that was presented. Evidently, since it was based on a limited amount of (questionable) data, the results should be considered as hypotheses. Both the proposed patterns and their correlations require further investigation. Other linguists may propose a different number of patterns, for instance, by describing them in different ways. Or they may point out that the correlations – some of which are actually not that strong – are simply incorrect. In any case, the purpose of this small case study was just to give an example of the kind of research that can be conducted with the inventory. Whether the results are useful or not, is a question for another time.
The goal of this research paper was to construct an inventory of phrasal labile verbs that can be used for diachronic linguistic research. I believe that this objective has been achieved. As demonstrated by our small case study, the collected data can be used as a point of departure for future research. We were able to propose two sets of patterns for the way in which these verbs develop, as well as possible correlations with additional factors. Other linguists may now test the validity of these proposals.

And finally, to conclude this study, I will briefly summarise the results of our case study. With the first set of patterns, we learned that most ‘phrasal labile verbs’ became labile within 100 years after the phrasal variant first appeared. Next, the second set of patterns suggested that the “general development path” for these verbs can be described as follows: quite some time after the simplex variant had become labile, these verbs developed a phrasal variant that became labile relatively quickly.
6 Bibliography


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