THE PENNSYLVANIA STATE UNIVERSITY
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DEPARTMENT OF LINGUISTICS

The Decomposition of Particle and Prefix Verbs in German: through the Lens of Distributed Morphology

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ABSTRACT

Verbs in German have varying syntactic properties. It is known that verbs with prefixes either separate or remain unseparated. A major question is how similar these verbs are as they are decomposed. What is it that blocks morpheme realization when these verbs form participles? After the analysis of multiple verbs, the framework of Distributed Morphology shows that there are certain syntactic and/or semantic features of prefixes that determine how these participles are formed. This study analyzes verbs with separable and inseparable prefixes, examining their properties from their smallest meaning bearing units to their fully composed participles. The analysis shows that there is a semantic relation between inseparable prefixes and shows that there is a strong connection between separable prefixes and prepositions. These semantic features are the key to understanding the decomposition of inseparable prefix verbs. Knowing the link between prepositions and separable prefixes is also crucial to understanding *p* elements as a whole.

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Chapter 1

Introduction

German is a West Germanic language spoken in Germany, Austria, Switzerland, Liechtenstein, and parts of Belgium. This language stems from the Germanic language family, which also includes English, Dutch, Danish, Swedish, and Norwegian. Each of these languages uses verbs to express the action of a sentence. Sometimes, affixes are added to verbs that change the meaning. This is generally done by using prefixes or suffixes added to the beginning or the end of the verb respectively. What this thesis focuses on is the decomposition of verbs in German. Specifically, it will address 2 main questions:

1) To what extent do verbs with separable and inseparable prefixes in German differ from one another?

2) How can the blocking of "ge-" prefixes in inseparable prefixes be accounted for in a systematic and predictable way?

Participles in German are formed using the prefix "ge-" and one of two suffixes, "-t" or "-en." However, there are instances where the "ge-" prefix is blocked. Examining this leads to more information on the semantics and syntax of verbs as a whole. These prefixes and particles can describe how verbs are constructed in German and the type of information carried by prefixes.

Distributed Morphology was used to outline a general pattern for prefix blockage, and it appears that historical semantics plays a role in the composition of verbs. Currently, looking at decomposition through the framework of Distributed Morphology, verbs act a certain way when

being built in the grammar. The way verbs decompose depend on the type of prefix that adjoins to the base verb. In this study, multiple verbs with separable and inseparable prefixes were analyzed and decomposed to form a general idea of why the “ge-” prefix is blocked.

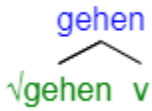
Chapter 2

Particle Verbs in German

German has 4 main types of verbs: base verbs, separable prefix verbs, inseparable prefix verbs, and borrowed verbs. The focus of this paper will be on separable and inseparable prefix verbs. Due to the nature of German morphosyntax, the realization of the participles of these particle verbs differs.

The main component of these particle verbs are the roots. David Embick defines roots as "the members of the open-class vocabulary of a language" (Embick 41). Roots, represented by "√," are the part of the concept that cannot be broken down further, such as "√gehen" or "√suchen." The following is an example of how verbs are created from roots.

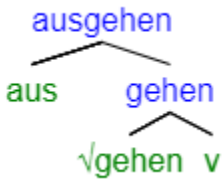
Figure 1: A basic derivation



The little v represents a categorizing head, which represents the common parts of speech such as nouns, verbs, and prepositions. Categorizing heads are important in that they adjoin to roots to give them syntactic categories in order for them to be used by the syntax engine to form clauses.

The prefixes then attach to the root to form the verb itself. This is important but will be discussed in more detail later. An example of a simple prefixed verb tree is as follows. Roots are important in that they are the base of words, however there are no features to them that tie them to any specific semantic meaning, but that will be discussed in more detail later.

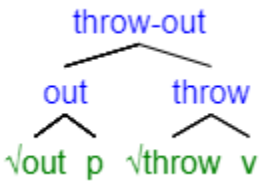
Figure 2: Attaching a prefix



It is uncertain whether this falls under the category of "syntax" or "morphology." Zeller (2001) states that the argument of the verb is related to syntax, however the building of the verb itself is not, therefore that must be related to morphology.

Separable and inseparable prefix verbs, both types fall under the category of "particle verbs." According to McIntyre (2015), these particles generally have preposition-like elements. An example in in German would be "wegwerfen" (to throw out). In English, the particle would be "out", which itself is a preposition, as shown in the following tree:

Figure 3: Properties of prefixes



In the sentence "I threw the trash out" one sees that the particle does not necessarily have to be verb adjacent. However, it is still possible for this, such as the sentence "I threw out the trash." Syntactically speaking, either sentence is grammatical. McIntyre (2015) also regards particles as complementless prepositions, in that there is not an object following the preposition. It is important to note that all prepositions are NOT particles. German acts much like English, in that there is a root verb combined with a particle that form a new semantic unit. Dehe (2015)

states that in German, it is possible for particles to be preverbal or postverbal, depending on the syntax of the sentence. For example, German is generally a V2 language, meaning the verb always comes in second position after the subject, prepositional phrase, or whichever syntactic unit comes first in the sentence. Note that subordinate clauses have an OV structure rather than VO. Particles are postverbal when the verb is in second position, however all other cases have the particle attached to the root verb. This applies only to separable prefix verbs, however. An example of a postverbal particle taken from McIntyre (2015) can be seen in the following sentence:

1. "Ich warf den Müll weg"
   I threw the trash away.
   'I threw the trash away'

where "warf" is the root verb (from the infinitive wegwerfen) and "weg" is the particle. In other sentences where the root verb is not in second position, the particle and root are adjoined, such as another sentence from McIntyre (2015):

2. Ich habe den Müll weggeworfen.
   I have the trash away-prefix-thrown-suffix.
   'I threw out the trash.'

The "ge" between the particle and root is a morpheme that signifies the perfect tense, which is the focus of this analysis, the decomposition of particle verbs in the perfect tense.

When these separable prefix verbs appear syntactically in the main clauses of present tense sentences, the prefix is moved to the end of the clause, leaving just the verb stem in the second position. By this rule, a separable prefix verb such as "ausgehen" becomes "gehen (stem) … aus (prefix)." This can be seen in action in the sentence:

3. Ich gehe morgen aus.
   I go tomorrow out
   'I'm going out tomorrow'

Inseparable prefix verbs are conjugated, but the prefix does not detach, as the name implies. For a verb such as "entgehen," the resulting conjugation is "entgehen" instead of separating out to form "gehen (stem)…ent (prefix)." So, an example of "entgehen" in a sentence would be,

4. Ich entgehe meine Schreibaufgabe.
   I ignore my essay
   'I'm avoiding my essay.'

Note how the sentence is not

5. *Ich gehe meine Schreibaufgabe ent.
   I go my essay (particle)
   'I avoid my essay'

Morphologically, there is an underlying difference between these types of verbs.

Inseparable prefix verbs in German are one of two types of verbs that do not use the "ge" prefix. The other type is borrowed verbs, which are identifiable by the ending "-ieren" rather than the usual "-en" or "-n" that most verbs use. These "-ieren" verbs are borrowed into the German language from other languages, with a majority coming from French. An example of an "-ieren" verb is "akzeptieren" (to accept). The past participle of this verb is "akzeptiert." Note the inclusion of the "-t" affix but the lack of the "ge-" prefix. From a Distributed Morphology point of view, these verbs are decomposed similarly, and there is something that blocks the presence of the "ge-"when the verb is realized in its phonological form.

One of the main differences between these two types of verbs is how they form participles in the past tense. Verbs without prefixes in German use one of 2 circumfixes, "ge-

(verb stem)-t" or "ge-(verb stem)-en." Separable prefix verbs adjoin to the front of the participle, so "ausgehen" (with "aus" being the prefix) becomes

6. "aus-ge-gang-en."
   Out-prefix-go-suffix

In this case, the prefix "aus" appears before "gegangen," the participle. However, inseparable prefix verbs do not have the "ge" prefix in the participle, which is seen with the verb "entgehen." The root of the verb is the same as "ausgehen," but the prefix "ent" is inseparable. The participle of this verb is "ent-gangen," which noticeably lacks the "ge" morpheme. The question remains: Why does the "ge-" prefix not appear in the past participles of inseparable prefix verbs?

What exactly is blocking the full circumfix? The true culprit blocking the realization of the "ge-" could include prosody or syllable structure, phonological environments, and underlying semantic meaning. Why is the blocking occurring and how can it be accounted for? What are the general patterns?

Chapter 3

Distributed Morphology: A Summary

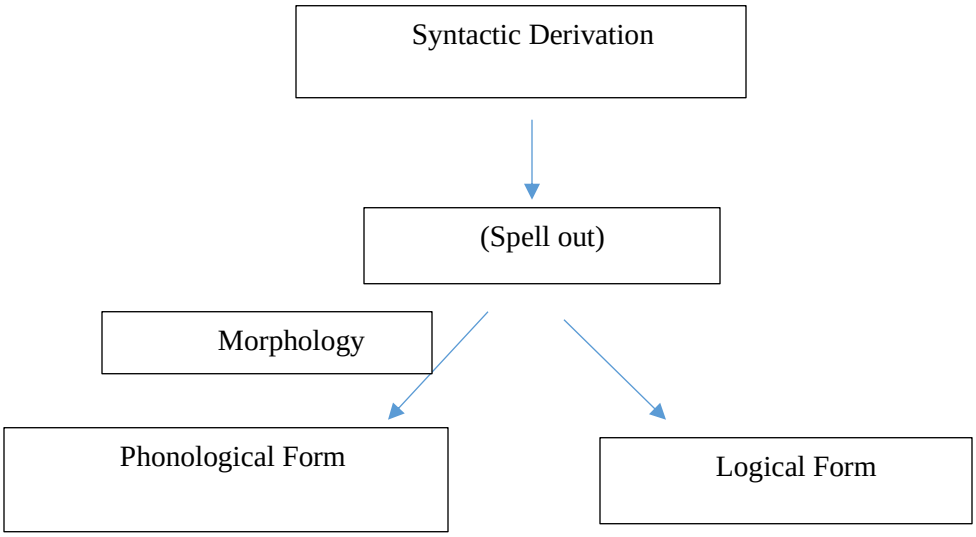
In the remainder of this theory, I couch my analysis of these empirical phenomena in the framework known as Distributed Morphology (DM). Many innovations in this field came from Halle and Marantz (1993) and Marantz (1997). This framework is essentially explaining how the morphological processes are distributed throughout both the syntax and phonology. In terms of syntax, this framework represents word building with the same processes as sentence formation, where parts of words, whether they be phonemes, morphemes, or any other information carrying units, are adjoined together to form one item that carries meaning. According to Morris Halle and Alec Marantz (1994), base units of words are known either as “roots” or “vocabulary items”. Like Chomsky’s Minimalist model of syntax, there are terminal nodes that appear when diagramming word building as well as functional projections.

To look at these verbs and the idea of decomposition as a while from the viewpoint of DM, the framework must be introduced. This framework is essentially explaining how the morphological processes are distributed throughout both the syntax and phonology. In terms of syntax, this framework represents word building with the same processes as sentence formation. According to Morris Halle and Alec Marantz, base units of words are known either as “roots” or “vocabulary items” as opposed to other theories, which call these units “morphemes” or “lexical entries” (Halle and Marantz 1994). Regardless of which theory you abide by these units appear as “terminal nodes” when represented in a tree. In addition to roots, there are functional morphemes that are also considered terminal nodes. Embick describes these functional morphemes as made up of syntacticosemantic features, or synsem features (Embick 7). Synsem

features are any features of a vocabulary item that have some sort of semantic interpretation such as [tense], [gender] or [number], as opposed to phonological features, which include [labial] and [voiced] (Embick 2015). In The Handbook of Linguistics and Communication Science, Heidi Harley describes that there is only one "generative engine" in DM that drives both morphological and phrase structures (Maienborn et al 2012). David Embick and Rolf Noyer also note that this framework is a "non-lexicalist" perspective meaning that the syntactic operations can be applied to not simply just words, but word subparts as well, in this case, roots and prefixes.

The most important thing about DM is the fact that morphology is not tied to a single grammatical component. There are many processes that occur at various parts of grammar. DM uses a modified version of the minimalist "Y Model" in which the morphological processes are applied throughout the entire derivational process from the syntax, through spell-out, and into phonological form, the sounds represented by the sentence (Abdullahi Muhammad, 2019). The basic structure of the minimalist Y-Model, taken from Embick and Noyer (2007), is as follows,

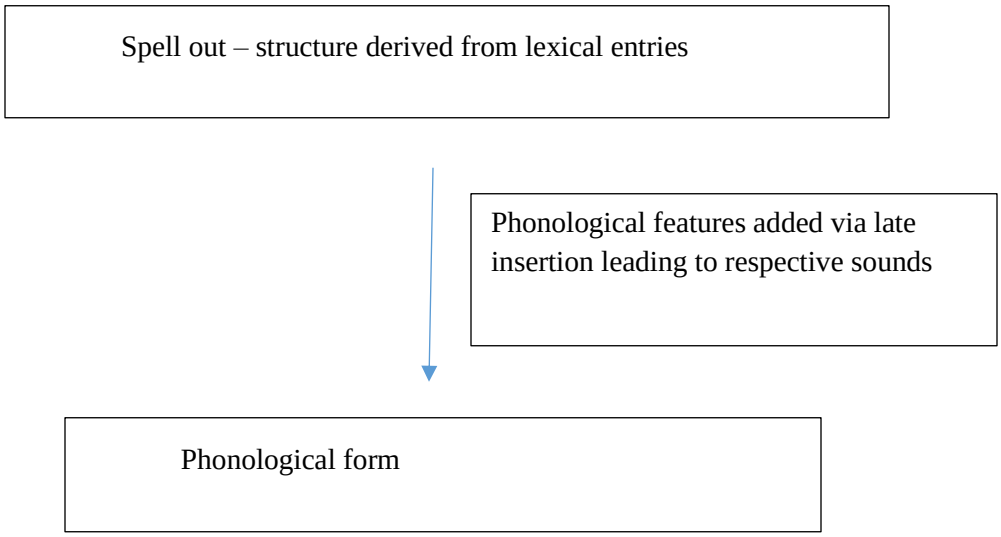
Figure 4: Y-Model



Abdullahi Muhammad also states that the “morphology” and its processes that are used in a DM sense occur both during the syntactic derivation as well as post-syntactic operations such as lowering, linearization, impoverishment, and vocabulary insertion (Harley, 2013).

Embick (2015) states that the core positions of DM are its non-lexicalist point of view, in that words are built before they are stored in the mind. Its piece-based morphology viewpoint, where each piece must be arranged in a hierarchical structure. Its late insertion idea, where certain morphemes obtain phonological material solely in the Phonological Form (PF) through vocabulary insertion.

Figure 5: Phonological feature insertion



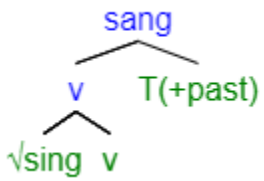
Phonological form is the node of the grammar in which sounds are applied to the syntactic units built in the derivation. Note, vocabulary insertion is when phonological content to syntactic nodes. Finally, there is the idea of full decomposition, which states that complex objects must be derived by the grammar of a language.

Another important note about DM is that its architecture allows for words and clauses to be constructed from one central "engine" (Marantz 1997). As brought up by Harley (2010), both words and phrases use combinatory processes to build larger units, whether the larger units be vocabulary items or whole sentences.

Dave Embick describes these "morphemes" as having features called syntacticosemantic, or synsem, features, such as person and number. These items are known as "functional morphemes." Items without these features are known as roots, which are represented by "√." Roots are the vocabulary items that are sent off to syntactic and phonological processes to be further interpreted. Most importantly, roots cannot be broken down further (Embick 2015).

DM is a decompositional viewpoint in terms of morphology. Complex objects (objects made of more than one morpheme) undergo a process known as full decomposition. Full decomposition as described by Embick (2015) states that no complex objects are stored in memory; i.e., every complex object must be derived by grammar (Embick, 2015). For example, Embick explains that the word "sing" is derived from the root √sing and the synsem feature [+past]. The following figure is a derivation illustrated in Embick (2015):

Figure 6: Synsem feature addition



Note: Each v should be v and the parenthesis should be brackets around T[+past]

According to this derivation, the root must connect to the v head to create a verb. The T[+past] morpheme is representative of the change in stem. Embick (2015) states that syntactic derivation is the only way to represent the decomposition.

As shown in the derivation of "sang", Embick (2015) shows that there are functional heads that exist in DM that assign certain functional categories to roots. These functional categories represent different parts of speech such as noun and verb.

With regards to synsem features, Embick (2015) states that each feature bundle is generally binary, in that the feature is either + or – such as plurality, [±pl] where [-pl] is singular and [+pl] is plural. For example, the word "cats" is represented by [+pl, -s] in that the "-s" is what is assigning plurality to the word "cat."

This model is being used for the purpose of seeing exactly how these particle verbs are composed. Breaking down the verbs is necessary to determine what information is truly being carried, whether that be aspect, eventuality, or other similar grammatical features. After being able to break down these roots into their fundamental parts, it becomes much easier to see the function of roots and particles.

Chapter 4

Analysis

The unique morphological properties of particle verbs in German are strange in many ways, including the possible non-realization of the “ge-” morpheme in certain contexts. There are a wide range of possibilities as to exactly why this blocking occurs, including prosody or syllable structure, semantics, and phonological environments. It is also possible that the “ge-” morpheme was never adjoined to begin with. When it comes to this phenomenon, there is plenty more to examine and learn about. Further analysis will show when exactly the “ge-” morpheme appears in German verbs. From there, morphological structure will be analyzed to show whether the particles are blocked or if they ever existed in the underlying form of the verb in the first place.

Table 1: Verbs used for analysis

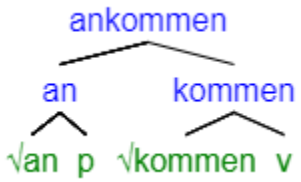
Prefix	Stem
ent-	kommen
zer-	stören
ver-	geben
an-	kommen
aus-	rufen
mit-	kommen

The separable prefixes, as stated previously, are strongly tied to prepositions. The particles in the verbs from table 1 that are separable also double as prepositions on their own. Therefore, a conclusion can be drawn where a *p* categorizing head may be more than just a categorizer. The

prefixes likely are derived from prepositions, which is why separation is possible and similar types of arguments are taken by these verbs.

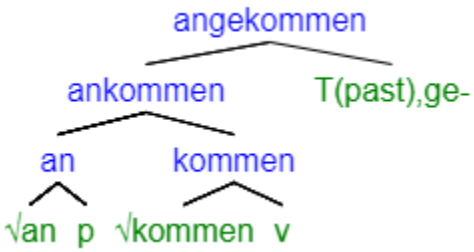
A tree to show how separable prefix verbs are built can look like this:

Figure 7: Separable prefix verb tree



And the particle formation like this:

Figure 8: Separable prefix participle formation

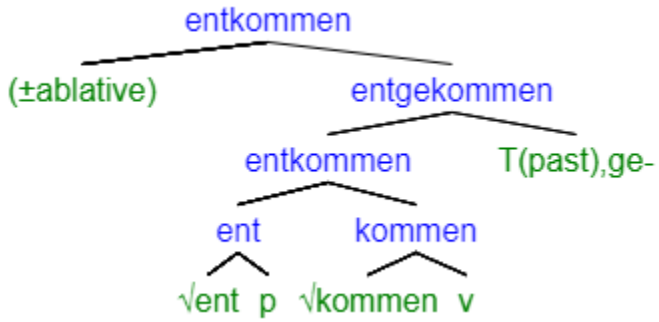


When looking at the inseparable prefix verbs entkommen, besuchen, and vergeben, there is a similar semantic meaning behind these particles. “Ent-” carries the general idea of removal or motion away from something. “Ver-” has the idea of going away and opposition. “Zer-” generally conveys the idea of something being destroyed or put “into pieces.” It can be assumed that this negation and motion away is something that historically had some significance and possibly has its own synsem feature that causes the blockage of the “ge-” prefix. By this logic, the features carried by these prefixes, which for now can be called [±opposition] and [±ablative]. These prefixes in their modern form seem to have evolved semantically to being somewhat

opaque. However, it is very possible that the historical meaning is tied to the ablative case, which indicated motion away, however this is uncertain. More research would need to be done.

A tree based on this analysis could look like this:

Figure 9: Proposed inseparable prefix participle formation



Chapter 5

Conclusion and Future Steps

Based on the analysis, it appears as though this is only the beginning of understanding how these types of verbs truly function. DM shows that the blockage of the "ge-" morpheme is at least partially due to the semantic features of the inseparable prefixes. The semantics of the inseparable prefixes relate to movement away from something or the general idea of opposition. Therefore, it can be assumed that the meaning of these particles historically affected the morphology of the verbs.

Separable prefixes and their relation to prepositions is also very important in that the particles were either derived from prepositions or vice-versa. The syntactic similarities between the two must be further examined before any concrete conclusions can be drawn.

The questions presented in this paper can be taken further by examining similar languages such as Dutch or Afrikaans, given that the languages are both West Germanic, much like German. Dutch has a similar "ge-" blocking, however the conditions in which the "ge-" is blocked slightly differs from German. There is also work to be done comparing prepositions and separable prefixes, which could lead to insights about the synsem features of the prefixes themselves.

This is scratching the surface of the importance of *p* elements in understanding how they affect syntax and semantics. In general, they also need to be analyzed more to determine if they carry information to begin with, or if *p* is only a categorizing head.

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ACADEMIC VITA

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Education

The Pennsylvania State University **University Park, Pennsylvania**
Schreyer Honors College
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- French and Francophone Studies
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French major was a concentration in linguistics. Took German linguistics courses as well as two graduate level courses. Courses in linguistics include Syntax I, Phonology I, Morphology I, French Phonology, French Syntax, History of the German Language, Semantics, Language and Thought, L1 Acquisition, and Anthropological Linguistics.

Honors Thesis (tentative title): The Decomposition of Particle and Prefix Verbs in German: a Through the lens of Distributed Morphology

Research/Tutoring Experience

Speech Perception Research **Nijmegen, The Netherlands**
Radboud University *May 2019-June 2019*

Designed a research project with the assistance of Dr. Matthew Carlson. Recorded stimuli to be used during the experiment. Learned to use Praat to manipulate vowel frequencies. Ran participants in The Netherlands to collect data. Gave small presentations to lab groups at Radboud University.

Thesis Research **University Park, Pennsylvania**
The Pennsylvania State University *April 2020-July 2021*

Developed topic for honors thesis with Professor Dr. Michael Putnam. Gathered data from Dutch and German verbs and analyzed morphological and phonological environments of participles. Determined underlying structures of these verbs.

Tutoring **University Park, Pennsylvania**
The Pennsylvania State University – Morgan Academic Center

Tutored athletes in French, German, and math. Helped student athletes with grammar concepts that were difficult as well as assist in memorizing vocabulary. Math was specialized in algebra, assisted in interpreting functions and reading graphs.

Presentations

Research Presentation at Penn State University Center for Language Science *January 2020*

"Acoustic vs lexical processing when perceiving difficult L2 phonetic contrasts: a view from perceptual learning"

Presented findings from a research project conducted abroad during the summer of 2019. The purpose of the project was to see how L2 learners of English perceive an ambiguous sound in a foreign accent. Analyzed how Dutch L1 learners perceive different vowel sounds, some that are easy to distinguish (E - I) and some that are hard to distinguish (æ - ɛ) by manipulating 2 talkers' voices and vowels.

Fellowships & Grants

PIRE Grant *May 2019*

Was chosen to receive funding for a research project through Partnerships for International Research and Education (PIRE). This grant recognizes the value of international partnerships in addressing critical science and engineering questions, the National Science Foundation (NSF) established the Partnerships in International Research and Education (PIRE) program in 2005. PIRE is an NSF-wide program that supports international activities across all NSF supported disciplines.

Honors & Awards

Schreyer Honors College Student *January 2019*

Took honors courses at Penn State University to be admitted into The Schreyer Honors College. Must write honors thesis before graduation.

Paterno Fellow *January 2019*

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