

# **Morphological Knowledge of Derivational Suffixes by Dutch L2 learners of English, an Experimental Approach**

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## Chapter 1: Introduction

The ability and process of acquiring a second language is a heavily discussed topic in linguistic research. The definition of second language acquisition (SLA) does not always specifically mean the second language a person learns. For example, balanced bilinguals acquire two languages during their regular first language acquisition period and could therefore acquire a third language through SLA processes. The notion to SLA is taken here to become applicable once a child matures to a certain biological stage, at which language acquisition no longer is consistent and effortless. Lenneberg (1967) coined the term *critical period* (CP) for this maturation period of successful language acquisition. It is still around in linguistics as a highly useful notion to approach issues of second language acquisition, but it is not uncontroversial nowadays. For example, Bley-Vroman's (1989) notion of *fundamental difference hypothesis* explains that first and second language acquisition are two completely different processes, which makes the notion of CP obsolete in SLA. The critical period hypothesis states that language must be acquired before the onset of puberty in order to avoid biological constraints. Internationally, and especially in the Dutch situation discussed in this thesis, second languages usually are learned in middle school, during and after puberty and thus beyond the critical period.

The theoretical framework of generative grammar will be the theoretical basis of this research. Following Chomsky (1965) and more recent studies/work, it is assumed that first language acquisition processes are aided by Universal Grammar (UG). This is an inborn ability that identifies and constrains language grammar. This innate ability occurs identically across different languages and under "varying circumstances and in a limited amount of time" (Guasti 4). Two types of constraints are assumed to occur in UG: (1) *Principles* and (2) *Parameters*. Principles are constraints that all languages have in

common, while parameters are language specific constraints that could be either present or absent. When combining this approach with the notion of the CP, which is often done, the following can be stated: When beyond the critical period the same biologically constrained devices used for first language acquisition (i.e. UG) are not accessible anymore, then the issue of second language acquisition emerges: does SLA take place in the same manner as first language acquisition is assumed to proceed?

An obvious prerequisite for the study of second language acquisition in this framework, or in fact any framework, is that of data collection. The purpose of this thesis is to make a contribution here, in the area of morphology, or – more specifically – morphology-phonology interaction (the ‘Morphology-Phonology Interface’) as envisaged, within the generative framework, in the Theory of lexical Phonology and Morphology (Kiparsky 1982). A striking feature of (English) second language education programmes in the Dutch setting, a feature I have in fact experienced myself, is the limited way in which they address morphological issues, i.e. the limited way they deal with *word formation*. The English courses which I personally encountered in elementary school and, more extensively, in secondary school, were largely composed of word lists and texts. Not very much attention is given to the different affixes of English and their function and meaning. In general, the curricula contain descriptions of the rules concerning various inflectional suffixes, e.g. –ed and –s for past tense and pluralisation, including the usual lists of strong verbs and irregular nouns. No instruction takes place, on the other hand, regarding derivational suffixes such as the nominal –ation or the adjectival suffix –al. The main aspects of the English curriculum that I received in secondary school were grammar and vocabulary. This indicates that morphological knowledge must have been acquired in a ‘natural’ and innate manner, as if UG were still applicable. This is an assumption that has doubt casted upon it in most frameworks of acquisition, and especially the generative one.

Since affixation is a very wide spectrum to investigate, and since inflectional suffixes are at least partially present in (Dutch) second language acquisition curricula, the focus of this thesis will be on derivational suffixation. An experimental approach is taken to determine whether Dutch L2 learners, beyond the CP are capable of assigning correct derivational suffixes to stems in the target language, i.e. English in this case. In doing so, I hope to encounter data that would grant more insight on the learning process of second language morphology during and after the Critical Period.

Data relevant to this investigation will be acquired through a series of tests, varying from a fill-in-the-blanks test, to a multiple-choice test to a grammaticality judgement test. The chapters are organised as follows. Chapter two will cover the theoretical background regarding the Lexicon. The notion of Lexical Phonology and Morphology will be explained in chapter three. The tests will be specified more elaborately in chapter four. The subject groups will be familiarised in chapter five. The results will be divided across the three subsequent chapters. A conclusion to this investigation will be drawn in chapter ten. The goal of this thesis is to examine how well second language speakers of English can identify, produce and choose English suffixes. Different age groups are used to document age related performance differences and, if present, improvements.

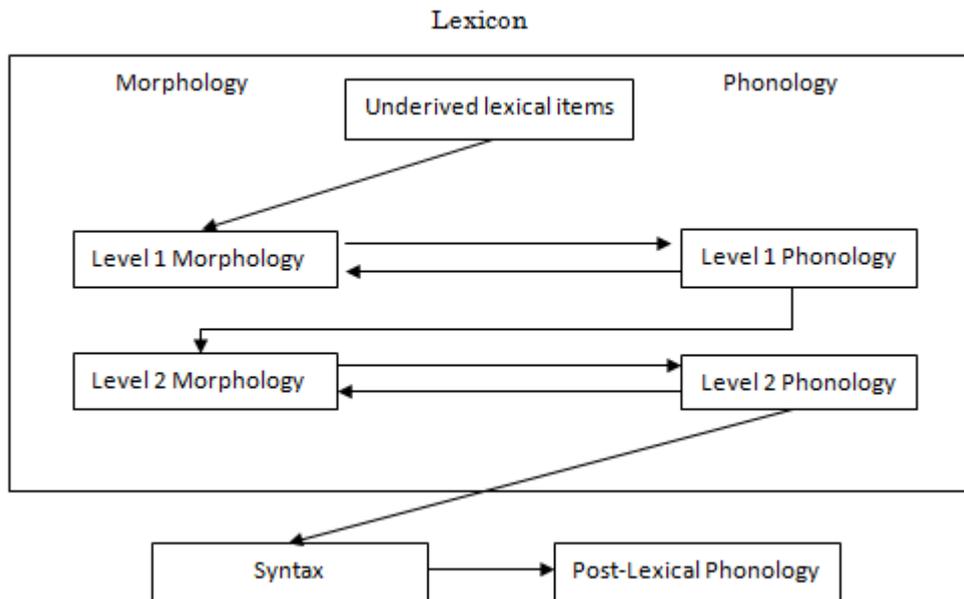
## **Chapter 2: The lexicon**

The accustomed definition of the Lexicon is described as a list of words, which represents a speaker's word-knowledge in a certain language. Words are stored in the lexicon in their raw or "lexical" form. Two types of words are present in the lexicon: (1) derived and (2) underived. Underived words are morphologically simple, due to their standalone word structure as they consist of a single morpheme. There are ample examples of

underived words, e.g.: “quick,” “spin,” or “strength.” These words are present inside the lexicon as a whole and are not dissected to smaller units, unlike the other type of words present in the lexicon: derivatives. As the name suggests, derivatives are words derived from at least two morphemes. These words are formed inside the lexicon by morphological rules. Suffixation is one of the morphological rules that create derived words. For example, the adjective “comfortable” is also listed in the lexicon. It derives from the noun “comfort” and the suffix –able (both also listed in the lexicon). Morphologically and phonologically complex words can also be formed. For example, the noun “explanation” derives from the verb “explain” and the suffix –ation. “Explain” then loses its diphthong once combined with this suffix. As the above examples also show, syntactic category of a word changes to the category of the suffix. So together with the lexical items, the lexicon also has morphological and phonological rules that govern it.

### **Chapter 3: Lexical phonology**

To extend the theory regarding suffixes, Kiparsky’s (1982) notion of lexical phonology is explained. This is a relevant theory that explains the linguistic rules applied at derivational suffixation. The lexical phonology and morphology theory explains how phonological and morphological rules of suffixes are active in the Lexicon. This is known as Kiparsky’s *Lexical Phonology and Morphology* theory. The claim is that word-formation occurs regularly in the lexicon and is directly affiliated with phonological rules. Additionally, a hierarchical structure of different “levels” of phonological and morphological rules is implemented in the lexical phonology model:



*Katamba's (1989) model of the Lexicon, adapted from Kiparsky's lexical phonology (1982).*

According to the model above, composition of word stems and suffixation occurs in the lexicon in a fixed order. Words stems stream through “level 1” morphology and phonology, then proceeds to “level 2” morphology and phonology before interacting with the syntactic and post-lexical phonology rules. Katamba (1989) states that “level 1” suffixes, or sensitive suffixes, are exclusively semantically unintelligible, have inconsistent phonological effects and their application is unpredictable.(258-62) “Level 2” suffixes, on the other hand, could be both free and bound, “have fewer exceptions and their phonological effects and their semantic properties are more predictable” (269). For example, the “level 1” suffix *-ity* could partially delete a stem when attached, though not consistently (e.g. *anonymous* becomes *anonymity*, while *elastic* maintains its complete stem when changed to *elasticity*). “Level 2” morphemes, on the other hand, do not alter the stem at affixation.

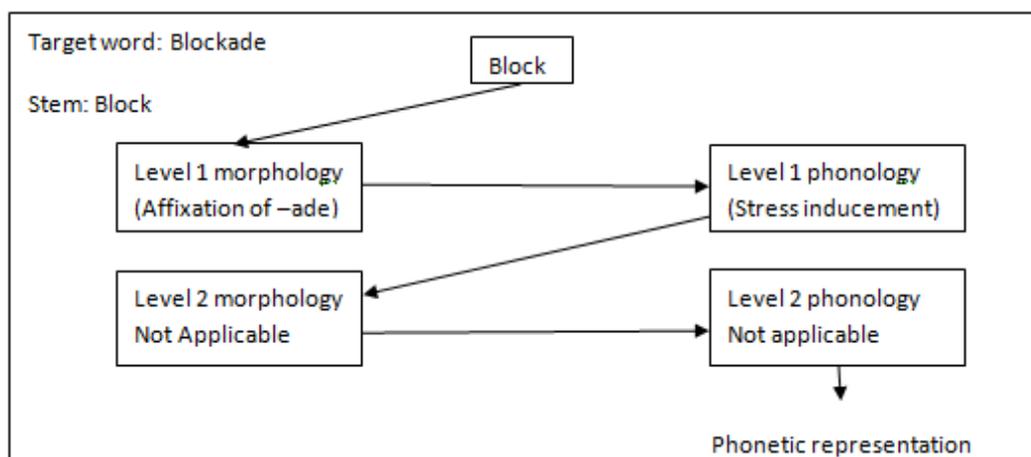
Distinction would appear between “level 1” (also described as stress-sensitive or non-neutral) and “level 2” affixes (also known as (stress) neutral), when processing derivational suffixes in Kiparsky’s lexical phonology model. The list below contains

examples of neutral and non-neutral suffixes in English, sourced from literature by Kiparsky (1982), Tyler (1986), Katamba (1989) and Kreidler (2008):

Level 1 suffixes (non-neutral)	Level 2 suffixes (neutral)
-ity	-able
-(a)tion	-ful
-ic	-ly
-ade	-ance
-ify	-ment
-ive	-ness

The notion of stress is added to these suffixes as they either defy the ‘regular’ stress pattern or obey it. Level 1 suffixes obey stress rules and are hence sensitive to them. For example, when *solid* is attached with the suffix –ify to form *solidify*, stress is appointed *after* the word formation. Level 2 suffixes, on the other hand, preserve the stress of the word they are attached to. For example, *serious* and *seriousness* have main stress on the same syllable. Their suffix’ morphological form is therefore applied *after* the application of word stress. The example below shows how phonology and morphology are connected at “level 1” word formation.

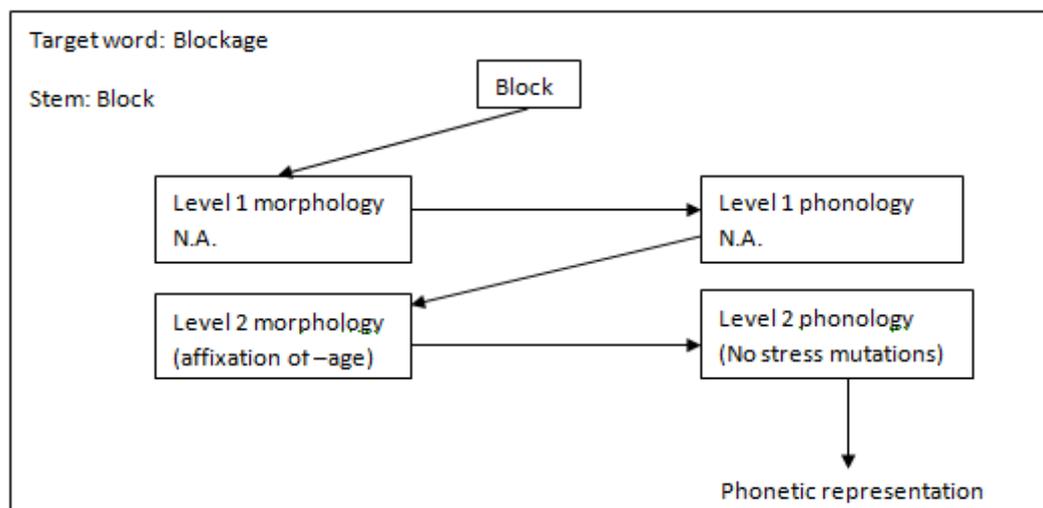
#### Example A



Example A shows that the non-neutral suffix –ade is added, which is followed by the phonological rule that shifts main stress towards the last syllable. Phonology and

morphology seem to interact directly with each other, as the model shows. This would mean that not only morphological rules, but also phonological rules need to be acquired by L2 learners. Since morphological and phonological rules were applied in the first level, rules in the second level were made obsolete and did not affect the final representation. A different example, which contains a “level 2” suffix is shown below:

Example (B)



The different suffix type (level 2 opposed to level 1) is unaffected by phonological rules in the upper tier, as “level 2” phonology is applied instead of “level 1”. The phonological rules affiliated with the morphological rules in “level 1” are not consistent, unlike the rules in “level 2”. For example, the non-neutral suffix *-al* could induce stress on various syllables, depending of syllable count and weight (e.g. *uni'versal* opposed to *me'dicina*). While other non-neutral suffixes, such as *-ity*, always create stress on the second syllable preceding them (e.g. *plas'ticity*, *elec'tricity*, *'chastity* and so on). This would suggest that rules to form neutral suffixes should be “easier” to learn, as they are more straightforward than rules in “level 1”. This is also the general claim of lexical phonology.

## Chapter 4: Methodology

As announced in the Introduction, a test is used with the aim of assessing English derivational suffixation competence of Dutch L2 learners of English. The test consists of three parts: (1) a fill-in-the-blanks (FITB) test, (2) a multiple choices (MC) test and (3) a grammaticality judgment (GJ) test.

### *(1) Fill-in-the-blanks.*

In this part of the test thirteen sentences are presented, which contain a total of fifteen blanks. Each blank is preceded by a bracketed stem of a word that needs suffixation to become grammatical in the context of the sentence. The subjects need to fill in blanks inside the sentences. For example: “My (attend)\_\_\_\_\_ at class is below par.” To perform the test correctly, the subjects need to know that the noun *attendance* should be placed in the blank spot. This will require grammatical knowledge to identify the blank in the sentence as a noun. Additionally, morphological knowledge needs to be present to apply the proper suffixation needed. This type of test is adapted to measure competence of proper suffix placement, which emerges from lexical and grammatical knowledge.

### *(2) Multiple Choices fill-in-the-blanks, with nonsense words.*

The second part of the test consists of six sentences, with a blank each. The possible responses to these blanks are presented in multiple choices. The subjects have to choose which word suits the sentence gaps best. The difference between the first and second part does not only lie in the multi-choice answering method, but also in the usage of non-existing words as responses. For example: “Apple made a surprising \_\_\_ during their presentation today.” The possible responses are *sweagity*, *sweagance*, *sweagious*, *sweagive*, and maybe others. The grammatically correct answers would be *sweagity* and *sweagance*, as both are nouns. In order to respond correctly, the subjects must recognise the syntactic categories needed in the blanks, and also correct syntactic information of the suffixes is required. All the stems offered have a shape conforming to English

phonology, which means that the morphologically complex output words *could* be English words. Since the stems are made up, no data of them is present in the Lexicon. The information of these structured responses could therefore only be retrieved from the suffixes. The suffixes, in this case, determine word class and the level morphological and phonological ruling. This test will measure the suffix knowledge on its own, without any possible interference from misinterpreted stems. Additionally, this testing method would identify if there is any preference or superior competence to either neutral or non-neutral suffixes.

### (3) Grammaticality judgement.

The third part of the test is a grammaticality judgement that consists of seven sentences, for which the subjects have to determine whether each sentence is grammatical. For an ungrammatical sentence, the error needs to be pointed out without the necessity of providing the correct answer. Five of the seven sentences incorporate incorrect or incomplete suffixation and the remaining two sentences are correct. The grammaticality judgement is included to investigate whether L2 learners might distinguish their judgements between the different suffix types. For example, neutral suffixes might be judged grammatical more often than non-neutral suffixes, due to their more simple morphological and phonological rules.

The tests described in this chapter will be used, as described in the Introduction, to see whether L2 learners of English are able to assign correct suffixes during and after the Critical Period. The research conducted in this paper will try to determine whether there is any development at second language learners' morphological knowledge after the onset of puberty. The test not only measures English linguistic competence of Dutch speakers, but it also studies whether there is development in English suffixation knowledge. To see whether this happens, several age and education groups have

participated in this test. There are a total of four groups. Three of them are English second language learners, and one is a control group of native speakers of English.

## Chapter 5: Subjects

There are four groups of subjects, if sorted by age, and six groups if sorted by proficiency. The first group consists of two sub-groups: 27 students of second grade Havo (Dutch middle school) and 25 students of second grade Atheneum (Also middle school, though considered higher education than Havo). The second group consists of 39 students of fifth grade Havo. The third group consists of 28 college/university students, of which 15 are students of English. The last group is a control group of 10 native speakers of English. All the subjects, except the native control group, are learning or have learned English as a second language. The group of second grade pupils have an average age of 13.1 and are arguably still in their critical period. They will act as the predecessors of the next group, the fifth grade pupils. These subjects have a mean age of 16.5 and are therefore, according to the contemporary SLA theories, no longer in their CP. The third group, the college students, have had more formal education than their predecessors. They consist of two sub-groups: (1) Students of English and (2) students of anything but English. Group (1) have had English linguistics courses and near-native English proficiency courses that will notably distinguish them from group (2). They will therefore be investigated separately. The reason why these groups are chosen is because they share a similar educational path, thus their data represent the acquisition process from secondary school till college. The remaining subjects are native speakers of English, which will act as a control group.

The first group, which consists of second grade middle school pupils, will also be divided between the Havo and Atheneum class. Despite their higher level of education, it should not be presumed that the Atheneum class is obviously better than the Havo class.

As prior to their current academic year (the second year in secondary school), these pupils should have received the same level of education: elementary school and the first year of (Havo and Atheneum) secondary school. The proficiency of the English courses at these levels is standardised nationwide. This would therefore implicate that there should be no significant difference in morphological competence between the two groups.

However, these two groups will also be analysed separately in case of any peculiarities.

The fifth grade group have experienced three years of English courses more than the second graders. Because of this, their lexicon and grammar is expected to be more advanced than the second graders. The non-English students have different educational backgrounds, though they are currently studying at Dutch universities. It is expected that this group acts as Dutch adult speakers of English that have not had full time education in English, but only the few English courses during their college education and the courses in secondary school. Their results are also expected to have more errors than the English students and the native speakers of English. The English students also act as Adult L2 learners. However, due to their intensive education of English language and linguistics, they are expected to be errorless or near-errorless at the tests. The analysis will begin at the youngest subjects and will end with a full analysis of all the subjects compared.

The students and the native speakers participated by taking an online version of the test, while the middle school pupils engaged in a 'paper' version of the test. The native speakers and college students were approached through social media websites such as Facebook, as it seemed more convenient and time efficient than assessing them in personal. The secondary school pupils, on the other hand, were not accessible through social media and required a more face-to-face approach. Data collection from the two secondary school groups was made possible with the help of two teachers of a secondary

school. Personal guidance at the moment of examination was also needed to aid the pupils through the tests.

## Chapter 6: Results

The following chapters will contain the results to the tests and the analyses of them. The groups will be analysed by age, starting at the youngest and finishing at the oldest subjects. Additionally, each group will be compared to their preceding age group. This way, possible performance increase can be spotted more easily. Each chapter will start off with raw results and tables of the tests. Following these results, a subchapter will cover the interpretation of the results in accordance to the paper's goals.

## Chapter 7: Second graders results

### Results

The results of both second grade classes are first analysed as one single collection of data, and later evaluated separately. The first part of the test, which is the FITB test, is performed poorly by the second grade pupils, with a high amount of errors. Table 1 shows the percentage of correct answers, the standard deviation and the mean between words containing stress sensitive and stress neutral suffixes:

N=52		Std. Dev.	Mean
Correct answers total	46.7%	9.79	24.3
Correct answers stress sensitive suffixes	44.2%	12.07	26.2
Correct answers stress neutral suffixes	50.3%	5.27	23.0

*Table 1: Second Grade results on Part 1 of the test.*

These results combine those of nine stress sensitive suffixes and six neutral suffixes. The subjects seem to perform slightly worse at answers that require stress sensitive suffixes than those for stress neutral suffixes. Additionally, the standard deviation shows that stress sensitive suffixes have higher score variation between them than stress neutral

suffixes. Table 2 below shows that the word that received the most correct answers is a word with the stress sensitive suffix *-ation*.

		Stress-sensitive/neutral
Concentration	78.8%	<i>Sensitive</i>
Logical	67.3%	<i>Sensitive</i>
Comfortable	65.4%	Neutral
Helpful	59.6%	Neutral
Activity	59.6%	<i>Sensitive</i>

*Table 2: Top five correct answers by second grade pupils.*

These results can be interpreted as showing little difference between performances at the two suffix types. This is also shown by the worst scoring words, in which both neutral and non-neutral suffixes are present.

		Stress-sensitive/neutral
Purify	7.7%	Sensitive
Blockade	21.1%	Sensitive
Agility	25.0%	Sensitive
Failure	38.5%	Neutral
Entertainment	44.2%	Neutral

*Table 3: Top five incorrect answers by Second Grade subjects.*

The table above shows that a large majority of the subjects failed to correctly add the suffix *-ify* to the given *pure*. Not only is the suffix non-neutral, it also is the only verbal suffix in the list. Additionally, unlike table 2, table 3 shows no adjectival suffixes.

Additional to the rates of correct responses and the indication of stress, the next table shows the Dutch translations to the English words and suffixes. According to Goss et al (1994) three strategies are used by second language learners when making grammaticality judgements (GJ): 1. Translating the sentence, 2. Applying learned grammatical knowledge and 3. "Gut" usage.(qtd. In Kaplan and Davies 185) Despite this part of the test being a FITB procedure and not a GJ test, one can argue that the FITB

test is partially a GJ. The difference is that GJ tests do not point out where the errors are, while FITB tests do. Keeping this in mind, the translation of the lexical items could therefore provide data to support this thesis' goals.

The table below shows the translations of the words and any possible Dutch equivalents to the suffixes. Furthermore, words that have a semantically intelligible match in Dutch are highlighted.

<i>Target word</i>	<i>Translation</i>	<i>Suffix transl.</i>	<i>Score</i>	<i>Suffix-type</i>
Concentration	Concentratie	-tie	78.8%	Sensitive
Logical	Logisch	-aal/eel	67.3%	Sensitive
Comfortable	Comfortabel	-abel	65.4%	Neutral
Activity	Activiteit	-teit	59.6%	Sensitive
Helpful	Behulpzaam	-vol	59.6%	Neutral
Alcoholic	Alcoholist	-sch	53.8%	Sensitive
Easily	Gemakkelijk	-	48.1%	Neutral
Importance	Belang	-	46.1%	Neutral
Universal	Universeel	-aal/eel	44.2%	Sensitive
Entertainment <sup>1</sup>	Vermaak/Entertainment	-ment	44.2%	Neutral
Invention	Uitvinding	-tie	40.4%	Sensitive
Failure	Falen/Storing	-	38.5%	Neutral
Agility	Behendigheid	-teit	25.0%	Sensitive
Blockade	Blokkade	-ade	21.1%	Sensitive
Purify	Verzuiveren	-	7.7%	Sensitive

*Table 4: Word and suffix translation.*

Ranked from best scoring to worst scoring word, this list shows how many per cent of the 52 second grade pupils have answered with the correct suffix to the given stem. The best scoring answers are dominated by words that have Dutch counterparts. The subjects clearly seem to find it more difficult to provide the correct suffix, once the Dutch translations do not resemble the English words. The table also shows the Dutch derivational suffix equivalents of the English suffixes. This is added to see if the presence of a similar derivational suffix in Dutch words might 'aid' the subject in choosing the correct English (derivational) morpheme. Notably, English suffixes without

<sup>1</sup>Entertainment is also a loanword in Dutch.

Dutch equivalents seem to cause difficulty. However, the relation between the absence of Dutch equivalents and substandard performance is not consistent. The scores show significant variation in comprehension, as visible from *logical* and *universal*. Both words have matching translations – and *universal* even has a matching suffix – though the comprehension seems to be affected by a different condition<sup>2</sup>. The same problem is visible at *blockade*, which has a nearly identical Dutch equivalent.

Interestingly, the data from the second grade subjects also show a relatively big difference between the Havo class and the Atheneum class. The Atheneum class scores considerably better at both types of suffixes and also at the words that do not have a Dutch equivalent, as shown in the table below.

<i>Target word</i>	<i>Dutch translation</i>	<i>Average</i>	<i>Havo 2</i>	<i>Atheneum 2</i>	<i>Difference</i>	<i>Suffix type</i>
Concentration	Concentratie	78.8%	66.7%	92.0%	+37.9%	Sensitive
Logical	Logisch	67.3%	63.0%	72.0%	+14.3%	Sensitive
Comfortable	Comfortabel	65.4%	59.3%	72.0%	+21.4%	Neutral
Activity	Activiteit	59.6%	40.7%	80.0%	+96.6%	Sensitive
Helpful	Behulpzaam	59.6%	48.1%	72.0%	+49.7%	Neutral
Alcoholic	Alcoholist	53.8%	51.8%	56.0%	+8.1%	Sensitive
Easily	Gemakkelijk	48.1%	48.1%	48.0%	-0.2%	Neutral
Importance	Belang	46.1%	33.3%	60.0%	+80.2%	Neutral
Entertainment	Vermaak/ Entertainment	44.2%	26.0%	64.0%	+146.2%	Neutral
Universal	Universeel	44.2%	44.4%	44.0%	-0.9%	Sensitive
Invention	Uitvinding	40.4%	40.7%	40.0%	-1.7%	Sensitive
Failure	Storing	38.5%	29.6%	48.0%	+62.2%	Neutral
Agility	Behendigheid	25.0%	22.2%	28.0%	+26.1%	Sensitive
Blockade	Blokkade	21.1%	25.9%	16.0%	-38.2%	Sensitive
Purify	Zuiveren	7.7%	0.0%	16.0%	N.A.	Sensitive

*Table 5: Performance difference between Havo and Atheneum second grade.*

The Atheneum group scores either equally well or better than the Havo group at all words. The only exception is the word *blockade*, which is scored poorly by both groups nonetheless. This is interesting, as thus far they have received an equal amount of

<sup>2</sup> *-al* is both a neutral nominal suffix and a non-neutral adjectival suffix. (Kreidler 273-77)

education in English. Both these groups have had the same courses in elementary school and in the first year of secondary school.

The second part of the test contains nonsense words, so semantic knowledge will have little effect on the results. The answers consist of *multiple choices*, but there are also multiple responses that could be correct per question. Of those correct answers, the suffixes are of different types which could affect word stress or morphology. Each item is analysed individually in order to extract a maximum amount of data. Table 6 shows the response rates given to the first item. All the responses are grammatically correct, as they all contain adjectival suffixes.

	Rondonant	Rondonable	Rondonic*	Rondonial*
Second Grade	11.5%	38.5%	28.8%	21.1%
<i>Havo 2</i>	3.7%	33.3%	33.3%	29.6%
<i>Atheneum 2</i>	20.0%	44.0%	24.0%	12.0%

*Table 6: Second grade responses to question 1, part 2.*

The responses in the table above have different suffix types. The answers *rondonial* and *rondonic* contain stress sensitive suffixes, whereas *rondonant* and *rondonable* have neutral suffixes. Words with stress heavy suffixes are marked with an asterisk in the table.

The results are rather inconclusive, as there is no single answer that is greatly preferred to other answers. However, *rondonant* received fewest responses, especially in the Havo group. Besides forming adjectives, the suffix *-ant* can also form nouns such as *assistant* and *immigrant*; this may account for the low response rate it received. This shows that these second grade pupils recognise this suffix to be incorrect or at least “less correct” than the other answers. The other answers given by the Havo group are almost equally divided, while the Atheneum group has a slight preference towards the suffix *-able*. The percentages are nonetheless still too low to allow any firm conclusions.

In an attempt to gain some further insight into morphological competence, one can try to see whether there is any correlation between performances in part one of the test and responses in part two. A separate group is created, which consists of top scoring pupils who have answered at least two thirds (2/3) of their answers correct in part one. This “top bracket” group consists of eight Havo students and seven Atheneum students who should portray a clearer relation between part one and part two of the test. Table 7 shows the responses of this *top bracket* group to the first item in comparison to the numbers shown in table 6:

	Rondonant	Rondonable	Rondonic*	Rondonial*
Second grade	11.5%	38.5%	28.8%	21.1%
<i>Havo 2</i>	3.7%	33.3%	33.3%	29.6%
<i>Atheneum 2</i>	20.0%	44.0%	24.0%	12.0%
Top bracket	20.0%	40.0%	20.0%	20.0%

*Table 7: The addition of the “top bracket” group to Table 6.*

The top bracket group, similar to the Atheneum group, show a slight preference for the answer *rondonable*, but 40% is too low a percentage to draw any conclusions. The only notable numbers are the shared preference the top bracket group and Atheneum group have for neutral suffixes, as 60% of the top bracket pupils and 64% of the Atheneum pupils preferred a stress neutral suffix rather than a stress inducing suffix.

The second item of the second part of the test consists of two possible correct answers and two grammatically incorrect ones. The two correct responses are two nouns: the stress neutral *sweagance* and the stress sensitive *sweagity*. The incorrect answers also contain either a stress neutral or sensitive suffixes, only those suffixes characterise the words as adjectives. Table 8 shows us the responses to item two of part two.

	Sweagious*	Sweagity*	Sweagance	Sweagive
Second Grade	11.5%	28.8%	38.5%	21.2%
<i>Havo 2</i>	7.7%	25.9%	40.7%	25.9%
<i>Atheneum 2</i>	16.0%	36.0%	36.0%	16.0%
Top Bracket	6.7%	46.7%	46.7%	0.0%

Table 8: Second grade responses to item 2, part 2.

The results show that 67.3% of the second grade pupils responded with a grammatically correct response. This number is very significant, as it shows the morphosyntactic competence of this group, who had relatively low scores at the first part of the test. The Havo group shows a slight preference towards the stress neutral suffix *-ance*, while the Atheneum group and the top bracket group do not distinguish between the two types of suffixes.

The third item in part two also has two possible grammatically correct answers. One of the incorrect answers has the suffix *-able*, which turns the word into an adjective, while the other answer has the stress sensitive suffix *-ify*, which turns the word into a verb. The two correct answers are both nouns, one with the stress neutral suffix *-ant* and one with the stress heavy suffix *-ation*.

	Beeboation*	Beeboable	Beeboant	Beeboify*
Second Grade	44.2%	19.2%	25.0%	9.6%
<i>Havo 2</i>	44.4%	11.1%	33.3%	11.1%
<i>Atheneum 2</i>	44.0%	28.0%	16.0%	8.0%
Top Bracket	40.0%	20.0%	33.3%	6.7%

Table 9: Second grade responses to item 3, part 2.

Table 9 shows that the majority of the responses are correct with both groups. On average, 69.2% of the pupils responded with a correct suffix, compared to the 73.3% score by the top bracket group. The Havo group scores even higher than the Atheneum group with a 77.7% to 60% correctness rate. Despite having a stress sensitive suffix, *beeboation* is chosen slightly more frequently than the rest.

The fourth item of the MC test only has one grammatically correct response: *kluwly*. The target word needs to be an adverb and only the suffix *-ly* can provide that. However, two other responses *kluwal* and *kluwant* can be interpreted as both adjectives and nouns. A noun also could be grammatical, though less obvious than the targeted adverb.

	Kluwly	Kluwal	Kluwant	Kluwive
Second Grade	63.5%	11.5%	9.6%	15.4%
<i>Havo 2</i>	66.7%	7.4%	11.1%	14.8%
<i>Atheneum 2</i>	60.0%	16.0%	8.0%	16.0%
Top Bracket	60.0%	13.3%	6.7%	20.0%

Table 10: Second grade responses to question 4, part 2.

Only a small percentage of the subjects chose the ungrammatical *kluwive*, and a majority of 63.5% chose the adverb. The differences between the separate groups are minimal. The Havo pupils, however, have a slightly higher success rate.

An adjective is the only correct response to the fifth item and only one of the possible answers is an adjective, while the others are nouns and a verb. Table 11 shows the responses given by the second grade pupils:

	Nodimotion*	Nodimoic*	Nodimoity*	Nodimofy*
Second Grade	51.9%	23.1%	13.5%	9.6%
<i>Havo 2</i>	51.9%	18.5%	11.1%	14.8%
<i>Atheneum 2</i>	52.0%	28.0%	16.0%	4.0%
Top Bracket	26.7%	40.0%	6.7%	26.7%

Table 11: Second grade responses to question 5, part 2.

Contrary to the previous responses, these responses show a lack of syntactic and morphological knowledge from the second grade pupils. The majority of the subjects chose *nodimotion* to fill the gap in the sentence where *nodimoic* should have been selected. The errors at this item could be either due to; (1) not knowing that an adjective is needed, or (2) not knowing *-ic* is an adjectival suffix. Compared to the previous occurrence of this suffix (in part one of the test), the success rate has plunged. This

supports the claim that non-neutral suffixes are more difficult to comprehend. The top bracket group shows better performance than the rest of the subjects. However, the majority (60%) fails to respond with the grammatically correct word.

The responses to the last item in this part of the test have no ungrammatical options. All the responses are grammatically correct. Three responses contain stress neutral suffixes, while one response has a stress sensitive suffix. This method is chosen to see whether there is a distinction between the suffixes, other than stress. Table 12 shows the response rates to this item:

	Dratunment	Dratunion	Dratunity*	Dratunance
Second Grade	23.1%	30.8%	30.8%	15.4%
<i>Havo 2</i>	22.2%	29.6%	25.9%	22.2%
<i>Atheneum 2</i>	24.0%	32.0%	36.0%	8.0%
Top Bracket	13.3%	53.3%	13.3%	20.0%

*Table 12: Second Grade responses to question 6, part 2.*

The responses are almost equally divided among all answers. No suffix is favoured or perceived as ‘more grammatical’ English.

The last part of the test is a grammaticality judgement test, in which subjects need to point out any errors in sentences provided to them on paper. Two of the seven sentences do not have any grammatical errors, whereas five sentences do. The errors consist of either suffix omission or wrong suffix usage which changes the word class. Also, in this part of the test the top bracket group will continue to function as material for comparison. Table 13 shows the overall test performance by the second grade pupils in this part of the test:

	Direction*	Majestical*	Desperance	Constant	Southern
Second Grade	62.5%	34.6%	32.7%	28.8%	32.7%
<i>Havo 2</i>	55.6%	25.9%	29.6%	22.2%	29.6%
<i>Atheneum 2</i>	68.0%	44.0%	36.0%	36.0%	36.0%
Top Bracket	86.7%	33.3%	40.0%	40.0%	53.3%

*Table 13: Correct answers to the grammaticality judgement test.*

The numbers in the table are percentages of correctly recognising the ungrammatically used target word mentioned on the top line. On average, the second grade pupils score poorly at this test, with the exception of the word *direction*. The numbers also show that this GJ test seems to provide more difficulty than the FITB test. On average 31.9% of all GJs are correct, compared to the 46.7% correct answers in the FITB test.

## Interpretation of the results

The test results from three different types of tests revealed that on average the second grade pupils performed poorly. Less than 50% of the answers were correct. The FITB test showed that there was equal competence in both stress sensitive and stress neutral suffixes. This debases Kiparsky's (1982) claim that neutral suffixes should be 'easier' to learn, due to their simple form and application. Stress thus seems to have little to no effect on suffix competence. The presence of a Dutch equivalent, on the other hand, seemed to affect the results. The top scoring FITB test results all had a Dutch equivalent, while the low scoring results often did not. However, as the figures also showed, Dutch equivalents do not necessarily guarantee good performance in English. The only somewhat consistent performance can be found at the adjectival suffixes, as adjectives are not present in the low scoring words in the FITB test. Thus one can claim that instead of stress sensitivity, syntactic category is the element that affects the learning process of derivational L2 morphology the most.

The separation of the second grade group into two groups also showed that the Atheneum group performed (slightly) better than the Havo group. This could be accounted to either sociolinguistic or cognitive factors. In any case, the Atheneum group seems to be in a slightly more 'advanced' stage in English morphology than the Havo group.

The data retrieved from the nonsense words also supports the claim that the role of stress sensitivity is small to non-existent in this investigation. Since the words do not exist in English or Dutch, the subjects only use their intuition and syntactic knowledge of morphemes. When the subjects respond with a grammatically incorrect option, this would then mean that the lexicon is not providing them with the needed information. The ungrammatical suffixes are perceived as correct, while the grammatical suffixes are not recognised.

The responses to the MC test also show that there is a relation between performing well in the FITB test and the MC test. Both the results of the Atheneum group and the Top Bracket group show that they are more developed than average. Interestingly, responses to item 2 of the MC test showed that the Havo group preferred the stress neutral suffix, while the other groups did not show any preference in suffix type. This would suggest that during the earlier stages of derivational morphology acquisition, neutral suffixes are preferred over sensitive suffixes. However, this would also mean that the preference towards neutral suffixes is predicted to diminish in the fifth grade group. The dominance of syntactic category is also clear in item 3 of the MC test. For despite being a neutral suffix, the suffix –ant is rejected due to its feature of also being an adjectival suffix. This clearly indicates superiority of syntactic category over stress sensitivity in this investigation.

The GJ test was perceived as more difficult than the FITB test. The FITB test is more obvious in what it demands from its participants, as it only leaves room for inserting a suffix. The GJ, on the other hand, has the option of there being no errors present. Filling in the blanks is mandatory, which then forces the participants to produce an answer (i.e. use their morphosyntactic intuition). Whereas according to Davies and Kaplan (1998), grammaticality judgement tests run the risk of only requiring the “acceptability” rather than the grammatical competence of L2 learners (198).

Syntactically incorrect suffixation might be lexically correct, while lexical erroneous suffixation (e.g. *desperance* instead of *desperation*) could be accepted due to its appropriate morphosyntactic features. During the MC items, however, the acceptability is a marker of competence. This suggests that the MC test is more valuable than the FITB and the GJ tests, as it provides direct information regarding this investigation's goals. The GJ test also supports the claim made earlier regarding suffix sensitivity. The results show that with the exception of the word *direction* (which has a stress sensitive suffix), grammaticality judgments of both stress sensitive and neutral suffixes are treated equally. If anything, ungrammatical words with a stress sensitive suffix are recognised earlier than stress neutral suffixes. The data, however, is not yet sufficient to support this claim.

Syntactic information of the suffixes, on the other hand, seem to play a more obvious role in the judgments. The first item is recognised as ungrammatical by the majority, as they seem to identify the ungrammatical nominal suffix *-tion*. The poor performance with the second item, with the targeted adverb suffix *-(a)ly*, indicates an acceptability of the use of an adjective instead of an adverb. This acceptability could be due to the adjectival feature of the suffix *-ly*, in for example *month-ly* and *state-ly*. The third item, *desperance*, is accepted by the majority. The syntactic composition allows the word to be grammatical, despite it not being an English word. This proves that this group has syntactic knowledge, but lacks the constraints. The low success rate for the word *constant* might be due to its interpretation as an English adjective, as in “*a constant flow of cash*”. Similar with the item *majestical*: an adjective is accepted instead of an adverb. The absence of derivational adverb suffixes in Dutch is most likely the reason for this.

# Chapter 8: Fifth Graders Results

## Results

The fifth grade middle school pupils will be analysed and compared with the former group. Unlike the second grade group, these subjects originate from two separate Havo classes. It is expected that these fifth grade pupils will perform better than the second graders as they have received more English education.

<b>Second grade group. N=52</b>	<b>Correct responses</b>	<b>Std. Dev.</b>	<b>Mean</b>
Correct answers total	46.7%	9.79	24.3
Correct answers stress sensitive suffixes	44.2%	12.07	26.2
Correct answers stress neutral suffixes	50.3%	5.27	23.0
<b>Fifth grade group. N=39</b>			
Correct answers total	67.2%	9.4	26.2
Correct answers stress sensitive suffixes	62.1%	11.6	24.2
Correct answers stress neutral suffixes	74.8%	4.3	29.2

*Table 14: Overall results of the FITB test.*

Table 14 shows the overall performance of the fifth graders in comparison to that of the second graders in the FITB test. As expected, the fifth grade group performed better than the second grade group. Similar to the second graders, the fifth graders perform better with regard to the neutral suffixes than the sensitive suffixes. These numbers also reveal that performance with neutral suffixes is improved slightly more than with sensitive suffixes. Performance in stress sensitive suffixes increased by 40.5%, compared to 48.7% performance increase in neutral suffixes. Interestingly however, the standard deviation is fairly similar in both groups. This indicates that the same stress sensitive suffixes that are causing the most difficulties for the second grade pupils are also causing these difficulties for the fifth graders. Table 15 below will reveal the data of the individual words for further clarification. The words are ranked according to the success rate of the fifth graders.

<i>Target word</i>	<i>Dutch translation</i>	<i>2nd Grade</i>	<i>5th grade</i>	<i>Difference</i>	<i>Suffix type</i>
Concentration	Concentratie	78.8%	100.0%	+26.9%	Sensitive
Activity	Activiteit	59.6%	89.7%	+50.5%	Sensitive
Alcoholic	Alcoholist	53.8%	87.2%	+59.1%	Sensitive
Comfortable	Comfortabel	65.4%	82.1%	+25.5%	Neutral
Helpful	Behulpzaam	59.6%	82.1%	+37.8%	Neutral
Easily	Gemakkelijk	48.1%	82.1%	+70.7%	Neutral
Entertainment	Vermaak/Entertainment	44.2%	76.9%	+74.0%	Neutral
Logical	Logisch	67.3%	71.8%	+6.7%	Sensitive
Failure	Storing/Falen	38.5%	71.8%	+86.5%	Neutral
Invention	Uitvinding	40.4%	69.2%	+71.3%	Sensitive
Universal	Universeel	44.2%	56.4%	+27.6%	Sensitive
Importance	Belang	46.1%	53.8%	+16.7%	Neutral
Agility	Behendigheid	25.0%	43.6%	+74.4%	Sensitive
Blockade	Blokkade	21.1%	30.8%	+46.0%	Sensitive
Purify	Zuiveren	7.7%	10.3%	+33.8%	Sensitive

Table 15: Results of fifth grade subjects of part 1.

This data shows gradual performance increase for all the words of the test and does not distinguish between the stress sensitivity. Even though performance by the fifth grade subjects improved compared to that of the second graders, a few of the English words remained too difficult to use for the majority of the subjects. The non-neutral suffix *-ify* is proven to be most difficult with an 89.7% failure rate, followed by *-ade* with a 69.2% failure rate. The top scoring words are again dominated by stress sensitive suffixes. However, stress neutral suffixes are increasing in performance and consistency.

To the second grade subjects a *Top Bracket* group was added to see whether there was any connection between performing well in part one of the test and doing so in part two. There is no need to assemble a *Top Bracket* group in the analysis of the fifth grade group, since these subjects have high performance rates anyway, and a *Top Bracket* group would consist of the majority of the subjects. Similarly to the previous table, all results of part two of the test will be shown together. The correct responses are highlighted in Table 16 to facilitate analysis. Also, stress sensitive suffixed words are labelled with an asterisk.

Rondonant 17.9%	Rondonable 17.9%	Rondonic* 35.9%	Rondonial* 25.6%
Sweagious* 5.1%	Sweagity* 28.2%	Sweagance 60.0%	Sweagive 7.7%
Beeboation* 28.2%	Beeboable 23.1%	Beeboant 35.9%	Beeboify* 12.8%
Kluwly 41.0%	Kluwal* 48.7%	Kluwant 7.7%	Kluwive* 2.6%
Nodimotion* 12.8%	Nodimoic* 48.7%	Nodimoity* 23.1%	Nodimofy* 15.4%
Dratunment 23.1%	Dratunion 38.5%	Dratunity* 23.1%	Dratunance 15.4%

Table 16: Fifth graders' responses to part 2.

Unlike the second grade students, this group has a noticeable preference for the two stress sensitive suffixes *-ic* and *-ial* in the first item. The second item, on the other hand, shows that the neutral suffix *-ance* is strongly preferred to its non-neutral counterpart *-ity*. The main difference between these responses is the syntactic category of the words: The first item has adjectives and the second item has only nouns. The third item, also a noun, has the neutral suffix *-ant* preferred slightly more than the sensitive *-ation*. A peculiar weak performance by the fifth graders is noticeable in the fourth item. Only 41% of the fifth graders responded with *kluwly*, compared to 63.5% second graders. Almost half of the fifth grade subjects regarded *kluwal* more grammatical than *kluwly*. The fifth item, an adjective, is only identified as grammatical by 48.7% of the fifth graders. However, compared to 23.1% of the second graders, this is a significant improvement. Similar to the second graders, the responses in the sixth item are reasonably divided among all responses.

The grammaticality judgement test results will be compared with those of the second grade subjects. Table 17 shows a higher success rate by the fifth grade pupils in comparison to the second grade subjects. However, both groups have difficulties with similar items. *Direction* is perceived as least difficult, while the rest of the items are not recognised erroneously as easily.

	Direction	Majestical	Desperance	Constant	Southern
Second Grade	62.5%	34.6%	32.7%	28.8%	32.7%
Fifth Grade	92.3%	41.0%	48.7%	51.3%	48.7%
Difference	47.7%	18.5%	48.9%	78.1%	67.1%

Table 17: Grammaticality judgement results compared.

The *difference* tab in the table above shows how much the performance is increased between the two groups. The recognition of the ungrammatical item *constant* has advanced the most, followed by *southern*. Identifying *majestical* as ungrammatical has improved the least of all items.

## Interpretation of the results

The FITB test showed an increase in performance in most of the items. Assigning the correct suffixation has improved significantly, with the exception of the item *purify*. The stem *pure* is translated in Dutch as ‘*puur*’ and ‘*zuiver*’. When translating *purify*, however, a gerund is added only to *zuiver* and not to *puur*. A number of responses treated *pure* as a verb and either left it blank or added the inflectional suffix –s. In this case the subjects seem to understand the grammar, but lack knowledge of either the word *pure* or the verbal suffix –ify. Regretfully, no firm conclusion can be drawn, as only a single occasion of verbal suffixation is present in the FITB test.

The overall performance tells that the English vocabulary increases in the time period between second grade and fifth grade secondary school. In fifth grade, the distinction between the verb *concentrate* and the noun *concentration* is easily made. The application of the suffix –tion is more successful with this item than with the word *invention*. The absence of a Dutch equivalent seems to be the reason *invention* is found more difficult than *concentration*. Items *logical* and *universal* also have a Dutch equivalent and the same English suffix, though *logical* has a higher success rate than *universal*. So there must be another reason to cause this difference in performance. When comparing the subjects that provided an incorrect response to *logical* and

*universal*, some overlap is noticed. 6 subjects answered with incorrect suffixes at both the items. These 6 are considered to have no (correct) knowledge of the suffix –al. 5 subjects could not produce *logical*, but managed to correctly compose *universal*. These 5 subjects seem to find more difficulty in mutating *logic* than *universe*. The other way around, 11 subjects wrote the correct suffix down at *logic*, but failed to do so at *universe*. *Logical* might be easier to comprehend as it is more practical and has fewer synonyms than *universal*. The errors could also be grammatical failure, as the majority of the incorrect responses contain the adverb suffix –(al)ly and the inflectional –ed and –ing.

A different item that seems to cause difficulty, despite having a Dutch equivalent, is *blockade*. Many subjects answered with either *block* or *blocking*. *Block* is a noun, although not the correct noun in this context. In this case, the subjects seem to understand that a noun is needed, but respond with an incorrect noun. Also, the application of the gerund –ing is incorrect in this context. The syntactic knowledge is present. However, the relational and selectional knowledge (as mentioned by Lardiere 2006) is somehow absent in this item.

The results of the MC test reveal different responses between the second graders and fifth graders. Unlike the second graders, the fifth graders show notable preference for stress sensitivity. The preference also seems to be somewhat related to word class. Neutral suffixation is favoured in two items, in which a noun is the grammatical response. While with the adjectival suffixes, stress sensitive suffixation is preferred. Regrettably, only a single question has both neutral and non-neutral adjectival suffixes as response options. This is insufficient to make a factual claim in this case.

The fifth graders show improved morphological knowledge in two items. With two other items, however, they show either no improvement or weaker performance than the second graders. This suggests that despite their improved English vocabulary, morphological knowledge has not advanced. The fifth grade pupils especially failed to

recognise the correct response *kluwly*. The second grade students scored considerably higher for that same sentence. The fifth graders highest scoring response is for *kluwal*. This response might be interpreted as correct due to the suffix *-al*, which can form both nouns and adjectives. And in this particular case, a noun would be more or less acceptable. The subject could therefore have high morphological competence, but weak syntactic knowledge. An alternative take could be the following: Lack of adverb knowledge could lead to mistakenly classifying *kluwly* as an adjective. Combined with poor syntactic knowledge, adjectives would be considered grammatical. This would then explain the high responses at the suffixes *-al* and *-ly*. The slight preference for the stress sensitive adjectival suffix *-al* would then coincidentally support the previously mentioned notion regarding stress preference and word class.

The first and third part of the test show a performance improvement by the fifth grade subject compared to the second grade pupils, though in the second part of the test the difference is less apparent. This performance variation between the different tests can be taken to indicate improved lexical proficiency by the subjects, but also a consistent syntactic deficiency. The FITB and the GJ tests assess the subjects' vocabulary and grammaticality; these are skills that can be trained. The nonsense words, however, measure the syntactic knowledge of the suffixes directly. Incorrect responses in the MC test would therefore equal lack of syntactic morphological knowledge. In conclusion, this means that fifth graders have not gained morphological competence compared to the second graders.

## Chapter 9: The online subjects results

### Results

The remaining subjects belong to different groups but will be analysed together. The different groups are native speakers of English, Dutch students of English and random Dutch students of various majors. Since the English students are preparing to achieve a

near-native level of English and have followed linguistics courses, it is expected of them to perform better than the other Dutch subjects. How the non-English students will perform cannot be predicted accurately, as their amount of English education received is unknown. They are, however, expected to perform at least as well as the fifth graders. Table 18 shows the results in a similar way as shown previously in Table 15, only now with the three new subject groups added. The words are arranged based on the performance of the non-English students.

<i>Target word</i>	<i>2nd Grade</i>	<i>5th grade</i>	<i>Non-English Students</i>	<i>English Students</i>	<i>Natives</i>	<i>Suffix type</i>
Concentration	78.8%	100.0%	100.0%	100.0%	100.0%	Sensitive
Helpful	59.6%	82.1%	100.0%	100.0%	100.0%	Neutral
Comfortable	65.4%	82.1%	92.3%	100.0%	100.0%	Neutral
Failure	38.5%	71.8%	92.3%	100.0%	100.0%	Neutral
Alcoholic	53.8%	87.2%	92.3%	100.0%	100.0%	Sensitive
Easily	48.1%	82.1%	92.3%	100.0%	100.0%	Neutral
Entertainment	44.2%	76.9%	92.3%	100.0%	100.0%	Neutral
Logical	67.3%	71.8%	84.6%	100.0%	100.0%	Sensitive
Importance	46.1%	53.8%	84.6%	100.0%	100.0%	Neutral
Activity	59.6%	89.7%	76.9%	100.0%	100.0%	Sensitive
Universal	44.2%	56.4%	76.9%	100.0%	100.0%	Sensitive
Invention	40.4%	69.2%	76.9%	100.0%	100.0%	Sensitive
Blockade	21.1%	30.8%	53.8%	66.7%	70.0%	Sensitive
Agility	25.0%	43.6%	53.8%	80.0%	100.0%	Sensitive
Purify	7.7%	10.3%	53.8%	100.0%	100.0%	Sensitive

Table 18: Results to the first part of the test by all subjects.

The non-English students performed better than the fifth graders in all items but one; *activity*. The success rate now also seems more connected with suffix type. Sensitive suffixes are found at the bottom of the list, while the top of the list consists mainly of neutral suffixes. The English students performed as expected, though with a notable deviation. A small number of subjects responded with the suffix *-age* instead of *-ade* to accompany the stem *block*. The Oxford dictionary definition of *blockage* is as follows: "An obstruction which makes movement or flow difficult or impossible." Compared to the

definition of *blockade*: “An obstruction of physiological or mental function” it could be assumed that in the context presented in the test, *blockade* would be more accurate than *blockage*. However, since the semantic difference is marginal between the two words, *blockage* will be considered correct. Table 19 shows the, now updated, success rate of blockade/blockage:

<i>Target word</i>	<i>2nd Grade</i>	<i>5th grade</i>	<i>Non-English Students</i>	<i>English Students</i>	<i>Natives</i>
Blockade/ Blockage	25.0%	41.0%	61.5%	93.3%	100.0%

*Table 19: Updated results of Block-ade/age.*

The results shown in Table 18 also show us a persistent difficulty for the non-English students in the target words *agility*, *blockade* and *purify*. The figures also show that the verbal suffix *-fy* is only handled well by more advanced speakers of English. So despite the relatively high success rates for nominal and adjectival suffixes, the verbal suffix *-ify* is not used very well. Another considerably difficult task for the non-English students is assignment of correct suffixation to *block*. Compared to percentages shown in earlier tables of other subject groups, 61.5% may seem like a high success rate. Compared to their own performance, however, this number is one of the lowest.

The responses to the second part of the test should grant more insight into the morphological competence of the Dutch adult speakers of second language English. It can be expected that in this part of the test no performance improvement will be achieved by the non-English students in comparison to the fifth graders. This is based on earlier findings mentioned in the interpretation of the fifth graders results. All the subject groups will be compared and each question in this part of the test will be analysed separately to avoid incomprehensible spread sheets. Similar to previous tables,

the correct responses are highlighted and non-neutral suffixes are marked with an asterisk.

	Rondonant	Rondonable	Rondonic*	Rondonial*
2nd grade	11.5%	38.5%	28.8%	21.1%
5th grade	17.9%	17.9%	35.9%	25.6%
Students	38.5%	7.7%	53.8%	0.0%
English Std	33.3%	6.7%	46.7%	13.3%
Natives	20.0%	20.0%	40.0%	20.0%

Table 20: Responses by all the subjects to question 1, part 2.

Table 20 shows that the responses given by the native speakers and Dutch adult speakers to adjectival suffixes (*-ant*, *-able*, *-ic* and *-ial*) approximately match the responses of the fifth grade pupils. All the subjects, except the second graders, have a slight preference for the non-neutral suffix *-ic*.

	Sweagious*	Sweagity*	Sweagance	Sweagive
2nd grade	11.5%	28.8%	38.5%	21.2%
5th grade	5.1%	28.2%	60.0%	7.7%
Students	0.0%	30.8%	61.5%	7.7%
English Std	6.7%	13.3%	66.7%	6.7%
Natives	0.0%	20.0%	60.0%	20.0%

Table 21: Responses to question 2, part 2.

The results in table 21 reveal similarities among subject groups. There is a high success rate and neutral suffix preference. Interestingly, both the English students and the native speakers of English made errors. It seems that not only second language learners of English, but also first language speakers have a tendency of using a neutral nominal suffix instead a non-neutral variation. This claim might seem to be refuted when considering table 22 below, in which the responses to question three show a 100% preference for the stress sensitive suffix *-ation*.

	Beeboation*	Beeboable	Beeboant	Beeboify*
2nd grade	44.2%	19.2%	25.0%	9.6%
5th grade	28.2%	23.1%	35.9%	12.8%
Students	23.1%	15.4%	53.8%	7.7%
English Std	33.3%	0.0%	60.0%	6.7%
Natives	100.0%	0.0%	0.0%	0.0%

*Table 22: Responses to question 3, part 2.*

When regarding only the responses of the second language speakers of English, a clear preference is seen in neutral suffixation. Also, the non-English students made fewer errors than the fifth and second graders.

The target suffix *-ly* in the fourth question has comparable response rates through all the subject groups, except the fifth graders, as the table below shows.

	Kluwly	Kluwal	Kluwant	Kluwive*
2nd grade	63.5%	11.5%	9.6%	15.4%
5th grade	41.0%	48.7%	7.7%	2.6%
Students	69.2%	15.4%	7.7%	7.7%
English Std	66.7%	20.0%	13.3%	0.0%
Natives	60.0%	40.0%	0.0%	0.0%

*Table 23: Responses to question 4, part 2.*

Both the English students and the natives did not respond solely with the adverb suffix, but also responded with the adjectival/nominal suffixes *-al* and *-ant*.

The answers to question five are presented in the table below; it shows a difference between English and non-English students.

	Nodimotion*	Nodimoic*	Nodimoity*	Nodimofy*
2nd grade	51.9%	23.1%	13.5%	9.6%
5th grade	12.8%	48.7%	23.1%	15.4%
Students	7.7%	46.2%	30.8%	15.4%
English Std	0.0%	93.3%	0.0%	6.7%
Natives	0.0%	100.0%	0.0%	0.0%

*Table 24: Responses to question 5, part 2.*

All Dutch subject groups, except the English students, seem to find it difficult to identify the correct suffix. The suffix *-tion* seems to be rejected more often by the fifth graders and beyond, while the other nominal suffix *-ity* is embraced more frequently. The last question of part two is left out, as data previously showed that there was no difference in the results of the given nominal suffixes.

The results of the GJ test for the online participants are summarised together with the previously documented data in the table below.

	Direction*	Majestical*	Desperance	Constant	Southern
Second Grade	62.5%	34.6%	32.7%	28.8%	32.7%
Fifth Grade	92.3%	41.0%	48.7%	51.3%	48.7%
Students	76.9%	46.2%	46.2%	76.9%	46.2%
English Std	100.0%	86.7%	93.3%	100.0%	100.0%
Natives	100.0%	100.0%	100.0%	100.0%	100.0%

*Table 25: Grammaticality judgement success rates.*

The results show that the non-English students are not performing too well at this test, with the exception of the target word *constant*. Also, the error detection for the word *direction* is considerably worse than that of the fifth graders. The English students have a near perfect score and the native speakers of English performed errorless.

## Interpretation of the results

The performance increase by the English students and non-English students indicate more experience and education in English. The high results by English students were expected, as they experience near-native proficiency in English. The non-English students, on the other hand, may or may not receive English courses in college and university. The results, however, indicate that the non-English students plausibly have received more advanced English courses than the fifth graders. The items that remain

difficult for the non-English students are *purify*, *agility* and *blockade*. The persistent difficulty of the suffix –ify may indicate low competence in verbal suffixes. But as mentioned earlier in the interpretation of the fifth graders results, no further verbal suffixes are present in the test to support this claim. Both *purify* and *agility* lack a Dutch equivalent, which could explain the difficulties. The same cannot be claimed for *blockade/blockage*. The stem *block* and the suffix *ade/age* have a Dutch equivalent. As indicated earlier, *block* is also a noun. Despite being ungrammatical in the given context, some subjects might accept its usage.

The results of the MC test show a performance increase. This was not expected, as the performance between second and fifth graders barely improved. The non-English students, however, show improvement in all items. With the exception of one item: *nodimoic*. With this item, the option *nodimoity* is chosen by 30.8% of the subjects. Since the results of the first part show that the Dutch subjects can use suffix –ity, the difficulty might therefore rise at the phonological representation of the nonsense words. If *nodimoity* would be pronounced as “*nodimɔ̃ti*,” instead of “*nodimo’iti*,” it could be interpreted as the subjects assuming a stem *nodimoit* and an adjectival suffix –y. In this case, the suffix –ity is not identified due to a phonologically confusing stem. The performance rate would increase considerably, when regarding *nodimoity* as correct. Keeping this in mind, one could claim that the morphological competence of Dutch speakers of English improves as far as adulthood.

Another notable piece of data is noticed in the responses to *kluwly* and *kluwal*. As mentioned earlier in this paper, the response to this item could be a noun. As the numbers show, a minority of the English students and native speakers also seem to have responded with a noun. These two groups are regarded as having the (near) highest proficiency in English. Their acceptance of *kluwal* implicates that the sentence structure

does not necessarily demand an adverb as a response. The majority, however, still perceives *kluwly as* more grammatical than the other options.

The stress sensitivity preference in this subject group is similar to the preceding groups. The students choose neutral nominal suffixes more frequently than sensitive suffixes and sensitive adjectival suffixes more frequently than neutral ones. This pattern seems to remain with the Dutch speakers of English. The native speakers of English, however, seem to disregard this pattern.

Despite their better performance at the FITB and MC test, the non-English students perform considerably worse at the GJ test. This does not, however, indicate a low competence in derivational morphology. The students could be weak in GJ tests and still have superior competence in derivational morphology.

## **Chapter 10: Conclusion**

The data provided by the different test types allowed an analysis that could cover multiple perspectives. The FITB test showed that the majority of the youngest subjects did not have the syntactic, morphologic and semantic proficiency needed to produce a successful performance. These results signify their judgements in creating logical representations, rather than their knowledge of derivational morphology. So when the subjects fail to produce or misinterpret a translation, the end product is negatively affected. The second test, on the other hand, “forces” the use of intuitive morphological knowledge. According to Singson (2000), the performance at nonsense words emerges from morphological knowledge (222). So in the fictitious MC test, translation is made obsolete. Subjects could then only abide to the other strategies – grammatical knowledge and their intuition – which would minimise possible semantic interference.

The analysis shows that the second grade subjects' morphological competence is currently in development, despite their lexical and grammatical deficiencies. The fifth grade subjects, who have developed a higher lexical and grammatical proficiency compared to the second graders, seem to improve not only at the FITB test, but also at the nonsense words. This indicates that their morphological competence has improved

Compared to the fifth graders, the non-English students show slight improvement in the MC test. One of the interpretations indicates that their morphological competence has increased between the period of fifth grade secondary school and college. The English students, as expected, performed near-native like. Their superior proficiency, compared to the other L2 learners, was shown in both the FITB test and GJ test. With the nonsense words, however, the difference between other L2 learners was less apparent. The results of the native speakers of English are also considerably similar to the other subject groups. This could indicate two things: (1) The test is too difficult and the nonsense words are too complexly formed or (2) Adult speakers of second language English can achieve similar competence in morphology as native speakers.

The claims by Tyler (1986), Katamba (1989) and Kiparsky (1982) regarding the variation in suffix types and their dissimilar acquisition rates is discredited by the results in this paper. Subjects did not show the expected deviation between neutral and non-neutral suffixes. In the first and third test, neutral and non-neutral suffixes had both high and low success rates. In the second test, variation between the two types was found. However, this was strongly affiliated with syntactic categories. With nominal suffixes, the neutral variant is preferred, while the non-neutral version is favoured in adjectival suffixes. This is divergent to first language acquisition, as according to Singson's (2000) research, no distinction is made between syntactic categories in derivational morphology acquisition by native children (232). This suggests that the "learnability" of rules is dissimilar between first and second language acquisition.

Further studies could therefore focus more elaborately on syntactic categories, which were neglected in the hypothesis (which explains the lack of sufficient verbal suffixes). Stress and syntactic category seem to have an interaction that needs to be addressed more thoroughly. Also, the different testing methods have shown that applying nonsense words yields most significant data to derivational morphology studies.

## Works Cited

- Davies, William D and Tamar I Kaplan. "Native Speakers vs. L2 Learner Grammaticality Judgements." Applied Linguistics (1998): 183-203.
- Goss, N, Z Ying-Hua and J P Lantolf. "Mental activity in second-language grammaticality judgements' ." Torane, E and et al (eds). Research Methodology in Second Language Acquisition. Hillsdale: Lawrence Erlbaum Associates, 1994. 263-86.
- Katamba, F. An Introduction to Phonology. London: Longman, 1989.
- Kiparsky, P. "Word-Formation and the Lexicon." 1982.
- Kreidler, Charles W. The Pronunciation of English: A Course Book, Second Edition. Oxford: Blackwell Publishing, 2008.
- Lardiere, Donna. "Knowledge of Derivational Morphology in a Second Language Idiolect." Proceedings of the 8th Generative Approaches to Second Language Acquisition Conference (GASLA 2006): The Banff Conference. Sommerville: Georgetown University, 2006. 72-79.
- Long, M. "Maturational Constraints on Language Development." Studies in Second Language acquisition, 12 (1990): 251-86.
- Nejadansari, D and J Nasrollahzadeh. "Effect of Age on Second Language Acquisition." Studies in Literature and Language (2011): 19-24.
- Pasquarella, Adrian, et al. "Cross-Language Transfer of Morphological Awareness in Chinese-English Bilinguals." Journal of Research in Reading (2011): 23-42.
- Singson, Maria, Diana Mahony and Virginia Mann. "The relation between reading ability and morphological skills: Evidence from derivational suffixes." Reading and Writing (June 2000, volume 12, issue 3): 219-52.
- Tyler, Andrea E. "Acquisition and Use of English Derivational Morphology: An Experimental Investigation." Master Thesis. 1986.
- Zonneveld, W. Phonetics and Phonology. Reader. Utrecht: Department of English Language and Culture Utrecht University, 2012.

## Appendix A – The test

Welcome to this English language comprehension survey!

This survey consists of 26 language questions which measure your competence of the English language. There are three types of tests: "fill in the blanks", multiple choice and semi-multiple choice.

This survey is completely anonymous!

Thank you and have fun!

---

1. What is your age?

2. Are you a native speaker of English?

Yes

No

3. Have you endured an education in English (All or most of your classes)? If so, how many years?

No

Yes, 1 - 3 years

Yes, 4+ years

---

For the next few questions you may fill in the blanks to possibly alter the word between the brackets.

For example:

President Obama is for many a very (like)\_\_\_ person.

Like [ Likeable ]

---

4. Learning English before travelling to the United States can be (help)\_\_\_.

Help

5. Not making any homework because it is your birthday seems like a very (logic)\_\_\_ reason.

Logic

6. When Justin is making his homework, he loses his (concentrate)\_\_\_ very (easy)\_\_\_ when the TV is on.

Concentrate

Easy

7. The Internet has a lot of (entertain)\_\_\_ to offer.

Entertain

8. The (important)\_\_\_ of free speech may be considered as our greatest human right.

Important

9. Former Russian president Boris Jeltsin was an (alcohol)\_\_\_, he was drunk all the time.

Alcohol

10. The heavy traffic formed a (block)\_\_\_ for the fire trucks.

Block

11. Since the (invent)\_\_\_ of the Internet, outdoor (active)\_\_\_ by teenagers has been depleted.

Invent

Active

12. We should plant trees instead of cutting them down, as trees (pure)\_\_\_ the air we breathe.

Pure

13. Some people believe that waterbeds are the most (comfort)\_\_\_ type of beds.

Comfort

14. My old Iphone can't be recharged due to a technical (fail)\_\_\_.

Fail

15. Thanks to their (agile)\_\_\_ and cunning, Ninjas could become invisible!

Agile

16. The love for music is (universe)\_\_\_ throughout Earth's entire population.

Universe

---

The next few questions contain made up words. You have to fill in the blanks with one possible answer from the multiple choices. The sentences may not make any sense; though go with your gut!

17. The dress Samantha is wearing looks a bit \_\_\_\_.

- Rondonial - S
- Rondonic - S
- Rondonant - N
- Rondonable - N

18. Apple made a surprising \_\_\_\_ during their presentation today.

- Sweagity - S
- Sweagance - N
- Sweagious – S adj
- Sweagive – N adj

19. My roommate's snake got \_\_\_\_ due to the radiation from the microwave.

- Beeboable – N adj
- Beeboify – S verb
- Beeboant – N noun/adj
- Beeboation – S noun

20. Batman is not a super-hero. He doesn't have a superpower and talks \_\_\_\_.

- Kluwive N adj
- Kluwly N adj - adv
- Kluwal N adj - noun
- Kluwant N adj - noun

21. Censoring the media will have \_\_\_\_ effects on the people.

- Nodimotion S - noun
- Nodimoity S - noun
- Nodimofy N - v
- Nodimoic S - Adj

22. All the aliens on Mars are preparing for the \_\_\_\_, before emerging.

- Dratunion – N n
- Dratunment N n
- Dratunance n n
- Dratunity s n

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For the remaining questions you have to answer whether the statement is written in correct English or not.

Please write down, in the box below the statement, which words you believe to be INCORRECT.

You do not need to write anything if the sentence is correct.

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23. The kittens are running direction behind their mother.

24. The sunlight that breaks through the thick clouds always shines majestic.

25. Martin Luther King was an activist who was fighting for equality in the United States.

26. Philip did not study for his exams, so he cheated out of desperance.

27. My sister Rita may be a gambler, she is constant visiting the casino.

28. The government is capable of taking defensive action to guarantee the capitol's safety.

29. The temperature becomes hotter if you travel southern.