



# **The Northern Subject Rule: Analysing the Effect of V2 in the L1 of Dutch Speakers**

Sèfie Bekkers

s4808606

English Language and Culture (Radboud University Nijmegen)

BA Werkstuk Engelse Taalkunde

Dr. O. Koeneman & Prof. Dr. A. van Kemenade

June 16 2019

**Abstract**

The Northern Subject Rule (NSR) is a grammatical feature present in Northern English dialects which states that verbs can take an –s suffix in third person plural contexts. This is restricted by two constraints, the Type of Subject constraint and the Subject Adjacency constraint.

Hoendervangers (2016) found that speakers of Dutch and Standard English show a sensitivity towards the NSR. The NSR was not included in their language input, so their sensitivity goes beyond their input. Slegers (2017) has revised Hoendervangers by examining Danish speakers, and found them to be sensitive towards the NSR. Danish is a language that lacks overt agreement, which is why Danish speakers could give insight into whether agreement potentially triggers sensitivity. The sensitivity of Danish speakers suggests overt agreement cannot have caused the sensitivity. This study aims to discover whether the property V2 could have played a role in the sensitivity that goes beyond input. It will examine Dutch speakers, as they have V2 in their underlying structure as well. The results from a grammatical judgement test suggest that Dutch speakers are not sensitive towards the TS constraint of the NSR when they are presented with subordinate clauses. Freriksen (2019) conducted a complementary study, which has shown Dutch speakers are sensitive towards the TS constraint of the NSR in main clauses. The Dutch main clause does contain V2 whereas the subordinate clause does not. The results therefore suggest V2 might have played a role in Dutch speaker sensitivity towards the TS constraint. Dutch speakers did show a sensitivity towards the SA constraint of the NSR in subordinate clauses, whereas they did not in main clauses. The exact reason as to why Dutch speakers are sensitive towards the SA constraint in subordinate clauses but not in main clauses is hard to establish as of yet.

*Keywords:* Northern Subject Rule, Type of Subject constraint, Subject Adjacency constraint, Dutch, underlying grammatical knowledge, V2, multiple (potential) external subject positions, subordinate clause

**Table of contents**

Abstract	p. 2
Table of contents	p. 3
1. Introduction	p. 5
2. Background	p. 8
2.1 – The Northern Subject Rule and previous studies	p. 8
2.2 – Towards a new hypothesis	p. 14
2.3 – Possible objections	p. 20
2.4 – Conclusion	p. 27
3. The experiments	p. 29
3.1 – Methodology	p. 29
3.2 – Participants	p. 33
3.3 – Materials	p. 33
3.4 – Procedure	p. 35
4. Results	p. 36
4.1 – Type of Subject condition	p. 36
4.1.1 – Pretest	p. 36
4.1.1 – Actual experiment	p. 37
4.2 – Subject Adjacency condition	p. 38
4.2.1 – Pretest	p. 38
4.2.2 – Actual experiment	p. 38
4.3 – LexTALE	p. 39
5. Discussion	p. 41
6. Conclusion	p. 46

Works Cited	p. 49
Appendix A: Pretest	p. 50
Appendix B: Actual experiment	p. 70
Appendix C: Essay Cover Sheet	p. 90

## 1. Introduction

The Northern Subject Rule (NSR) is a grammatical construction that is present in Northern English dialects. It states that present-tense verbs can get a verbal -s suffix in third-person plural contexts, although verbs can also take a zero ending (- $\emptyset$ ) as in Standard English, which does not allow the -s suffix in third-person plural contexts. The NSR consists of two constraints, the Type of Subject (TS) constraint and the Subject Adjacency (SA) constraint. The Type of Subject constraint states that the subject needs to be lexical for the verb to take an -s suffix, see (1) for an example. NSR-dialects would deem example (1a) grammatical because the subject is lexical instead of pronominal, as in (1b).

- (1) a. The cats sleeps  
b. \*They sleeps

The Subject Adjacency constraint states that when a subject is pronominal, the verb can take an -s suffix if the verb and the subject are not adjacent. An example of this is shown in (2), where (2a) would be ungrammatical because the subject is pronominal, but (2b) would be grammatical because the subject and the verb are separated.

- (2) a. \*They sleeps  
b. They always sleeps

The TS constraint has been found to be the core condition of the NSR, the SA constraint has been less widely attested (de Haas & van Kemenade, 2015). The SA constraint does not occur in every NSR dialect, whereas the TS constraint does. The TS constraint is therefore more central to the NSR.

This study builds on the work of Slegers (2017), who built his work on Hoendervangers (2016) and Barbiers, Bennis and Hendriks (2018)<sup>1</sup>. They have all attempted to uncover principles

---

<sup>1</sup> Note that Hoendervangers (2016) and Slegers (2017) have done their research using an earlier unpublished manuscript of Barbiers, Bennis & Hendriks (2018).

of underlying grammatical knowledge which are not (clearly) acquirable through input. Barbiers et al. have looked at the order of verbal clusters, which differ across dialects. She found that Dutch speakers of all dialects have the same order preferences. The participants could not have acquired the same preferences by their input because dialects differ in which order they use. This shows speakers might have knowledge that goes beyond their input. Hoendervangers has taken this concept to construct her study, which tried to find principles beyond input by looking at the NSR. She tried to find a sensitivity towards the NSR in Standard English speakers and Dutch speakers, and found them both to be sensitive. Slegers has taken Hoendervangers' research and tried to replicate her results. He thoroughly revised her experiment, to be able to examine sensitivity towards the NSR in a more nuanced manner. Slegers used Danish speakers to find out whether agreement might play a role in the sensitivity Hoendervangers found in speakers of Standard English and Dutch. Danish lacks agreement, which means that if Danish speakers show no sensitivity towards the NSR agreement might be a factor in the sensitivity of Dutch and Standard English speakers. Slegers has shown that Danish speakers are sensitive towards the NSR, which might mean that agreement is not linked to speaker sensitivity. This study however analyses Danish as a language that does have an underlying agreement system, which is not spelled out at Phonological Form (PF). The sensitivity Danish speakers have shown might therefore still have to do with agreement phenomena, although not with overt agreement phenomena.

Slegers has shown that overt agreement phenomena do not play a role in the sensitivity of Danish speakers. This study will draw on this by looking at another factor that might have caused Danish speakers to be sensitive towards the NSR. The element this study will examine derives from an analysis of the NSR constructed by de Haas and van Kemenade (2015). They have argued that the syntactical structure of the NSR contains two external subject positions, spec, AgrSP and spec, TP. This research hypothesises that it could be the case that Danish speakers show a sensitivity towards the NSR because they have a similar kind of structure. Danish is a V2 language, which is why its syntactical structure contains one external subject position, spec, TP, and one possible external subject position, spec, CP. The underlying knowledge Danish speakers have about V2 and spec, CP might be a factor in the knowledge they

seem to have that goes beyond their input.

The research question of this study is whether the presence of V2 in ones L1 plays a role in speaker sensitivity towards the NSR. This study will examine Dutch speakers, as they also have V2 in their L1. It will look at the Dutch subordinate clause, which does not contain V2. Dutch speakers are therefore expected to show sensitivity towards the NSR in main clauses but not in subordinate clauses. Freriksen (2019) has attempted to replicate the effect Hoendervangers found in Dutch speakers by revising her experiment, which only used main clauses. The study by Freriksen and this study are highly complementary, as the experiment of this study is a subordinate clause version of the experiment done by Freriksen. The results of this study will therefore be compared to the results of Freriksen.

Section 2 will look at the NSR in more detail and discuss previous studies done by Barbiers et al. (2018), Hoendervangers (2016) and Slegers (2017). It will also discuss the full extent of the syntactical structure proposed by de Haas and van Kemenade (2015), and it will look at the implications of that proposal for this study. The section will discuss V2 and the position spec, CP more closely, as it tries to show how the two might be related to the NSR. Section 2.3 will consider possible objections that could be made against using Dutch participants, and it will eliminate these problems. The methodology of the two experiments this study will conduct will be discussed in Section 3. The methodology builds the revision Slegers has done on Hoendervangers. The experiments will be a subordinate clause version of the experiments done by Freriksen (2019). Section 4 looks at the results of the experiments of this study. Section 5 is a general discussion on the results, which will also compare the results of this study with the results of Freriksen. It will also give some suggestions for further research. Section 6 will conclude this research.

## 2. Background

This background section is divided into four sections. Section 2.1 will provide information about the character of the Northern Subject Rule (NSR). Then, it will review three previous studies by Barbiers, Bennis & Hendriks (2018), Hoendervangers (2016) and Slegers (2017). Barbiers et al. have provided a starting point for Hoendervangers and Slegers, by studying the presence of grammatical knowledge that could not have been acquired through the input. Hoendervangers and Slegers have built on that idea by looking at the NSR. Section 2.2 will build on Section 2.1 to discuss the goal of this research. Section 2.3 will debunk objections that could be made against some of the points mentioned in Section 2.2. Final section 2.4 will conclude the background section.

### 2.1 The Northern Subject Rule and previous studies

The NSR is a grammatical construction that occurs in Northern English dialects. Present-tense verbs may get a verbal -s suffix in third-person plural contexts. The verbs can also take a zero ending (- $\emptyset$ ) like Standard English, which only considers the zero ending grammatical. The NSR is subjected to two constraints, of which the most prominent one is called the Type of Subject (TS) constraint. It states that only when the subject is lexical the verb may take an -s suffix. An example of this constraint is shown in (3), where sentence (3a) is grammatical for both Standard English speakers as well as NSR-speakers and sentence (3b) is ungrammatical for both speaker groups since a pronominal subject is used. Example (3c) is deemed grammatical by NSR-speakers because it contains a lexical subject, which makes it possible for the verb to take a verbal -s suffix.

- (3)
- a. The girls sing
  - b. \*They sings
  - c. The girls sings

The other constraint is the Subject Adjacency (SA) constraint. Unlike the Type of Subject

constraint, the Subject Adjacency constraint does not exist in all varieties of the NSR. It states that for pronominal subjects, the verb can take an -s suffix but only if the verb and the subject are separated. This effectively means that when an adverb is placed between the pronominal subject and the verb, NSR-speakers will judge the sentence as grammatical. An example of this is shown in (4), where sentence (4b) is ungrammatical for both Standard English speakers and NSR-speakers, because a pronominal subject is adjacent to the verb. Sentence (4c) is grammatical according to the Subject Adjacency constraint, since an adverb intervenes between the pronominal subject and the verb.

- (4) a. The girls sing  
 b. \*They sings  
 c. They always sings

A corpus research done by de Haas and van Kemenade (2015) shows that the TS condition is the core condition of the NSR. In early Middle English, when the NSR was already attested, the TS condition occurred more often than the SA condition. In Modern English varieties, the TS condition is also attested more widely than the SA condition. This indicates that the TS condition was, and still is, more central to the NSR than whether the verb is adjacent to the pronominal subject or not.

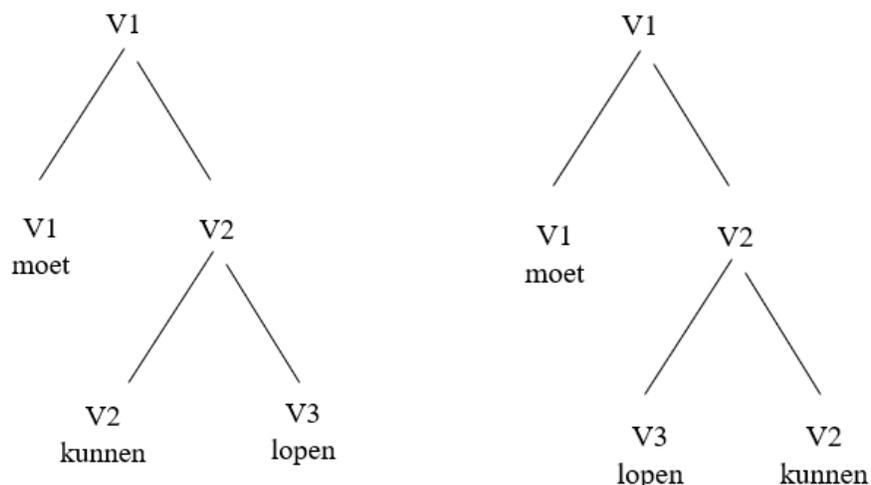
This study will draw on earlier research done by Barbiers, Bennis and Hendriks (2018), Hoendervangers (2016) and Slegers (2017). Barbiers et al. have constructed a starting point for Hoendervangers, whom Slegers has built his work on. All three have attempted to find evidence for principles of underlying grammatical knowledge that are not (obviously) acquirable through input. The remainder of this section will discuss the objectives and results of these three studies in the mentioned order.

Barbiers, Bennis and Hendriks (2018) looked at verbal clusters in Dutch. In embedded clauses that end with more than one verb, the word order across Dutch dialects is fairly free. Six different orders with the same semantic and pragmatical meaning can be made, see (5). Orders (5c) and (5d) are not present in Standard Dutch, the other four orders are.

- (5) a. Ik vind dat iedereen moet kunnen zwemmen V1-V2-V3  
 I find that everyone must can swim
- I think that everybody should be able to swim*
- b. Ik vind dat iedereen moet zwemmen kunnen V1-V3-V2
- c. Ik vind dat iedereen kunnen moet zwemmen V2-V1-V3
- d. Ik vind dat iedereen kunnen zwemmen moet V2-V3-V1
- e. Ik vind dat iedereen zwemmen kunnen moet V3-V2-V1
- f. Ik vind dat iedereen zwemmen moet kunnen V3-V1-V2

Different dialects use different orders. The variation in order between Dutch dialects seems to be connected to the geographical location of the dialect, specific regions have specific order preferences. The orders are identical in meaning, therefore it is expected Dutch speakers judge these sentences based on their language input. Barbiers et al. conducted an experiment in which Dutch speakers had to rank the different orders. They have shown that Dutch speakers generally rank the grammaticality of the orders in the same way, irrespective of their location and the input they have had. This suggests speakers base their grammatical decisions on something that goes beyond their input. To understand this, Barbiers et al. have suggested the presence of an underlying grammatical system, working regardless of the input speakers get, which unconsciously influences the orders Dutch speakers prefer. They proposed that verb clusters are syntactically generated through merge, shown in (6).

(6)



V2 and V3 are combined first, which means the combinations V2-V3 and V3-V2 are possible. Verb clusters with three verbs can be generated when V1 merges with V2, consisting of both V2 and V3. V1 is able to merge both to the left and the right of V2. According to this analysis of Barbiers et al., it is not possible for V1 to occur in between V2 and V3. Barbiers et al. thus expect that orders (5c) and (5f) do not occur in Dutch dialects. Their empirical data showed that verb clusters like (5c) indeed did not occur in any Dutch dialects, because it cannot be derived from merge. Verb clusters like (5f) however, did occur in some Dutch dialects. Barbiers et al. explain this by stating these kind of participles can be interpreted in two ways, either as an adjective or as a verb. See (7) for an example of their analysis.

- (7) a. ... dat de wagen gemaakt is  
 ... that the car made is  
 ...*that the car is made / has been made*
- b. ... dat de wagen is gemaakt  
 ... that the car is made  
 ...*that the car has been made*

Example (7) shows the participle *gemaakt* in (7a) can be interpreted in an adjectival manner (made) or in a verbal way (has been made), whereas that same participle in (7b) can only get the verbal interpretation. Barbiers et al. argue that Dutch non-verbal elements, like the adjectival interpretation of *gemaakt*, generally merge to the left of the verb because Dutch has OV word order. Sentences like (5f) therefore do not really consist of three verbs, V3-V1-V2, but rather of two verbs and a verb with more of an adjectival meaning, *participle-V1-V2*. In sum, Dutch participants showed the same systematic order preferences. They could not have acquired these preferences through their input since different dialects use different orders. Barbiers et al. have argued that they base their choices on an underlying grammatical system called merge, which excludes the possibility of order V2-V1-V3 (5c) and makes the order V1-V2-V3 (5a) most

acceptable.

The study inspired Hoendervangers (2016) to carry out a similar study by focusing on the NSR. Her participants were native Standard English speakers and Dutch speakers with English as their second language (L2). Both groups did not acquire the NSR on the basis of their input, which means that examples (3c) and (4c) are considered ungrammatical in their English. They had to rank four types of sentences, an example is shown in (8), of which one violated both constraints of the NSR (8a), one violated neither (8b) and the other two violated only one of them (8c, 8d).

- |     |    |                                    |            |
|-----|----|------------------------------------|------------|
| (8) | a. | *Probably they likes candy.        | (TS-, SA-) |
|     | b. | The children probably likes candy. | (TS+, SA+) |
|     | c. | Probably the children likes candy. | (TS+, SA-) |
|     | d. | They probably likes candy.         | (TS-, SA+) |

The participants ranked the sentences from best to worst. Her results showed both speaker groups judged the sentence that violated both constraints the worst, and the one that violated neither the best. This means both groups are sensitive towards the NSR, which again suggests the availability of a grammar knowledge pattern that cannot have been obtained from the input. This is true for the Dutch speakers especially, since they are really unlikely to have been in contact with any Northern speakers using the NSR during their acquisition of English, whereas this cannot be completely excluded for the Standard English speakers. The origin of this sensitivity is hard to establish yet, since this is quite a new field of research.

Slegers (2017) has taken Hoendervangers' (2016) research and tried to find out more about the origin of the sensitivity. He noticed Hoendervangers' experiment required a more nuanced approach. His first goal was therefore to revise the experiment to make sure the results could be replicated. He revised Hoendervangers' experiment by solving five issues to eliminate irrelevant factors that could influence the results. The first problem he encountered was Hoendervangers' choice of presenting the stimuli in sets of four, which included both constraints of the NSR, the TS constraint and the SA constraint. The participants had to rank all four

sentences from best to worst. A preference for a certain sentence would be hard to establish this way, since that makes it hard to trace back to which constraint the preference can be ascribed. Slegers therefore decided to present the stimuli in pairs of two, testing only one constraint at a time. The second problem he solved was the fact that Hoendervangers exclusively used regular subjects, which led to all subjects ending with an -s. An -s was added to all verbs as well, because the experiment tried to find out whether participants showed any sensitivity towards instances of the NSR. This might have caused participants to create a positive or negative bias towards the -s rhyme, which is what combining a regular subject with a verb ending in -s creates. This effect had to be taken into account, which is why Slegers decided to use the same amount of irregular as regular verbs in his experiment. Slegers also noticed the choice of a lexical subject over a pronominal subject is not necessarily due to a sensitivity towards the NSR. Hoendervangers presented her items without any context, which most probably results in participants choosing the lexical subject since pronominal subjects always refer back to some context. Without context, they would choose (3c) over (3b) for example, simply because *they* does not refer back to anyone. Slegers therefore added two context sentences. One context sentence probably makes the bias of participants shift towards the pronominal subject because they might not like it when two sentences after each other start with identical words. A second context sentence helps to eliminate this possible bias. The fourth issue he found had to do with the SA constraint. Hoendervangers did not check whether the adverbials she used contained a general preference for initial or medial position. Adverbials are generally grammatical in both positions, but for some adverbials there is still a general preference for a certain position. This means participants might base their choice of a sentence that is grammatical according to the SA constraint, like (4c), on the fact that the adverb used is preferred in medial position. The results then, would not show participant's intuitions about the NSR, but rather their preferences because certain adverbials were used. Slegers examined which adverbs were most neutral and used these in an attempt to prevent the results from bias because of general preferences for adverbials in certain positions. The last problem Slegers solved was the absence of filler items in Hoendervangers' experiment. He implemented filler items to distract participants from the goal of the experiment and to increase their focus by having variety in the presented stimuli. One

thing that should be noted is that the pretest and the actual experiment of Slegers were not identical. Slegers first carried out a pretest to detect whether there were any items or parts that needed revision. He found that participants perceived his pretest to be too long. For his actual experiment, he therefore decided to omit the items that turned out to have a clear bias in the pretest. Slegers also changed the nature of his filler items from presenting two grammatical answers to one grammatical and one ungrammatical answer. This was done to keep participants more focused. He also included a LexTALE section to examine speaker proficiency. Slegers compared the pretest and the actual test to examine whether Danish speakers display a significantly different preference when an -s is added to the verb. The comparison between both tests might be not completely accurate because the tests were not exactly the same.

Slegers (2017) decided to use Danish participants with English as their L2, instead of Dutch and English participants, so he could make an attempt at finding out more about the source of the sensitivity Hoendervangers found. He tried to rule out that the sensitivity comes from knowledge of the grammatical property agreement, acquired by input. Danish is a language without subject-verb agreement, and they have the same unlikeliness as Dutch speakers to have been in contact with NSR-speakers. If they show the same sensitivity, having a language with subject-verb agreement as your first language (L1) cannot be the cause. He found a significant result which means that Danish speakers are sensitive towards the NSR. This effect again suggests principles beyond the input are at work here, according to Slegers however these principles cannot be understood because of the fact that speakers have intuitions because of subject-verb agreement in their L1.

This section has discussed the nature of the NSR. It also looked at previous studies that have tried to find out more about principles that go beyond input, and have based their research on the NSR. The following section will use these studies to construct a new hypothesis.

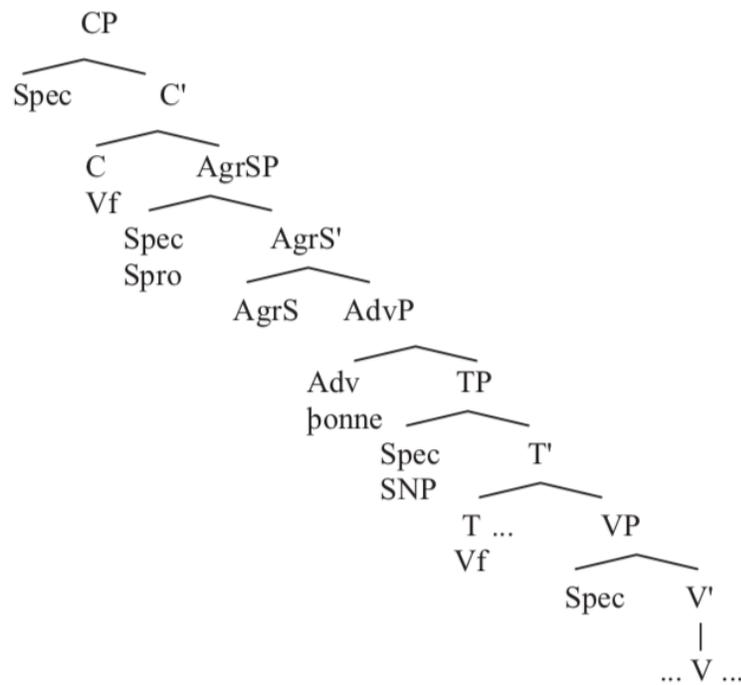
## 2.2 Towards a new hypothesis

Despite the merits of Slegers' (2017) analysis, it is not clear what has caused Danish speaker sensitivity towards the NSR. Having subject-verb agreement in your L1 does not seem to be of importance in this matter. The effect then, might have to do with other properties present in

Danish grammar. A property that might have caused the sensitivity is the presence of multiple possible subject positions outside of the VP, which is what this research will explore. This section will first look at de Haas and van Kemenade (2015), who made a case for the connection between the NSR and multiple VP-external subject positions. It will then work towards a new hypothesis by extending this analysis to the presence of multiple *possible* VP-external subject positions, looking at languages with V2 like Danish and Dutch. Danish will be explained with respect to V2 first, then the section will argue why V2 and the position spec, CP could be connected to the NSR, after which Dutch will be introduced as the language of choice for this study.

De Haas and van Kemenade (2015) argue NSR-dialects in Old and Middle English made use of multiple subject positions outside of the VP. The syntactic tree in (9) shows the two subject positions they argue for, Spec, AgrSP and Spec, TP.

(9)



De Haas and van Kemenade have looked at preferences in the order of the subject and the diagnostic adverb in main clause questions in Old English. The results can be found in Table 1.

Table 1

*Order of subject and diagnostic adverb in main clause questions in Old English*

	Pronominal subjects (Spro)	Nominal subjects (SNP)
subject - þa/þonne	98.9% (90/91)	18% (11/61)
þa/þonne - subject	1.1% (1/91)	82% (50/61)

The data signified that the place of the subject is determined by the nature of the subject.

Pronominal subjects prefer the position before the adverb, meaning they occur mostly in the higher position called Spec, AgrSP, whereas nominal subjects prefer to be in the lower position after the adverb, Spec, TP. De Haas and van Kemenade link this to the NSR by stating that the position of the subject determines whether the subject receives a - $\emptyset$  ending or an -s ending.

Consider (10).

- (10) a. [AgrSP they [AgrS **sing** 3PL [TP [T sing- $\emptyset$  . . . [VP . . . ]]]]  
 b. [AgrSP [AgrS **sing** 3PL [TP the girls [T sing-s . . . [VP . . . ]]]]  
 c. [AgrSP they [AgrS **sing** 3PL [AdvP always [TP [T sing-s . . . [VP . . . ]]]]

Pronominal subjects occupy the higher position Spec, AgrSP. This position enables true agreement since AgrSP is an agreement projection, which results in the - $\emptyset$  ending as in (10a).

Lexical subjects occupy the lower position, which results in some sort of default -s ending on the verb because TP is not an agreement projection and therefore true agreement cannot be triggered.

This is shown in (10b). It explains the TS condition and is the reason why *the girls sings* is grammatical, according to NSR dialects, and *they sings* is not. De Haas and van Kemenade

follow Bobaljik (2002), who argues that at Phonological Form (PF) a language either pronounces the higher copy or the lower copy of the verb. For this analysis, the assumption needs to be made that verb movement leaves a copy of the verb in its base position. All NSR dialects pronounce the lower copy of the verb, but NSR dialects differ in whether subject-verb adjacency is a requisite for triggering true agreement. This provides a reason as to why the TS condition is present in all NSR dialects, whereas the SA condition is not. NSR dialects that do not have the SA constraint allow the subject in Spec, AgrSP to trigger true agreement even when an element intervenes in between the subject and the verb. This will generate *they sing* as in (10a), the construction Standard English also uses. For NSR dialects that do have the Subject Adjacency constraint, the agreement relationship is broken when an element, like an adverb, intervenes between the subject and the verb. True agreement cannot be triggered anymore, which is why the verb keeps the -s as its ending. The contemporary constraints of the NSR seem to reflect the syntactic tree in (9) and the phenomenon of multiple external subject positions, making it more likely the analysis holds for present-day NSR dialects as well.

Henry (1995) and Tortora and den Dikken (2010) have argued for comparable more present-day phenomena in Belfast English and Appalachian English respectively. They state that only subjects in Spec, AgrSP trigger true agreement, subjects in the other two external subject positions they argue for do not. The fact similar present-day analyses can be made, makes it even more likely the analysis of De Haas and van Kemenade (2015) is generalisable to contemporary NSR dialects.

It can therefore be argued that speakers of languages which make use of multiple external subject positions are more sensitive towards the NSR. These speakers might have intuitions about the NSR by making use of the underlying knowledge of multiple external subject positions acquired by their input. Bobaljik and Thráinsson (1998) argue that for example Icelandic has multiple external subject positions in the form of a split-IP. They state that Danish does not have a split-IP, and thus no multiple external subject positions, which might make it seem as if the sensitivity of Danish speakers cannot be understood by the presence of multiple external subject positions. Danish is a V2 language however, and V2 can be analysed in a similar way. The analysis can be extended towards the presence of multiple *possible* subject positions outside of the VP by looking at Spec, CP. In V2 languages, Spec, CP is a second possible subject position

outside of the VP, besides Spec, TP. Spec, CP can be occupied by subjects as well as other elements in V2 languages, which makes it a possible subject position. `

The NSR is undeniably connected to agreement since the TS condition and the SA condition determine whether an -s is added to the verb or not. De Haas and van Kemenade (2015) have argued that the NSR is connected to agreement phenomena resulting from the multiple external subject positions of their analysis, Spec, AgrSP and spec, TP. The position Spec, CP is linked to agreement phenomena as well, which can be shown in two ways. The two phenomena will be demonstrated with Dutch examples, since Dutch will be the language of choice for this study.

The first phenomenon that demonstrates Spec, CP as a position connected to agreement is complementizer agreement. The complementizer head has an agreement affix in some languages and dialects. An example is Frisian Dutch, shown in (11). The subordinating conjunction, or complementizer head, *datst* is accompanied by the same affix as the verb *komst*. The C position must therefore be connected to agreement.

- (11)
- |    |         |      |     |     |      |     |
|----|---------|------|-----|-----|------|-----|
| Ik | lieuw   | da   | -st | -o  | kom  | -st |
| Ik | geloof  | dat  |     | je  | kom  | -t  |
| I  | believe | that |     | you | come |     |
- I believe that you will come*

Inversion morphology also shows spec, CP must have some link to agreement. Consider example (12). The place of the subject in second person singular contexts determines the subject-verb agreement.

- (12) a.
- |     |       |
|-----|-------|
| Jij | zwemt |
| You | swim  |
- You swim*

- b. Zwem jij?  
Swim you?  
*Do you swim?*

The Dutch verb paradigm states that the verb receives a -t ending in second person singular (12a), except for when the verb is followed by the subject (12b). The verb moves to C in V2 languages. If the subject occupies spec, CP the verb receives a -t ending, whereas if spec, CP stays empty and the subject stays in the lower subject position, spec, TP, the verb receives a -∅ ending. This makes it even more likely that the C position is connected to agreement, and therefore it is reasonable this position might be connected to the NSR in a similar way as spec, AgrSP.

Two issues regarding this proposal arise that need to be dealt with. Slegers (2017), has argued that agreement cannot be the cause of the sensitivity he found in Danish speakers. His proposal might be more complex than presented. Slegers stated that Danish is a language without agreement, but it could also be the case that underlyingly Danish does make use of a similar agreement system as for example Dutch, which is then not spelled out at PF. This means the sensitivity of Danish speakers could still have to do with agreement phenomena, although not with overt agreement phenomena.

It is now predicted that a language without V2 and without a split-IP, like English, should not show any sensitivity towards the NSR. Hoendervangers (2016) however, has found English speakers to be sensitive towards the NSR. As mentioned before, Slegers (2017) improved Hoendervangers' experiment significantly. It might not be possible to replicate the result when a repetition of the experiment, including the revision of Slegers, is carried out. It is also hard to establish whether English participants have not had any possible contact with Northern English dialects, since they live closely together.

This section has theorised that speakers of a language with V2 might show sensitivity towards the NSR. Danish speakers have already revealed their sensitivity for the NSR in Slegers' (2017) experiment. It is expected then that Dutch speakers show the same sensitivity, since Dutch is a V2 language as well. Dutch and Danish speakers could have intuitions about the

NSR because of their underlying knowledge of the spec, CP position in combination with verb agreement. This research will attempt to examine this by looking at subordinate clauses. The Dutch subordinate clause does not contain V2, and instead makes use of a fixed SOV pattern. The subordinate clause in Dutch therefore does not contain the multiple possible external subject positions that are argued to be necessary to show sensitivity towards the NSR. This is similar to Danish, which also contains V2 in its main clauses whereas its subordinate clauses contain an SVO pattern. If speakers of Dutch and Danish are sensitive towards the NSR because of V2, they should not show any sensitivity towards the NSR when they are presented with subordinate clauses. Out of these two languages Dutch is the language this study will investigate, mostly for practical reasons. Dutch participants are expected to be found more easily. The results of this research will be compared to the results of Freriksen (2019), who investigated whether Dutch speakers show sensitivity towards the NSR in main clauses. If the hypothesis of this study is borne out, Freriksen should find that Dutch speakers do show sensitivity towards the NSR in main clauses. The Dutch main clause has V2 and therefore it also contains multiple potential external subject positions. Freriksen used main clause versions of the items this study uses as well. This means the two studies are highly complementary and can therefore be compared in a nuanced manner<sup>2</sup>.

### 2.3 Possible objections

Two objections could be made against using Dutch as the language of study, arguing for multiple subject positions outside of the VP in the Dutch subordinate clause. This section will discuss these objections and eliminate them by presenting analyses that show that the Dutch subordinate clause does not contain multiple external subject positions.

It could be argued that the Dutch subordinate clause contains multiple external subject positions by looking at nominative-dative inversion, see (13). The subject is able to occupy two different positions, which results in a possible SOV and OSV word order in the Dutch

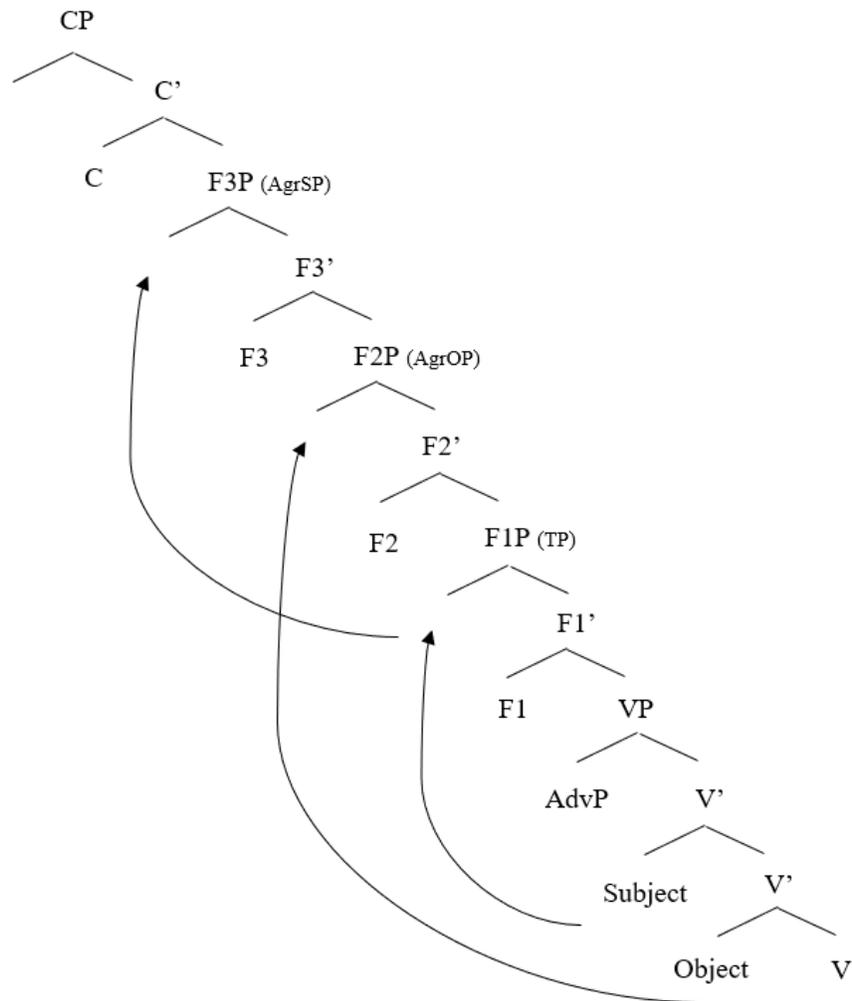
---

<sup>2</sup> One difference between the two studies that should be noted, is that this study incorporated the SA constraint and the TS constraint in one experiment, whereas Freriksen (2019) constructed two separate tests to examine the SA constraint and the TS constraint. This might have a small influence on the performance of the participants.

subordinate clause respectively. It is reasonable to state that the intervening adverb *waarschijnlijk*, which marks the boundary of VP, makes it apparent that the subject *deze boeken* must have moved out of the VP in both (13a) and (13b). This would be an argument for the presence of two external subject positions, since the subject *deze boeken* can occupy the position before and after the object *Jan*.

- (13) a.    dat    Jan    deze    boeken            waarschijnlijk bevallen (O-S-V)  
           that    Jan    these    books            probably        please  
           *that these books probably please Jan*
- b.    dat    deze    boeken            Jan    waarschijnlijk bevallen (S-O-V)  
           that    these    books            Jan    probably        please  
           *that these books probably please Jan*

The Dutch subordinate clause can syntactically be analysed in the following way, see (14).

(14)<sup>3</sup>

(13a) and (13b) can be derived from this syntactical structure. If the adverb shows the boundary of the VP, both the object *Jan* and the subject *deze boeken* must have moved outside of the VP in (13a) and (13b). The analysis states that the object *Jan* has moved to spec, F2P, which must then be some sort of object position. The subject *deze boeken* in sentence in (13a) has moved to spec, F1P (spec, TP). The subject *deze boeken* is in a position above object *Jan* in (13b) however, which means there is another higher subject position *deze boeken* has moved to, spec, F3P. This would be an argument for the existence of two external subject positions in the Dutch subordinate clause. This analysis is only as strong as the assumptions it is based on. Neeleman

<sup>3</sup> Note that for the purpose of this research the exact names of the functional projections are not important. The assumption is that F3 is equal to AgrS, F2 to AgrO and F1 to T.

and Weerman (1999) propose another analysis for the above mentioned phenomenon, which they call scrambling. They argue that the adverb does not necessarily define the boundary of VP, and that the subject and the object in (13) occupy a base-generated position within VP. Their analysis poses that theta-assignment can take place more freely within the VP in Dutch, it can therefore also happen across adverbials. This would mean the lower subject position of the previous analysis does not exist at all because the subject and the object are simply subjected to VP-internal scrambling. Neeleman and Weerman derive their analysis from the standard analysis as developed by Den Besten (1989), which states that the object can either remain in situ or move to an external object position, which was analysed as the lower subject position in the previous analysis. Object *Jan* in (13b) is then assumed to move to this object position. *Deze boeken* in (13b) raises to a position above the object position, whereas in (13a) both the subject and the object are base-generated. The lower subject position from the previous analysis can now be analysed as an object position as the standard analysis of den Besten shows, or a second external subject position does not exist at all because of VP-internal scrambling<sup>4</sup>. Either way, both analyses serve as a counterargument to the existence of multiple external subject positions in the Dutch subordinate clause.

The second argument for multiple external subject positions in the Dutch subordinate clause could be the so-called Transitive Expletive Construction (TEC). Koenenman and Neeleman (2001) explain why not all languages have TECs. They argue that only V2 languages with V to I movement have a large enough functional domain to host both an expletive and a subject<sup>5</sup>. Both phenomena are necessary because if a verb moves once, only one functional projection is licensed, which means there is only one specifier position. The subject and the expletive then compete for that single position. The verb needs to undergo V2 and V to I movement for two specifier positions (spec, IP and spec, CP) to be licensed, so the expletive and subject can both occupy a specifier position. Icelandic is a language that has such a rich functional structure, as it has both V to I movement and V2. Bobaljik and Thráinsson (1998) argue that Icelandic projects

---

<sup>4</sup> Consult Neeleman and Weerman (1999) for further discussion on the full extent of their proposal.

<sup>5</sup> The purpose of this research is not to explain the theory behind Transitive Expletive Constructions (TECs) in detail. For an exact explanation as to why only languages that have V2 and V to I movement are able to host TECs, see Koenenman and Neeleman (2001).



second subject position, but should be analysed as an adverbial for several reasons that become apparent when a comparison is made with German *es* and *da*. Consider (17):

- (17) a. Es hat jemand einen Apfel gegessen  
 There had someone an apple eaten  
*Someone has eaten an apple*
- b. \*Ich glaube dass es jemand einen Apfel gegessen hat  
 I believe that there someone an apple eaten had  
*I believe that someone has eaten an apple*
- c. Da hat jemand einen Apfel gegessen  
 There had someone an apple eaten  
*Someone has eaten an apple*
- d. Ich glaube dass da jemand einen Apfel gegessen hat  
 I believe that there someone an apple eaten had  
*I believe that someone has eaten an apple*

German *es* is grammatical in the main clause (17a) but not in the subordinate clause (17b), which shows that German can host TECs in the main clause but not in the subordinate clause. German however also has the possibility to use a *da*-construction, shown in (17c) and (17d). Both sentences with the *da*-construction are grammatical. Dutch *er* corresponds with German *da* since *er* is grammatical in main clauses and subordinate clauses as well. German *da* and Dutch *er* should therefore be analysed in a different way than German *es*. The proposed analysis is that German *es* is a subject expletive, and German *da* and Dutch *er* are adverbials. An argument for this is the fact that the German *es*-construction must always contain an indefinite subject. The object is not limited in this way, it can be definite and indefinite, see (18).

- (18) a. Es hat jemand einen Apfel gegessen  
 There had someone an apple eaten  
*Someone has eaten an apple*

- b.     Es     hat     jemand     den Apfel     gegessen  
        There had     someone     the apple     eaten  
        *Someone has eaten the apple*

The *da*-construction differs from the *es*-construction in this respect, see (19).

- (19)     \*Da     hat     jemand     einen Apfel     gegessen  
        There had     someone     an apple     eaten  
        *Someone has eaten an apple*

The object cannot be indefinite in the *da*-construction. This signals that *da* should be analysed as a different kind of element than German *es*. In Dutch a similar phenomenon occurs with Dutch *er*, which is shown in (20).

- (20)     \*Er     heeft     iemand     de appel     gegeten  
        There has     someone     the apple     eaten  
        *Someone has eaten the apple*

The object in a sentence with Dutch *er* is unable to be definite. It can therefore not be compared with German *es*, since the object could be definite and indefinite in the German *es*-construction. Dutch *er* is thus more similar to German *da*. Another argument that shows that Dutch *er* should be analysed as an adverbial, like German *da* is the fact that German *es* can only occupy the initial position, not a medial position. See (21).

- (21) a.     \*Wahrscheinlich     hat     es     jemand     einen Apfel     gegessen  
        Probably             had     there     someone     an apple     eaten  
        *Someone has probably eaten an apple*

- b.      Wahrscheinlich      hat    da    jemand      einen Apfel   gegessen  
          Probably            had   there   someone    an apple     eaten  
          *Someone has probably eaten an apple*

(21a) is ungrammatical because *es* occupies a medial position. When *da* occupies a medial position however, the construction stays grammatical (21b). This again shows that German *da* behaves differently than *es*. Dutch *er* can also occupy medial position, as shown in (22). This once more signals that *er* should be analysed as an adverbial like German *da*.

- (22)        Waarschijnlijk heeft er    iemand      een appel    gegeten  
          Probably    has    there    someone    an apple    eaten  
          *Someone has probably eaten an apple*

The above arguments all add to the analysis of *er* as an adverbial. Dutch *er*-constructions should therefore not be analysed as TEC constructions. It might be the case that Dutch uses two kinds of *er*-constructions, one in which *er* is an expletive subject that occupies a second external subject position and one in which *er* is an adverbial. That would mean the Dutch main clause does have TECs but the subordinate clause does not, and uses the adverbial *er*-construction instead. It could also be the case that Dutch *er* should always be analysed as an adverbial. Either way, in the Dutch subordinate clause *er* is not a subject that occupies a second external subject position, but rather an adverbial. This means the Dutch subordinate clause does not have TECs and therefore lacks multiple external subject positions.

The two possible problems for using Dutch participants in this research are now dealt with. Dutch does not contain multiple external subject positions in its subordinate clauses, neither due to TECs nor due to the syntactic structure that appears to become apparent from nominative-dative inversion. This means this research can be carried out with Dutch participants.

## 2.4 Conclusion

It has now been established the Dutch subordinate clause can be used to test whether the

underlying knowledge Dutch speakers have of V2, has influence on their sensitivity towards the NSR. The NSR is based on agreement phenomena, and is therefore syntactically analysed as a structure with multiple external subject positions by de Haas and van Kemenade. Section 2.2 has argued that V2 shows similarities with this syntactic structure as spec, CP is a potential subject position that is linked to agreement as well. Slegers found a sensitivity towards the NSR in Danish speakers. The sensitivity of Danish speakers does not have to do with overt agreement phenomena since Danish does not visibly spell out agreement. This research will attempt to examine another property of Danish that might have caused their sensitivity towards the NSR. Dutch and Danish both have the property V2, therefore this study will look into the effect V2 in the L1 structure of participants. The fact that Danish and Dutch speakers have underlying knowledge about V2 because of their L1 might be a factor in their sensitivity, since the underlying structure of their L1 shows similarities with the underlying structure of the NSR. This research will investigate the Dutch subordinate clause, as the structure of the subordinate clause in Dutch does not contain V2. If V2 is indeed a factor in Dutch and Danish speaker sensitivity towards the NSR, Dutch speakers should show no sensitivity towards the NSR when they are presented with Dutch subordinate clauses. If the hypothesis of this study is borne out Freriksen (2019) will be able to reproduce the results found by Hoendervangers (2015), which show that Dutch speakers are sensitive towards the NSR in main clauses.

### 3. The experiments

This section describes the pretest and the actual experiment. The pretest and the actual experiment were conducted concurrently. Both tests were exactly the same except for the agreement on the verb, therefore this section will discuss both tests simultaneously. These experiments were carried out in order to test the hypothesis, which states that Dutch speakers will not show sensitivity towards both constraints of the Northern Subject Rule (NSR) in subordinate clauses because of the absence of V2. It will contain a methodology section, a participants section and a materials and procedure section.

#### 3.1 Methodology

Two tests were conducted simultaneously. The two tests that were carried out were an actual experiment and a pretest. The data of the pretest would be used to compare the results of the actual experiment with. The pretest was completely identical to the actual experiment, except for verb agreement. This was done to be able to compare both tests accurately. Any items that would turn out to have a clear bias in the pretest would not be taken into account in the analysis and comparison of both experiments. As mentioned in Section 2.1, the pretest and actual experiment of Slegers (2017) were not identical and therefore his comparison could not be completely accurate. Slegers carried out a pretest to detect potential problems and bias in his experiment, after which he revised his experiment to create the actual experiment. Pretest participants therefore filled in a different test than the group of actual experiment participants, which results in a comparison that is less precise. This study has solved this problem by keeping the pretest and the actual experiment identical. Stimuli that turned out to be inappropriate were simply left out of the analysis of both experiments instead.

The items were presented in pairs of two and the participants were forced to select one answer out of the two. Slegers' (2017) stimuli consisted of main clauses only. The stimuli of this experiment were changed into subordinate clauses exclusively to be able to examine whether V2 plays a role in Dutch speaker sensitivity towards the NSR. If V2 is a factor in this sensitivity, the target group should not display any sensitivity in subordinate clauses. Both conditions of the NSR, the Type of Subject (TS) condition and the Subject Adjacency (SA) condition, were

included in the experiments. As mentioned previously, verb agreement was the only difference between the pretest and the actual experiment. For both conditions, the verbs in the actual experiment had an -s ending, whereas the verbs in the pretest did not. An example of a question on the TS condition is shown in (23) in which sentence (23a) is grammatical according to the NSR, and (24) presents an example of a question on the SA condition in which sentence (24b) is grammatical according to the NSR.

- (23) My feet are always cold. This is even true during the summer...
- a. ... when my feet need(s) at least three layers of socks to be warm.
  - b. ... when they need(s) at least three layers of socks to be warm.

- (24) I never see my neighbor's dogs at night,
- a. because probably they sleeps indoors.
  - b. because they probably sleeps indoors.

The participants of the actual experiment might be expected to show a preference towards medial adverb position for the SA condition, which is grammatical according to the NSR. This is potentially due to the fact that sentence (24a), and all other sentences of this type are ungrammatical in Dutch. The Dutch subordinate clause does not allow an adverb in between the subject and the conjunction, which can be seen in (25).

- (25) a. dat zij waarschijnlijk binnen slapen  
 that they probably indoors sleep  
*that they probably sleep indoors*
- b. \*dat waarschijnlijk zij binnen slapen  
 that probably they indoors sleep  
*that probably they sleep indoors*

The hypothesis of this research assumes that speakers make use of the underlying structure of

their L1 when they judge the NSR. According to the hypothesis, Dutch speakers are expected to show a sensitivity towards the NSR because of their underlying knowledge of V2 and spec, CP. Spec, CP can host subjects and other elements and can therefore be analysed as a second possible external subject position. This idea is built on the analysis de Haas and van Kemenade make on the syntactical structure of the NSR, which according to them includes two external subject positions as mentioned in Section 2.2. If Dutch speakers make use of their underlying syntactical structure when they judge the SA constraint items of the actual experiment, then it might also be expected that they do show a sensitivity towards the SA constraint in subordinate clauses. This is not in line with the hypothesis but should be taken into consideration, as the Dutch subordinate clause does not allow a pre-subject adverb position. The fact that this is ungrammatical in the Dutch subordinate clause might make Dutch speakers choose the NSR variant, (24b) in (24), out of the two options given. This could be because both options are ungrammatical, which might strengthen the usage of their underlying L1 structure. The presence of adverbials in the SA constraint items might therefore get in the way of examining whether the absence of spec, CP, as a second possible subject position, causes Dutch speakers not to be sensitive towards the NSR in subordinate clauses. The SA stimuli should thus be examined with caution in the analysis since the bias participants might show does not necessarily come from NSR sensitivity, but could also be derived from another factor in the underlying syntactic structure of Dutch speakers. The SA condition was added nonetheless to be able to make a more accurate comparison with Freriksen (2019). The experiment done by Freriksen is a complementary study to this research, as she conducted her experiment with main clause versions of the stimuli used in this study.

Sleegers' (2017) revision of Hoendervangers' (2016) experiment, as mentioned in Section 2.1, was taken into account in the construction of the experiments for this study. Five issues encountered in Hoendervangers were revised by Sleegers. Sleegers changed Hoendervangers' presentation of stimuli in sets of four into pairs of two, to be able to detect more accurately which constraint caused the result. This study therefore also presents the stimuli in pairs of two. The second issue he improved was the possibility of bias because of -s rhyme. The same amount of regular and irregular subjects were used for the TS condition, both in Sleegers' study as well as in this study, so the potential bias towards lexical subjects could be excluded. The third

element changed by Slegers was the addition of context sentences for the TS condition. Hoendervangers did not use context sentences, which could mean that participants preferred the lexical subject because pronominal subjects usually refer back to the context, which was lacking in Hoendervangers' experiment. As visible in (23) two context sentences were added to make sure the (absent) context did not influence their response. No context is believed to result in a bias towards the lexical subject and one context sentence might make participants switch to a bias towards the pronominal subject, because a construction with two consecutive sentences that start with the same words is not felicitous. The items were therefore accompanied by two context sentences to exclude this possible bias. As shown in (24), the SA condition stimuli did only need one context sentence because the subject is pronominal in both answers. The SA condition of Hoendervangers was improved by Slegers by looking more closely at the chosen adverbials. The items for the SA condition were presented with the adverbial in pre-subject and in post-subject position, like in (24). Generally speaking adverbials are grammatical in both positions, but certain adverbials are generally preferred in either pre-subject or post-subject position. Those kind of adverbials were excluded from the experiment because for these adverbs a significant preference for a specific adverb position could simply be due to the general preference for this adverb in this position. This does not mean that the stimuli cannot be biased anymore however. A potential bias could still arise due to other factors this study is not aware of yet. The items in this study that turn out to have a clear bias, will therefore be excluded from the analysis.

Slegers (2017) also added filler items, as opposed to Hoendervangers (2016). This study also made use of filler items to distract participants from the actual items so they are unable to know the objectives of this experiment. The filler items had two grammatical answers, of which most of the times one answer was slightly less grammatical. This differed from the other two types of items and therefore makes sure the participants stayed focused. It also prevented participants from picking a certain type of answer without justification, and using that for all of the stimuli.

In sum, this study made use of the improvements Slegers (2017) had already made with regard to Hoendervangers (2016). It differed from Slegers in two respects: the stimuli were all subordinate clauses and the data of the pretest could accurately be used for comparison, because

it was identical to the actual experiment. The pretest without -s on the verb was conducted to gather data for a comparison with the actual experiment and to exclude possible general preferences for adverbial position or lexical subjects as opposed to pronominal subjects. The actual experiment only differed from the pretest in verb agreement, an -s was added to the verb.

### 3.2 Participants

24 native Dutch speakers participated in the pretest, without -s on the verb, and 19 native Dutch speakers participated in the actual experiment, with -s on the verb. The participants had to be native Dutch speakers, speaking English as a foreign language. They were, or had been, enrolled in a university program and were not allowed to have studied a language or linguistics at university level. Only participants aged between 18-30 years qualified for the survey. The actual participants ranged from 18-28 years old. Participants suffering from dyslexia or any other reading disability were not allowed to fill in the survey.

### 3.3 Materials

The questionnaires were created on Qualtrics. All Dutch participants received a link that enabled them to fill in the questionnaire on their computer or mobile phone. The questionnaires consisted of an introduction section, the actual questions, a LexTALE section and some language and demographic questions. The questionnaires consisted of 158 questions in total, of which 80 actual questions and 63 LexTALE items. The 80 actual questions were divided into three parts, but displayed in randomised order to the participants. 20 questions focused on lexical as opposed to pronominal subjects, the TS condition, and 36 questions targeted adverbial placement, the SA condition. As mentioned earlier the sentences were presented in minimal pairs, in which the answers were coded as either a 0 or a 1. For the TS condition items, the 0 corresponds with pronominal subjects and the 1 stands for lexical subjects. For the SA condition items, the 0 corresponds with post-subject adverb position and 1 with pre-subject adverb position. The pretest did not have the verbal -s ending on the verbs, whereas the actual experiment did. The rationale behind this is that this study attempted to find out whether Dutch speakers are sensitive to the NSR in subordinate clauses. Because the tests are almost identical a direct comparison can be

made, which means that a significant difference can be ascribed to the -s ending. A significant difference would then show that Dutch speakers are or are not sensitive towards the NSR in subordinate clauses. The remaining 24 questions were filler items. These were constructed to distract the participants from the actual items, to prevent them from constantly choosing the same answer without thinking, and to keep them observant.

A Lexical Test for Advanced Learners of English (LexTALE) section was included because the questions on language, which were a self-assessment, were not enough to establish the participants' proficiency. LexTALE was designed to measure vocabulary knowledge but can also be used as an indicator of the English proficiency of participants (Lemhöfer and Broersma, 2012). The results of LexTALE were compared with the results of two extensive proficiency tests: The Quick Placement Test (QPT) and the TOEIC test. The connection between LexTALE and proficiency turned out to be significant, and thus LexTALE is an appropriate tool to measure English proficiency. The LexTALE section consisted of 63 questions with either a word or a non-word. The participant had to judge whether these were existing words or not. The whole section took around 4 minutes to fill in. Participants who scored below 50% were excluded from the analysed participant group. 19 out of 24 participants from the actual experiment were left after exclusion because of a low LexTALE score. No participants from the pretest needed to be excluded.

The questionnaires ended with four language questions and four demographic questions. The language questions asked the participants to indicate their first language, to confirm the right speaker group was targeted, and the amount of years they had received formal English teaching. They also had to rate their own English proficiency on a scale of 1 to 10. These questions were asked to get an understanding of their English proficiency. The demographic questions requested the participants to fill in their gender, their age, their current level of education and whether they had ever lived in Northern England, Scotland, Belfast or the Appalachian mountain region. These were asked to make sure the participants could not have been influenced by any English dialect that includes the NSR.

### 3.4 Procedure

The test and filler items, as well as the answer possibilities, were presented in randomised order. Participants filled in the questionnaires online. Participants were asked to check whether they qualified for the study, to fill out the survey in an environment where they could concentrate and to provide their answers intuitively. The questionnaires did not have a time limit for participants. A progress bar was implemented to enable the participants to monitor their progress. Participants were forced to select one answer in order to continue the test.

## 4. Results

This section reports the results of the pretest, without -s on the verb, and the actual experiment, with -s on the verb. It focuses on the Type of Subject (TS) condition and the Subject Adjacency (SA) condition separately. For each condition, the results of the pretest are explained and then compared with the results of the actual experiment. The results of the LexTALE and the self-assessment are described at the end.

### 4.1 Type of Subject condition

#### 4.1.1 Pretest

The pretest on the lexicality of the subject gathered empirical data on possible preferences between lexical and pronominal subjects. Any clear biases towards either lexical or pronominal subjects needed to be excluded. Items with an expletive in the context sentences were excluded for this reason<sup>6</sup>. A total of 8 items with an expletive in the context were removed, of which 7 items displayed that participants were strongly biased towards pronominal subjects and 1 item showed participants were clearly biased towards the lexical subject. The results are shown in Table 2:

Table 2

*Results pretest (Type of Subject)*

	<i>N</i>	<i>M</i>	<i>SD</i>
<b>Type of Subject (excluding items with expletives)</b>	<b>24</b>	<b>.50</b>	<b>.501</b>
Type of Subject (including items with expletives)	24	.44	.497

<sup>6</sup> Freriksen (2019) also excluded the items with an expletive in the context from her experiment, which was a main clause version of the tests of this study.

Pronominal subjects were coded as 0 and lexical subjects as 1. The Dutch speaker group did not display a preference for lexical or pronominal subjects ( $M = .50$ ,  $SD = .501$ ) after deletion of items including expletives.

#### 4.1.2 Actual experiment

The participants on the actual experiment also did not show a significant preference for lexical or pronominal subjects ( $M = .50$ ,  $SD = .501$ ). The results are shown in Table 3, accompanied by the results of the pretest. Items with a pronominal subject were coded as 0 and items with a lexical subject as 1.

Table 3

*Results actual experiment (Type of Subject)*

Type of Subject	<i>N</i>	<i>M</i>	<i>SD</i>
Pretest (without -s)	24	.50	.501
Actual experiment (with -s)	19	.51	.501

An independent-samples *t*-test was conducted to find out whether the answers Dutch participants select differ when an -s is added to the verb. The *t*-test compared participant's choices on the lexicality of the subject between the pretest, without the -s on the verb, and the actual experiment, with -s on the verb. The participants on the actual experiment did not significantly choose different answers ( $M = 0.51$ ,  $SD = .501$ ) than the participants on the pretest ( $M = 0.50$ ,  $SD = .501$ ). The difference between the two groups was not significant  $t(643) = -.309$ ,  $p = .376$ ,  $d = .0199$ . The *t*-test is one-tailed because the hypothesis of this study expected the mean of the actual experiment to be similar to the mean of the pretest or closer to 0 than the mean of the pretest.

## 4.2 Subject Adjacency condition

### 4.2.1 Pretest

The pretest gathered empirical data on preferences in adverbial placement in general, so that a potential evident bias towards adverbials in either pre-subject or post-subject position could later be excluded from the analysis. A total of 9 items were removed because of an extreme bias towards 0 or 1, which left 27 items<sup>7</sup>. The results can be seen in Table 4:

Table 4

*Results pretest (Subject Adjacency)*

	<i>N</i>	<i>M</i>	<i>ND</i>
<b>Subject Adjacency (Items removed)</b>	<b>24</b>	<b>.50</b>	<b>.500</b>
Subject Adjacency (all items)	24	.44	.496

Items with a post-subject adverb position were coded as 0 and items with a pre-subject adverb position were coded as 1. Dutch participants, on average, showed a slight preference towards medial position ( $M = .50$ ,  $ND = .500$ ).

### 4.2.2 Actual experiment

The participants on the actual experiment did show a significant preference for medial adverb position ( $M = .39$ ,  $SD = .489$ ). The results are shown in Table 5, accompanied by the results of the pretest. Items with a post-subject adverb position were coded as 0 and items with an pre-subject adverb position as 1.

---

<sup>7</sup> The items that were removed were items that had an average score of either below .2 or above .8. Freriksen (2019) applied the same principle, although this resulted in different items being removed.

Table 5

*Results actual experiment (Subject Adjacency)*

Type of Subject	<i>N</i>	<i>M</i>	<i>ND</i>
Pretest (without -s)	24	.50	.500
Actual experiment (with -s)	19	.39	.489

An independent-samples *t*-test was conducted to find out whether the answers Dutch participants select differ when an -s is added to the verb. The *t*-test compared participant's choices on the position of adverbs between the pretest, without the -s on the verb, and the actual experiment, with -s on the verb. The participants on the actual experiment significantly chose different answers ( $M = 0.39$ ,  $SD = .489$ ) in comparison with the participants on the pretest ( $M = 0.50$ ,  $SD = .500$ ). The difference between the two groups was significant  $t(1159) = 3.697$ ,  $p = .000$ ,  $d = .222$ . It represented a small sized effect ( $d = .222$ ). The strength of the phenomenon found is therefore small but still significant. The *t*-test is one-tailed because the hypothesis of this study expected the mean of the actual experiment to be similar to the mean of the pretest or closer to 0 than the mean of the pretest.

#### 4.3 LexTALE

All participants filled in a self-assessment on their English proficiency and have completed LexTALE. This section will show the average the scores on LexTALE and the self-assessment of the participants of both the pretest and the actual experiment together. See table 6 for the results.

Table 6

*Average result of LexTALE and self-assessment on English proficiency of Dutch speakers*

	<i>N</i>	Mean
Spoken proficiency	43	7.1
Written proficiency	43	7.1
Listening skills	43	8.3
Reading skills	43	8.0
<b>Overall proficiency</b>	43	7.6
<b>LexTALE</b>	43	<b>72%</b>

The self-assessment allowed participants to score their proficiency on a scale from 1 to 10. The results in Table 6 show the Dutch speaker target group ranked their proficiency with a 7.6 on average. This is quite a high score, which should then correspond with a high on LexTALE as well. The participants scored 72% out of 100% on average on LexTALE. This means they indeed have a relatively high English proficiency and are therefore appropriate candidates.

## 5. Discussion

This research has attempted to determine whether V2 and multiple possible external subject positions play a role in Dutch (and Danish) speaker sensitivity towards the Northern Subject Rule (NSR). The study has examined participants' sensitivity to the NSR using English subordinate clauses. Two experiments were conducted, one with an -s on the verb and one without -s. The two experiments were compared afterwards to determine whether there was an effect or not. The hypothesis of this research was that speakers would not show sensitivity towards the constraints of the NSR, since subordinate clauses in Dutch do not contain V2 and therefore they do not have multiple possible external subject positions.

The results show that Dutch speakers were not sensitive towards the TS constraint of the NSR. Freriksen (2019) has thoroughly revised the experiment of Hoendervangers (2016), and has shown that Dutch speakers are sensitive towards the TS condition of the NSR if they are presented with main clauses. This matches the hypothesis, which means that Dutch speakers might display a sensitivity towards the TS constraint because they have underlying knowledge about an extra possible external subject position because of V2. The underlying structure of V2 clauses shows similarities with the underlying syntactical structure of the NSR. Northern English dialects that use the NSR have two subject positions in their language structure, spec, AgrSP and spec, TP (de Haas & van Kemenade, 2015). These positions determine whether a true agreement relationship can be established or not, as the constraints of the NSR are based on agreement. Dutch uses V2, in which spec, CP can be analysed as a possible second external subject position since spec, CP can host various kinds of elements, including subjects. Section 2.2 has shown that CP is a projection that is related to agreement, and can therefore be connected to the NSR. This was for example demonstrated by the Frisian subordinate clause in (11), in which the conjunction in C has the same affix as the verb. The presence of V2 in ones L1 can therefore be related to the sensitivity towards the TS constraint that this study found in Dutch speakers, and the sensitivity Slegers found in Danish speakers, who also have V2. It has now become apparent that the underlying knowledge Dutch and Danish speakers have about spec, CP and V2 might indeed play a role in the sensitivity they show towards the TS constraint of the NSR in main clauses, but which is absent in subordinate clauses. Further research could look into an exact syntactic theory

as to why V2 and the presence of spec, CP influence Dutch speaker sensitivity towards the TS constraint.

The results for the SA constraint of the NSR were a bit different however, as they show that Dutch speakers are sensitive towards that constraint of the NSR. This contradicts the proposed hypothesis, since they should have shown no sensitivity for either constraint for the hypothesis to be borne out. As mentioned in Section 3.1, the SA condition should be examined with caution. It was already expected participants who filled in the actual experiment would prefer the subject to precede the adverb, over the subject following the adverb. This study examines whether NSR sensitivity has something to do with the underlying knowledge of V2 and spec, CP that Dutch speakers have. If Dutch speakers use this knowledge they should not show sensitivity towards the NSR in subordinate clauses. The underlying structure of Dutch however does not allow the adverb in a pre-subject position in subordinate clauses, which might be the reason why participants chose the NSR-type sentences that have the order subject-adverb. Section 3.1 argued that this could be due to the fact that the inclination of Dutch speakers to use their underlying syntactical structure is more strongly triggered by the ungrammaticality of the added -s on the verb. The sensitivity towards the SA constraint that Dutch speakers have shown might not be due to a sensitivity towards the NSR, but to them using their underlying Dutch structure which states that adverbs cannot precede the subject in subordinate clauses. The SA constraint therefore might be an unreliable indicator of whether the multiple potential external subject positions that V2 creates play a role in Dutch speaker sensitivity towards the NSR. The experiment Freriksen (2019) has carried out demonstrated that Dutch speakers are not sensitive towards the SA constraint in main clauses. They should have been sensitive according to the hypothesis of this study, but again the SA constraint might not be the most reliable constraint to test whether V2 in the L1 of the participants plays a role in their sensitivity. Dutch allows the adverb to be in initial or medial position, as shown in (26).

- (26) a. Blijkbaar houden zij van mosterd  
 Apparently love they from mustard  
*Apparently they love mustard*

- b. Zij houden blijkbaar van mosterd  
 They love apparently from mustard  
*They apparently love mustard*

If Dutch speakers are more inclined to use their underlying structure when they are presented with two ungrammatical sentences, the participants of Freriksen might not have shown a sensitivity because both sentences are allowed in Dutch main clauses because of V2. The Dutch V2 structure allows subjects to occupy initial position, but it also allows adverbials to take that position. Adverbials can also take medial position in Dutch, which might be the reason why the Dutch participants of Freriksen did not show a sensitivity. Their insensitivity for the SA constraint then, cannot be analysed by looking at the influence of a second possible subject position because that position can also be occupied by the adverb here. This again shows that the SA constraint might not be the best indicator to test the influence of multiple potential subject positions, although this analysis does show that V2 might have something to do with this phenomenon in a different way. The exact reason why Dutch speakers seem to show a sensitivity towards the SA constraint in subordinate clauses but not in main clauses is hard to establish as of yet. It should be noted that the SA constraint is not as widely attested in NSR dialects as the TS constraint, which all NSR dialects have. The underlying syntactic structure of the SA constraint is therefore harder to establish. De Haas and van Kemenade (2015) have provided an underlying syntactic structure for the TS condition, but could not completely incorporate the SA constraint into the same hypothesis. According to their analysis the underlying structure of the TS condition is connected to the existence of multiple external subject positions. True agreement is triggered when the subject occupies the specifier of the higher Agreement position. True agreement cannot be triggered if the subject stays in the specifier of the lower subject position spec, TP, because it is not part of an agreement projection. Their analysis of the SA constraint states that NSR dialects which have the SA condition do not allow true agreement to be triggered when an element intervenes between spec, AgrSP and the lower copy of the verb. NSR dialects that do not have the SA condition allow true agreement to be triggered, even when an element intervenes. This does not follow neatly from the multiple external subject position analysis. The discrepancy

between the analysis of the TS constraint and the SA constraint shows that it might be the case the SA condition is less connected to multiple external subject positions as thought. Further research could examine the analysis of de Haas and van Kemenade more closely to find out more about the underlying structure of the SA condition, and the reason why some dialects use it and others do not. It could also try to construct another analysis that is able to fit the two constraints into one single theory more neatly. A corpus study of subordinate clauses in NSR dialects would also be interesting, since the subordinate clauses NSR speakers produce have not been examined closely as of yet. The mentioned ideas for further research might eventually lead to a better understanding as to why Dutch speakers do show sensitivity towards the SA constraint of the NSR in subordinate clauses but not in main clauses.

Slegers (2017) has shown that Danish speakers were sensitive towards the SA constraint in main clauses however. This could be due to the fact that his pretest differed from the actual experiment, which might have influenced the strength of the effect. Slegers conducted a pretest and detected some problems. His participants deemed his pretest too lengthy, which is why Slegers excluded items with extreme biases. He also changed the nature of his filler items, and he included a LexTALE section to examine speaker proficiency more accurately. His actual experiment included these changes which might have had an effect on the perception of his participants, and on the results of his experiment as a whole. A revision of Slegers' experiment could be done to establish whether the effect can be replicated and if Danish speakers are indeed sensitive towards the SA condition. Further research could also look at other properties of Danish that could have led to Danish speaker sensitivity towards the SA condition in main clauses, as opposed to Dutch speakers. Section 2.2 also mentioned Danish speakers do have an agreement system, but they do not spell out the agreement. This phenomenon could be examined more closely to find more evidence for it.

Further research should also look at other V2 or split-IP languages to check whether the results this study has found for both conditions can be replicated. More evidence for the fact that V2 plays a role in sensitivity towards the NSR could be found by establishing whether other languages show the same effect for the TS condition. It is also interesting to see if speakers of other languages show sensitivity towards the SA condition or not, since that could shine more

light on the effects and the underlying structure of the SA constraint. Further research could also examine the effects the other way around by looking at languages without V2 or a split-IP. If speakers of languages without V2 or a split-IP do not show sensitivity towards the NSR, then this would provide more evidence for the hypothesis that the number of (potential) VP-external subject positions functions as a trigger for the observed sensitivity. Another interesting option would be to find speakers of NSR dialects with Dutch as their L2 to check whether these speakers are sensitive towards Dutch phenomena regarding spec, CP by looking at inversion morphology for example. This could be hard to realise however since it is not clear how many Northern English speakers have Dutch as their L2, but it would be interesting nonetheless.

## 6. Conclusion

This study has explored the Northern Subject Rule (NSR), which is a grammatical feature that occurs in Northern English dialects. It allows verbs to get an –s ending in third person plural contexts if at least one of the two constraints the NSR is restricted by is met. These constraints are the Type of Subject (TS) constraint and the Subject Adjacency (SA) constraint.

Hoendervangers (2016) found a sensitivity towards the constraints of the NSR in speakers of Dutch and speakers of Standard English. These speakers could not have derived this sensitivity from their input. Slegers (2017) attempted to replicate the effect Hoendervangers found by improving her methodology. He examined Danish speakers to find out whether they also have underlying knowledge about the constraints of the NSR, without them being part of the input of Danish speakers. His second goal was to investigate whether agreement plays a role in triggering sensitivity towards the NSR. Danish is a language without (overt) agreement, which means that if agreement plays a role in speaker sensitivity towards the NSR they should not show any sensitivity. Danish speakers did show a sensitivity towards both constraints of the NSR however, which shows that (overt) agreement is not a factor in triggering the sensitivity. This study has argued that Danish might have an underlying agreement system, which is not overtly spelled out. Slegers results then only exclude overt agreement as a factor for the sensitivity phenomenon, which means that covert agreement phenomena can still play a role.

The goal of this thesis was to examine another property that could have caused speakers of Danish to be sensitive towards the NSR. It has attempted to find out whether the presence of V2 in ones L1 triggers speaker sensitivity. This idea goes back to de Haas and van Kemenade (2015), who have argued that the underlying syntactical structure of the NSR contains two external subject positions. One of which is called spec, AgrSP, which is occupied by the pronominal subject and allows true agreement to be triggered. This results in a – $\emptyset$  ending. The other position is spec, TP, which is occupied by the lexical verb. True agreement cannot be triggered because TP is not an agreement projection, resulting in an –s ending on the verb. It could be the case that speakers with V2 in their L1 show a sensitivity towards the NSR because the underlying syntactical structure of V2 contains a second external subject position as well, although in a different way. Spec, CP can be analysed as a potential external subject position,

since the subject can take that position but other elements can occupy it as well. The constraints of the NSR are based on agreement. Spec, CP has been analysed as a position that triggers agreement as well, which is why it could be compared to spec, AgrSP.

This study has analysed Dutch speakers, because Dutch has V2. The experiments of this study examined subordinate clauses, since the Dutch subordinate clause does not contain V2. The hypothesis was that Dutch speakers would not show a sensitivity towards the NSR in subordinate clauses, if they indeed make use of their underlying V2 structure when they judge NSR sentences. Dutch speakers were used because they were more easily accessible than Danish speakers, and were also used in a parallel main clause experiment carried out by Freriksen (2019). The results of this study have thus been compared to the results of Freriksen, who attempted to reproduce and revise Hoendervangers experiment with Dutch speakers. She conducted a main clause version of the experiments of this study, which means both studies are similar and therefore complementary.

The results of this study have shown that Dutch speakers are not sensitive towards the TS constraint of the NSR in subordinate clauses. Freriksen (2019) has shown that Dutch speakers are sensitive towards the TS constraint in main clauses. The syntactical structure of the NSR contains two external subject positions. The underlying structure of Dutch contains V2 and a second possible external subject position called spec, CP. The fact that they show a sensitivity towards the TS constraint in main clauses but not in subordinate clauses could therefore indeed mean that the underlying V2 structure of Dutch speakers plays a role in triggering sensitivity. The results for the SA constraint were different however. This study has demonstrated that Dutch speakers did show a sensitivity towards the SA constraint of the NSR in subordinate clauses, whereas Freriksen has found that Dutch speakers were not sensitive towards the SA constraint in main clauses. This is contradictory to the hypothesis, which stated Dutch speakers should be sensitive towards both constraints in main clauses and insensitive towards both constraints in subordinate clauses. This study has argued that the SA condition should be examined with caution however. The participants were expected to have a preference for the order subject-adverb over the order adverb-subject in subordinate clauses. The hypothesis argues that Dutch speakers make use of their underlying syntactical structure. It might be the case that if both

sentences are ungrammatical, they make more use of this underlying structure. This could be the reason why Dutch speakers show a sensitivity towards the SA constraint in subordinate clauses but not in main clauses, as the order adverb-subject is ungrammatical in Dutch subordinate clauses but not in main clauses. The adverb can take both initial as well as medial position in the Dutch main clause, since V2 allows the adverb to be in initial position as well. A sensitivity towards the SA constraint might not be due to a sensitivity towards the NSR but to Dutch speakers making more use of their underlying structure, which prohibits adverbs from taking a position before the subject in subordinate clauses. The SA constraint therefore might be an unreliable indicator to identify whether the second potential external subject position that V2 generates has influence on Dutch speaker sensitivity towards the NSR. The exact reason why Dutch speakers display a sensitivity towards the SA constraint in subordinate clauses but not in main clauses is hard to establish yet. More empirical data should be gathered to get more insight into this phenomenon. The TS constraint is the core condition of the NSR and is attested in all NSR dialects, whereas the SA constraint is not. The TS constraint is therefore perhaps the most telling constraint to examine the hypothesis with.

This study has contributed to a relatively new field of research by creating more empirical data to be able to explore more about the underlying grammatical knowledge that might have caused Danish and Dutch speakers to be sensitive towards the NSR. More empirical data is necessary to uncover more about the results this study has found, as well as the phenomenon in general. New questions are raised, which can be used to construct new research with. The conclusion of this study is that the underlying V2 structure of Dutch speakers might indeed play a role in the sensitivity they show towards the NSR. The main contribution of this study to this field of research has been to find out more about the influence of the underlying syntactical structure of Dutch speakers in their sensitivity towards a phenomenon that was not present in their input.

## Works Cited

- Barbiers, S., Bennis, H., & Dros-Hendriks, L. (2018). Merging Verb Cluster Variation. *Linguistic Variation, 18*(1), 144-196.
- Bobaljik, J. D. (2002). A-Chains At The Pf-Interface: Copies And Covert Movement. *Natural Language & Linguistic Theory, 20*(2), 197-267.
- Bobaljik, J. D., & Thráinsson, H. (1998). Two Heads aren't Always Better Than One. *Syntax 1*(1), 37-71. DOI: 10.1111/1467-9612.00003
- Den Besten, J. B. (1991). *Studies in West Germanic Syntax*. Amsterdam/Atlanta: Rodopi.
- Freriksen, C. (2019). *The Northern Subject Rule: Studying constraints without input in Native Dutch speakers*. BA thesis, Radboud University.
- Haas, N., de & Kemenade, A. van (2015). The Origin of the Northern Subject Rule: Subject Positions and Verbal Morphosyntax in Older English. *English Language and Linguistics, 19*(1), 1-33. DOI: 10.1017/S1360674314000306
- Henry, A. (1995). *Belfast English and Standard English: Dialect Variation and Parameter Setting*. New York: Oxford University Press.
- Hoendervangers, E. A. M. (2016). *A New Perspective on the Northern Subject Rule: General Principles that go Beyond the Input*. BA thesis, Radboud University.
- Koeneman, O., & Neeleman, A. (2001). Predication, Verb Movement and the Distribution of Expletives. *Lingua, 111*(3), 189-233.
- Lemhöfer, K., & Broersma, M. (2012). Introducing LexTALE: A Quick and Valid Lexical Test for Advanced Learners of English. *Behavior research methods, 44*(2), 325-343.
- Neeleman, A., & Weerman, F. (1999). *Flexible syntax: A Theory of Case and Arguments*. Dordrecht: Springer Science & Business Media.
- Slegers, B. (2017). *The Northern Subject Rule: Constraints without Input*. BA thesis, Radboud University.
- Tortora, C., & den Dikken, M. (2010). Subject Agreement Variation: Support for the Configurational Approach. *Lingua, 120*(5), 1089-1108. doi:10.1016/j.lingua.2009.04.004

## **Appendix A: The pretest**

### *Section 1: Introduction*

Thank you for participating in this study!

This survey is part of a study about the perception of English sentences by learners of English as a foreign language. The study is carried out by the department of English Language and Culture at Radboud University in Nijmegen.

Please note that you are only allowed to participate if the following statements are applicable to your situation:

- You are a native speaker of Dutch;
- You are between 18-30 years old;
- You study or have studied at university (Bachelor or Master);
- You have never studied a language or linguistics in your higher education (university-level);
- You speak English as a foreign language;
- You do not suffer from dyslexia nor any other reading disability.

Filling out the survey will take approximately 20 minutes. Please fill it out in an environment where you can concentrate. Your responses are completely anonymous. If you have any questions concerning your participation in this survey and/or the outcomes of the study, do not hesitate to contact us.

Thank you for your valuable contribution to our research!

Kind regards,

The research team

Contact:

[sefie.bekkers@student.ru.nl](mailto:sefie.bekkers@student.ru.nl)

*Section 2: Explanation*

In the following section, you will be presented with pairs of 2 sentences. These two sentences are accompanied by some context sentences. Please choose the sentence **that you think sounds best**. Note that the differences between the two sentences may be minimal. Please provide your answers **intuitively**.

*Section 3: Pretest SA, TS and filler items*

*Subject Adjacency items*

Pretest SA item 1:

My twin sisters like the same things,

- a. since apparently they love mustard a lot.
- b. since they apparently love mustard a lot.

Pretest SA item 2:

John's parents would like to spend more time with their son,

- a. because evidently they work hard every day.
- b. because they evidently work hard every day.

Pretest SA item 3:

My students do not like everything they have to do,

- a. since of course they hate exams.
- b. since they of course hate exams.

Pretest SA item 4:

I never see my neighbor's dogs at night,

- a. because probably they sleep indoors.
- b. because they probably sleep indoors.

Pretest SA item 5:

Tigers don't need to survive on their own,

- a. because generally they hunt in pairs.
- b. because they generally hunt in pairs.

Pretest SA item 6:

Children have lots of free time in their pre-school years,

- a. after which typically they go to school at age 4.
- b. after which they typically go to school at age 4.

Pretest SA item 7:

The girls found a shop with only sweet stuff,

- a. although unfortunately they hate candy.
- b. although they unfortunately hate candy.

Pretest SA item 8:

These plants won't do well in your apartment,

- a. because actually they need a bit more sunlight.
- b. because they actually need a bit more sunlight.

Pretest SA item 9:

The boys won't be able to join us today,

- a. because usually they go to church on Sunday.

b. because they usually go to church on Sunday.

Pretest SA item 10:

The employees are happy with the new board,

- a. as undoubtedly they agree with this policy.
- b. as they undoubtedly agree with this policy.

Pretest SA item 11:

Such traffic plans are a risky undertaking,

- a. since inevitably they cause disturbances.
- b. since they inevitably cause disturbances.

Pretest SA item 12:

I teach my daughters to stand up for themselves,

- a. after which hopefully they grow into independent women.
- b. after which they hopefully grow into independent women.

Pretest SA item 13:

It is not clear what the ministers in the new government are up to,

- a. because normally they announce their plans in September.
- b. because they normally announce their plans in September.

Pretest SA item 14:

Buses between the seaside and the city run infrequently,

- a. although officially they leave every 10 minutes.
- b. although they officially leave every 10 minutes.

Pretest SA item 15:

Computers are highly recommended for this kind of work,

- a. because essentially they work fast and easily.
- b. because they essentially work fast and easily.

Pretest SA item 16:

The actors do not show a lot of affection for each other on screen,

- a. because unquestionably they hate each other in real life.
- b. because they unquestionably hate each other in real life.

Pretest SA item 17:

I didn't understand these out-of-the-blue questions at first,

- a. whereas certainly they make sense in context.
- b. whereas they certainly make sense in context.

Pretest SA item 18:

The attacks were condemned by the public,

- a. because arguably they pose a great threat to the country.
- b. because they arguably pose a great threat to the country.

Pretest SA item 19:

These soft drinks are not good for your health,

- a. because no doubt they contain a lot of artificial ingredients.
- b. because they no doubt contain a lot of artificial ingredients.

Pretest SA item 20:

Aaron and John love James Bond movies,

- a. although regrettably they find the cinema closed on their day off.
- b. although they regrettably find the cinema closed on their day off.

Pretest SA item 21:

The neighbors don't strike me as Christians,

- a. although maybe they believe in another religion.
- b. although they maybe believe in another religion.

Pretest SA item 22:

My friends all love to swim a lot,

- a. so that luckily they live close to the coast.
- b. so that they luckily live close to the coast.

Pretest SA item 23:

Italians do not consume a lot of beer on a yearly basis,

- a. because perhaps they like wine much better.
- b. because they perhaps like wine much better.

Pretest SA item 24:

The two lawyers are looking forward to the trial,

- a. because in fact they believe that they will win this case.
- b. because they in fact believe that they will win this case.

Pretest SA item 25:

These birds are known for their monogamous behavior,

- a. since typically they stay together their whole lives.
- b. since they typically stay together their whole lives.

Pretest SA item 26:

Alice and Denise would love to be part of this singing contest,

- a. although unfortunately they lack the required talent.
- b. although they unfortunately lack the required talent.

Pretest SA item 27:

Three police officers arrived at the scene,

- a. where hopefully they recognize how delicate the situation is.
- b. where they hopefully recognize how delicate the situation is.

Pretest SA item 28:

The customers were told that they have to show their passports,

- a. although frankly they fail to see why this is necessary.
- b. although they frankly fail to see why this is necessary.

Pretest SA item 29:

Many kids are overweight these days,

- a. because honestly they eat too much.
- b. because they honestly eat too much.

Pretest SA item 30:

The technicians don't like to exercise, but I think...

- a. ... that occasionally they run to catch the train.
- b. ... that they occasionally run to catch the train.

Pretest SA item 31:

The team members practiced all summer long,

- a. since predictably they look forward to the new season.
- b. since they predictably look forward to the new season.

Pretest SA item 32:

The Dutch boys look ridiculous on King's Day,

- a. because traditionally they wear orange.
- b. because they traditionally wear orange.

Pretest SA item 33:

These old men don't look very healthy to me,

- a. since quite likely they drink vodka every day.
- b. since they quite likely drink vodka every day.

Pretest SA item 34:

The brothers drive very recklessly,

- a. which is why most likely they make use of their car insurance all the time.
- b. which is why they most likely make use of their car insurance all the time.

Pretest SA item 35:

The professors are attending a conference,

- a. where conventionally they wear a suit for their own lecture.
- b. where they conventionally wear a suit for their own lecture.

Pretest SA item 36:

Some friends won tickets for a heavy-metal concert,

- a. although ironically they think that kind of music is terrible.
- b. although they ironically think that kind of music is terrible.

*Type of Subject items*

Pretest TS item 1:

My feet are always cold. This is even true during the summer...

- a. ... when my feet need at least three layers of socks to be warm.
- b. ... when they need at least three layers of socks to be warm.

Pretest TS item 2:

The dogs seem to be having a great time. It is raining terribly...

- a. ... while the dogs love running around.
- b. ... while they love running around.

Pretest TS item 3:

These bacteria easily cause an epidemic. Many people are already struck...

- a. ... because the bacteria spread rapidly.
- b. ... because they spread rapidly.

Pretest TS item 4:

The trees were planted 15 years ago. The forest looks beautiful now,

- a. since the trees grow taller every year.
- b. since they grow taller every year.

Pretest TS item 5:

Look at the children! The party is a success...

- a. ... because the children like the candy.
- b. ... because they like the candy.

Pretest TS item 6:

The women in this town rarely come here. The shopping centre is always empty,

- a. which means that the women prefer busier places.
- b. which means that they prefer busier places.

Pretest TS item 7:

The mice linger at night. It's too dangerous during the day,

- a. which means that the mice wait until the cat sleeps.
- b. which means that they wait until the cat sleeps.

Pretest TS item 8:

The businessmen always seem in a hurry. Wall Street is a good place for making money,

- a. which is why the businessmen work around the clock.
- b. which is why they work around the clock.

Pretest TS item 9:

My grandchildren make me feel young again. Not everyone is as lucky as I am...

- a. ... because my grandchildren visit every Sunday.
- b. ... because they visit every Sunday.

Pretest TS item 10:

The farmers are going through a tough time. The demand for produce grows every year,

- a. which means that the farmers need to work very hard.
- b. which means that they need to work very hard.

Pretest TS item 11:

The girls are shopping. The weather has suddenly changed,

- a. which means that the girls need new shoes.
- b. which means that they need new shoes.

Pretest TS item 12:

Those schools normally have strict schedules. The weather is very hot for this time of the year,

- a. which means that the schools close early today.
- b. which means that they close early today.

Pretest TS item 13:

These birds don't like to live alone. It's dangerous in this area,

- a. which is why the birds need to feel safe.
- b. which is why they need to feel safe.

Pretest TS item 14:

The lions in this zoo are very scary. It's almost feeding time,

- a. which is why the lions roar terribly loudly.
- b. which is why they roar terribly loudly.

Pretest TS item 15:

The politicians say the war will be over soon. It's about time...

- a. ... that the politicians speak the truth.
- b. ... that they speak the truth.

Pretest TS item 16:

These spokeswomen are very important to our organisation. One mistake can be fatal,

- a. which is why the spokeswomen need to tread carefully.
- b. which is why they need to tread carefully.

Pretest TS item 17:

These shoes look very good on John. Money is not an issue for him, so it's no surprise...

- a. ... that the shoes seem to be made of expensive leather.
- b. ... that they seem to be made of expensive leather.

Pretest TS item 18:

The tourists take over this park during summer. It's too warm in the sun,

- a. which is why the tourists claim the spots in the shade.
- b. which is why they claim the spots in the shade.

Pretest TS item 19:

These cacti are very important to the desert. It's a very rough place,

- a. unless the cacti supply water to the animals.

b. unless they supply water to the animals.

Pretest TS item 20:

My teeth need a lot of care. Going to the dentist is expensive,

a. although my teeth look good now.

b. although they look good now.

*Filler items*

Pretest filler item 1:

The elderly need more rest than younger people,

a. which means that my grandparents usually sleep in the afternoon.

b. which means that my grandparents sleep in the afternoon usually.

Pretest filler item 2:

The match has been going on for an hour now,

a. which is why the players briefly pause the game to get a drink.

b. which is why the players pause the game briefly to get a drink.

Pretest filler item 3:

It's dangerous to drive in winter...

a. ... because cars unavoidably crash on slippery roads.

b. ... because cars crash unavoidably on slippery roads.

Pretest filler item 4:

My books aren't very old, but I mostly read outside...

b. ... where book covers slowly fade in the sun.

b. ... where book covers fade slowly in the sun.

Pretest filler item 5:

Susie has tried a pair of sandals. She'd rather have slippers,

- a. which is why she asked the shopkeeper to take the sandals back.
- b. which is why she asked the shopkeeper to take back the sandals.

Pretest filler item 6:

Harry likes driving his car. He likes to drive alone,

- a. because then he turns the radio on.
- b. because then he turns on the radio.

Pretest filler item 7:

John is very shy,

- a. which is why he doesn't dare to ask Emma out.
- b. which is why he doesn't dare to ask out Emma.

Pretest filler item 8:

There was a big summer party at the park. All of my friends thought it was warm,

- a. although I wanted to leave my coat on.
- b. although I wanted to leave on my coat.

Pretest filler item 9:

My cousin arrived late. He experienced some delay.

- a. which is why I had to pick John up at the airport.
- b. which is why I had to pick up John at the airport.

Pretest filler item 10:

It was already 11pm, and John wanted to sleep.

- a. which is why he asked his roommate to switch the light off.
- b. which is why he asked his roommate to switch off the light.

Pretest filler item 11:

The family is going through a difficult time,

- a. which is why I decided to cheer the children up.
- b. which is why I decided to cheer up the children.

Pretest filler item 12:

My little sister is really cute. She likes to play in the garden...

- a. ... where she dresses her dolls up.
- b. ... where she dresses up her dolls.

Pretest filler item 13:

There was an awkward moment yesterday,

- a. when my colleague gave the surprise party away by accident.
- b. when my colleague gave away the surprise party by accident.

Pretest filler item 14:

Julie was so happy when she finally graduated,

- a. that her parents could barely hold their emotions back.
- b. that her parents could barely hold back their emotions.

Pretest filler item 15:

Romy went to the movies yesterday. The new James Bond had bad reviews,

- a. although Romy really likes the movie.
- b. although Romy really liked the movie.

Pretest filler item 16:

Benjamin is in need of a haircut, but he finds a hairdresser too expensive,

- a. which is why he does it himself.

b. which is why he did it himself.

Pretest filler item 17:

Mary made tea for the kids. The kids were still playing outside so she had to call them,

- a. because Mary hates to see the tea get cold.
- b. because Mary hated to see the tea get cold.

Pretest filler item 18:

Alex had tidied up the room. It was a complete mess,

- a. which is why Alex feels really happy with himself.
- b. which is why Alex felt really happy with himself.

Pretest filler item 19:

The boys are playing football in the yard. Sundays are always centered around sports,

- a. because the boys really like to play football.
- b. because the boys really liked to play football.

Pretest filler item 20:

Tom, get in your seat! The principal arrives soon,

- a. provided that his chauffeur is not late.
- b. provided that his chauffeur was not late.

Pretest filler item 21:

Margaret took my arm,

- a. after which we dance all night long.
- b. after which we danced all night long.

Pretest filler item 22:

Nick has fallen in love with Cecile. It happened at a conference,

- a. where they bond quickly.
- b. where they bonded quickly.

Pretest filler item 23:

Sam and Frodo are on an important mission. They have to find a ring,

- a. which is a difficult task.
- b. which was a difficult task.

Pretest filler item 24:

John and his friends are going to a concert. U2 is their favourite band,

- a. even though they hate their latest record.
- b. event hough they hated their latest record.

#### *Section 4: Text (finished)*

Those were all the sentences! Only one short test and a few questions left.

#### *Section 5: LexTALE*

The following part of the test takes around 5 minutes. In each trial you will see a string of letters. Your task is to decide whether this is an existing English word or not. If you think it is an existing English word, you click on "yes", and if you think it is not an existing English word, you click on "no".

If you are sure that the word exists, even though you don't know its exact meaning, you may still respond "yes". But if you are not sure if it is an existing word, you should respond "no".

We use British English rather than American English spelling. For example: "realise" instead of "realize"; "colour" instead of "color", and so on. Please don't let this confuse you. This experiment is not about detecting such subtle spelling differences anyway.

If everything is clear, you can click next and start the trials.

Table 7

*The LexTALE items*

1. platory	17. screech	33. skave	49. scholar
2. denial	18. savoury	34. plaintively	50. turtle
3. generic	19. plaudate	35. kilp	51. fellick
4. mensible	20. shin	36. interfate	52. destription
5. scornful	21. fluid	37. hasty	53. cylinder
6. stoutly	22. spaunch	38. lengthy	54. censorship
7. ablaze	23. allied	39. fray	55. celestial
8. kermshaw	24. slain	40. crumper	56. rascal
9. moonlit	25. recipient	41. upkeep	57. purrage
10. lofty	26. exprate	42. majestic	58. pulsh
11. hurricane	27. eloquence	43. magrity	59. muddy
12. flaw	28. cleanliness	44. nourishment	60. quirky

13. alberation	29. dispatch	45. abergy	61. pudour
14. unkempt	30. rebondicate	46. proom	62. listless
15. breeding	31. ingenious	47. turmoil	63. wrought
16. festivity	32. bewitch	48. carbohydrate	

*Section 6: Text (finished LexTALE)*

Done! After the following general questions you are finished with the questionnaire.

*Section 7: Language questions*

Language question 1:

What is/are your first language(s)?

- a. Dutch
- b. English
- c. Other: ...

Language question 2:

For how many years have you received formal English teaching (including primary school)?

Please write down the number of years.

Language question 3:

Please rate your spoken and written proficiency in English on a scale from 1 (not proficient at all) to 10 (native-like proficiency).

- Spoken proficiency: ...

- Written proficiency: ...

Language question 4:

Please rate your listening and reading skills in English on a scale from 1 (not able to listen or read in English at all) to 10 (reading and listening in English is as easy as in my native language).

- Listening: ...

- Reading: ...

*Section 8: Demographic questions*

Demographic question 1:

What is your gender?

- a. Male
- b. Female
- c. Other

Demographic question 2:

What is your age in years?

Demographic question 3:

What is the level of education you are currently enrolled in? If not enrolled in education at the moment, please indicate the highest level of education you have received.

- a. Primary school
- b. Secondary school
- c. High school
- d. Vocational training (MBO)
- e. College (HBO)
- f. University Bachelor (WO)
- g. University Master (WO)

- h. Doctorate Degree (PhD)
- i. Other

Demographic Question 4:

Have you ever lived in one of the following areas? Please only count stays over 1 month.

- a. Northern England (Cheshire, Cumbria, County Durham, Yorkshire, Manchester, Lancashire, Merseyside, Northumberland, Tyne and Wear, or Lincolnshire)
- b. Scotland
- c. Belfast
- d. Appalachian mountain region, USA (western Pennsylvania, West Virginia, eastern Kentucky, eastern Tennessee, northern Alabama, or northern Georgia)
- e. Not applicable

*Section 9: End*

That's it! Thank you for your valuable contribution to our research.

For questions and/or comments about this survey, please contact us at [sefie.bekkers@student.ru.nl](mailto:sefie.bekkers@student.ru.nl)

## **Appendix B: The actual experiment**

### *Section 1: Introduction*

Thank you for participating in this study!

This survey is part of a study about the perception of English sentences by learners of English as a foreign language. The study is carried out by the department of English Language and Culture at Radboud University in Nijmegen.

Please note that you are only allowed to participate if the following statements are applicable to your situation:

- You are a native speaker of Dutch;
- You are between 18-30 years old;
- You study or have studied at university (Bachelor or Master);
- You have never studied a language or linguistics in your higher education (university-level);
- You speak English as a foreign language;
- You do not suffer from dyslexia nor any other reading disability.

Filling out the survey will take approximately 20 minutes. Please fill it out in an environment where you can concentrate. Your responses are completely anonymous. If you have any questions concerning your participation in this survey and/or the outcomes of the study, do not hesitate to contact us.

Thank you for your valuable contribution to our research!

Kind regards,

The research team

Contact:

[sefie.bekkers@student.ru.nl](mailto:sefie.bekkers@student.ru.nl)

*Section 2: Explanation*

In the following section, you will be presented with pairs of 2 sentences. These two sentences are accompanied by some context sentences. Please choose the sentence **that you think sounds best**. Note that the differences between the two sentences may be minimal. Please provide your answers **intuitively**.

*Section 3: Actual experiment SA, TS and filler items*

*Subject Adjacency items*

SA item 1:

My twin sisters like the same things,

- a. since apparently they loves mustard a lot.
- b. since they apparently loves mustard a lot.

SA item 2:

John's parents would like to spend more time with their son,

- a. because evidently they works hard every day.
- b. because they evidently works hard every day.

SA item 3:

My students do not like everything they have to do,

- a. since of course they hates exams.
- b. since they of course hates exams.

SA item 4:

I never see my neighbor's dogs at night,

- a. because probably they sleeps indoors.
- b. because they probably sleeps indoors.

SA item 5:

Tigers don't need to survive on their own,

- a. because generally they hunts in pairs.
- b. because they generally hunts in pairs.

SA item 6:

Children have lots of free time in their pre-school years,

- a. after which typically they goes to school at age 4.
- b. after which they typically goes to school at age 4.

SA item 7:

The girls found a shop with only sweet stuff,

- a. although unfortunately they hates candy.
- b. although they unfortunately hates candy.

SA item 8:

These plants won't do well in your apartment,

- a. because actually they needs a bit more sunlight.
- b. because they actually needs a bit more sunlight.

SA item 9:

The boys won't be able to join us today,

- a. because usually they goes to church on Sunday.

b. because they usually goes to church on Sunday.

SA item 10:

The employees are happy with the new board,

a. as undoubtedly they agrees with this policy.

b. as they undoubtedly agrees with this policy.

SA item 11:

Such traffic plans are a risky undertaking,

a. since inevitably they causes disturbances.

b. since they inevitably causes disturbances.

SA item 12:

I teach my daughters to stand up for themselves,

a. after which hopefully they grows into independent women.

b. after which they hopefully grows into independent women.

SA item 13:

It is not clear what the ministers in the new government are up to,

a. because normally they announces their plans in September.

b. because they normally announces their plans in September.

SA item 14:

Buses between the seaside and the city run infrequently,

a. although officially they leaves every 10 minutes.

b. although they officially leaves every 10 minutes.

SA item 15:

Computers are highly recommended for this kind of work,

- a. because essentially they works fast and easily.
- b. because they essentially works fast and easily.

SA item 16:

The actors do not show a lot of affection for each other on screen,

- a. because unquestionably they hates each other in real life.
- b. because they unquestionably hates each other in real life.

SA item 17:

I didn't understand these out-of-the-blue questions at first,

- a. whereas certainly they makes sense in context.
- b. whereas they certainly makes sense in context.

SA item 18:

The attacks were condemned by the public,

- a. because arguably they poses a great threat to the country.
- b. because they arguably poses a great threat to the country.

SA item 19:

These soft drinks are not good for your health,

- a. because no doubt they contains a lot of artificial ingredients.
- b. because they no doubt contains a lot of artificial ingredients.

SA item 20:

Aaron and John love James Bond movies,

- a. although regrettably they finds the cinema closed on their day off.
- b. although they regrettably finds the cinema closed on their day off.

SA item 21:

The neighbors don't strike me as Christians,

- a. although maybe they believes in another religion.
- b. although they maybe believes in another religion.

SA item 22:

My friends all love to swim a lot,

- a. so that luckily they lives close to the coast.
- b. so that they luckily lives close to the coast.

SA item 23:

Italians do not consume a lot of beer on a yearly basis,

- a. because perhaps they likes wine much better.
- b. because they perhaps likes wine much better.

SA item 24:

The two lawyers are looking forward to the trial,

- a. because in fact they believes that they will win this case.
- b. because they in fact believes that they will win this case.

SA item 25:

These birds are known for their monogamous behavior,

- a. since typically they stays together their whole lives.
- b. since they typically stays together their whole lives.

SA item 26:

Alice and Denise would love to be part of this singing contest,

- a. although unfortunately they lacks the required talent.
- b. although they unfortunately lacks the required talent.

SA item 27:

Three police officers arrived at the scene,

- a. where hopefully they recognizes how delicate the situation is.
- b. where they hopefully recognizes how delicate the situation is.

SA item 28:

The customers were told that they have to show their passports,

- a. although frankly they fails to see why this is necessary.
- b. although they frankly fails to see why this is necessary.

SA item 29:

Many kids are overweight these days,

- a. because honestly they eats too much.
- b. because they honestly eats too much.

SA item 30:

The technicians don't like to exercise, but I think...

- a. ... that occasionally they runs to catch the train.
- b. ... that they occasionally runs to catch the train.

SA item 31:

The team members practiced all summer long,

- a. since predictably they looks forward to the new season.
- b. since they predictably looks forward to the new season.

SA item 32:

The Dutch boys look ridiculous on King's Day,

- a. because traditionally they wears orange.
- b. because they traditionally wears orange.

SA item 33:

These old men don't look very healthy to me,

- a. since quite likely they drinks vodka every day.
- b. since they quite likely drinks vodka every day.

SA item 34:

The brothers drive very recklessly,

- a. which is why most likely they makes use of their car insurance all the time.
- b. which is why they most likely makes use of their car insurance all the time.

SA item 35:

The professors are attending a conference,

- a. where conventionally they wears a suit for their own lecture.
- b. where they conventionally wears a suit for their own lecture.

SA item 36:

Some friends won tickets for a heavy-metal concert,

- a. although ironically they thinks that kind of music is terrible.
- b. although they ironically thinks that kind of music is terrible.

*Type of Subject items*

TS item 1:

My feet are always cold. This is even true during the summer...

- a. ... when my feet needs at least three layers of socks to be warm.
- b. ... when they needs at least three layers of socks to be warm.

TS item 2:

The dogs seem to be having a great time. It is raining terribly...

- a. ... while the dogs loves running around.
- b. ... while they loves running around.

TS item 3:

These bacteria easily cause an epidemic. Many people are already struck...

- a. ... because the bacteria spreads rapidly.
- b. ... because they spreads rapidly.

TS item 4:

The trees were planted 15 years ago. The forst looks beautiful now,

- a. since the trees grows taller every year.
- b. since they grows taller every year.

TS item 5:

Look at the children! The party is a success...

- a. ... because the children likes the candy.
- b. ... because they likes the candy.

TS item 6:

The women in this town rarely come here. The shopping centre is always empty,

- a. which means that the women prefers busier places.
- b. which means that they prefers busier places.

TS item 7:

The mice linger at night. It's too dangerous during the day,

- a. which means that the mice waits until the cat sleeps.
- b. which means that they waits until the cat sleeps.

TS item 8:

The businessmen always seem in a hurry. Wall Street is a good place for making money,

- a. which is why the businessmen works around the clock.
- b. which is why they works around the clock.

TS item 9:

My grandchildren make me feel young again. Not everyone is as lucky as I am...

- a. ... because my grandchildren visits every Sunday.
- b. ... because they visits every Sunday.

TS item 10:

The farmers are going through a tough time. The demand for produce grows every year,

- a. which means that the farmers needs to work very hard.
- b. which means that they needs to work very hard.

TS item 11:

The girls are shopping. The weather has suddenly changed,

- a. which means that the girls needs new shoes.
- b. which means that they needs new shoes.

TS item 12:

Those schools normally have strict schedules. The weather is very hot for this time of the year,

- a. which means that the schools closes early today.
- b. which means that they closes early today.

TS item 13:

These birds don't like to live alone. It's dangerous in this area,

- a. which is why the birds needs to feel safe.
- b. which is why they needs to feel safe.

TS item 14:

The lions in this zoo are very scary. It's almost feeding time,

- a. which is why the lions roars terribly loudly.
- b. which is why they roars terribly loudly.

TS item 15:

The politicians say the war will be over soon. It's about time...

- a. ... that the politicians speaks the truth.
- b. ... that they speaks the truth.

TS item 16:

These spokeswomen are very important to our organisation. One mistake can be fatal,

- a. which is why the spokeswomen needs to tread carefully.
- b. which is why they needs to tread carefully.

TS item 17:

These shoes look very good on John. Money is not an issue for him, so it's no surprise...

- a. ... that the shoes seems to be made of expensive leather.
- b. ... that they seems to be made of expensive leather.

TS item 18:

The tourists take over this park during summer. It's too warm in the sun,

- a. which is why the tourists claims the spots in the shade.
- b. which is why they claims the spots in the shade.

TS item 19:

These cacti are very important to the desert. It's a very rough place,

- a. unless the cacti supplies water to the animals.

b. unless they supplies water to the animals.

TS item 20:

My teeth need a lot of care. Going to the dentist is expensive,

a. although my teeth looks good now.

b. although they looks good now.

*Filler items*

Filler item 1:

The elderly need more rest than younger people,

a. which means that my grandparents usually sleep in the afternoon.

b. which means that my grandparents sleep in the afternoon usually.

Filler item 2:

The match has been going on for an hour now,

a. which is why the players briefly pause the game to get a drink.

b. which is why the players pause the game briefly to get a drink.

Filler item 3:

It's dangerous to drive in winter...

a. ... because cars unavoidably crash on slippery roads.

b. ... because cars crash unavoidably on slippery roads.

Filler item 4:

My books aren't very old, but I mostly read outside...

b. ... where book covers slowly fade in the sun.

b. ... where book covers fade slowly in the sun.

Filler item 5:

Susie has tried a pair of sandals. She'd rather have slippers,

- a. which is why she asked the shopkeeper to take the sandals back.
- b. which is why she asked the shopkeeper to take back the sandals.

Filler item 6:

Harry likes driving his car. He likes to drive alone,

- a. because then he turns the radio on.
- b. because then he turns on the radio.

Filler item 7:

John is very shy,

- a. which is why he doesn't dare to ask Emma out.
- b. which is why he doesn't dare to ask out Emma.

Filler item 8:

There was a big summer party at the park. All of my friends thought it was warm,

- a. although I wanted to leave my coat on.
- b. although I wanted to leave on my coat.

Filler item 9:

My cousin arrived late. He experienced some delay.

- a. which is why I had to pick John up at the airport.
- b. which is why I had to pick up John at the airport.

Filler item 10:

It was already 11pm, and John wanted to sleep.

- a. which is why he asked his roommate to switch the light off.
- b. which is why he asked his roommate to switch off the light.

Filler item 11:

The family is going through a difficult time,

- a. which is why I decided to cheer the children up.
- b. which is why I decided to cheer up the children.

Filler item 12:

My little sister is really cute. She likes to play in the garden...

- a. ... where she dresses her dolls up.
- b. ... where she dresses up her dolls.

Filler item 13:

There was an awkward moment yesterday,

- a. when my colleague gave the surprise party away by accident.
- b. when my colleague gave away the surprise party by accident.

Filler item 14:

Julie was so happy when she finally graduated,

- a. that her parents could barely hold their emotions back.
- b. that her parents could barely hold back their emotions.

Filler item 15:

Romy went to the movies yesterday. The new James Bond had bad reviews,

- a. although Romy really likes the movie.
- b. although Romy really liked the movie.

Filler item 16:

Benjamin is in need of a haircut, but he finds a hairdresser too expensive,

- a. which is why he does it himself.

b. which is why he did it himself.

Filler item 17:

Mary made tea for the kids. The kids were still playing outside so she had to call them,

- a. because Mary hates to see the tea get cold.
- b. because Mary hated to see the tea get cold.

Filler item 18:

Alex had tidied up the room. It was a complete mess,

- a. which is why Alex feels really happy with himself.
- b. which is why Alex felt really happy with himself.

Filler item 19:

The boys are playing football in the yard. Sundays are always centered around sports,

- a. because the boys really like to play football.
- b. because the boys really liked to play football.

Filler item 20:

Tom, get in your seat! The principal arrives soon,

- a. provided that his chauffeur is not late.
- b. provided that his chauffeur was not late.

Filler item 21:

Margaret took my arm,

- a. after which we dance all night long.
- b. after which we danced all night long.

Filler item 22:

Nick has fallen in love with Cecile. It happened at a conference,

- a. where they bond quickly.
- b. where they bonded quickly.

Filler item 23:

Sam and Frodo are on an important mission. They have to find a ring,

- a. which is a difficult task.
- b. which was a difficult task.

Filler item 24:

John and his friends are going to a concert. U2 is their favourite band,

- a. even though they hate their latest record.
- b. event hough they hated their latest record.

#### *Section 4: Text (finished)*

Those were all the sentences! Only one short test and a few questions left.

#### *Section 5: LexTALE*

The following part of the test takes around 5 minutes. In each trial you will see a string of letters. Your task is to decide whether this is an existing English word or not. If you think it is an existing English word, you click on "yes", and if you think it is not an existing English word, you click on "no".

If you are sure that the word exists, even though you don't know its exact meaning, you may still respond "yes". But if you are not sure if it is an existing word, you should respond "no".

We use British English rather than American English spelling. For example: "realise" instead of "realize"; "colour" instead of "color", and so on. Please don't let this confuse you. This experiment is not about detecting such subtle spelling differences anyway.

If everything is clear, you can click next and start the trials.

Table 7

*The LexTALE items*

1. platory	17. screech	33. skave	49. scholar
2. denial	18. savoury	34. plaintively	50. turtle
3. generic	19. plaudate	35. kilp	51. fellick
4. mensible	20. shin	36. interfate	52. destription
5. scornful	21. fluid	37. hasty	53. cylinder
6. stoutly	22. spaunch	38. lengthy	54. censorship
7. ablaze	23. allied	39. fray	55. celestial
8. kermshaw	24. slain	40. crumper	56. rascal
9. moonlit	25. recipient	41. upkeep	57. purrage
10. lofty	26. exprate	42. majestic	58. pulsh
11. hurricane	27. eloquence	43. magrity	59. muddy
12. flaw	28. cleanliness	44. nourishment	60. quirky

13. alberation	29. dispatch	45. abergy	61. pudour
14. unkempt	30. rebondicate	46. proom	62. listless
15. breeding	31. ingenious	47. turmoil	63. wrought
16. festivity	32. bewitch	48. carbohydrate	

*Section 6: Text (finished LexTALE)*

Done! After the following general questions you are finished with the questionnaire.

*Section 7: Language questions*

Language question 1:

What is/are your first language(s)?

- a. Dutch
- b. English
- c. Other: ...

Language question 2:

For how many years have you received formal English teaching (including primary school)?

Please write down the number of years.

Language question 3:

Please rate your spoken and written proficiency in English on a scale from 1 (not proficient at all) to 10 (native-like proficiency).

- Spoken proficiency: ...

- Written proficiency: ...

Language question 4:

Please rate your listening and reading skills in English on a scale from 1 (not able to listen or read in English at all) to 10 (reading and listening in English is as easy as in my native language).

- Listening: ...

- Reading: ...

*Section 8: Demographic questions*

Demographic question 1:

What is your gender?

- a. Male
- b. Female
- c. Other

Demographic question 2:

What is your age in years?

Demographic question 3:

What is the level of education you are currently enrolled in? If not enrolled in education at the moment, please indicate the highest level of education you have received.

- a. Primary school
- b. Secondary school
- c. High school
- d. Vocational training (MBO)
- e. College (HBO)
- f. University Bachelor (WO)
- g. University Master (WO)

h. Doctorate Degree (PhD)

i. Other

Demographic Question 4:

Have you ever lived in one of the following areas? Please only count stays over 1 month.

a. Northern England (Cheshire, Cumbria, County Durham, Yorkshire, Manchester, Lancashire, Merseyside, Northumberland, Tyne and Wear, or Lincolnshire)

b. Scotland

c. Belfast

d. Appalachian mountain region, USA (western Pennsylvania, West Virginia, eastern Kentucky, eastern Tennessee, northern Alabama, or northern Georgia)

e. Not applicable

*Section 9: End*

That's it! Thank you for your valuable contribution to our research.