

The Use of Topicalisation in Dutch V2 Word Order

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Abstract

Dutch has traditionally been viewed as a V2 language. In Dutch main clauses the verb moves to the second position in the sentence and there appears to be a relative freedom in what element is placed in sentence-initial position. This freedom may be the result of the use of topicalisation, which is pragmatically motivated movement to the left periphery of the sentence. Pragmatic cues can motivate the topicalisation of many types of constituents, therefore many types of constituents can be placed in sentence-initial position. However, recent corpus studies and theoretical arguments indicate that the SVO word order may be different from other (XVS) word orders. This study aims to provide experimental evidence for the notion that the syntactic structure of SVO word order differs from the structure of OVS word orders in Dutch main clauses and also aims to provide evidence that SVO and OVS word order differ in their sensitivity to pragmatic cues. One experiment with an off-line multivalent grammaticality judgement task was conducted. Participants were asked to rate the *GRAMMATICALITY*, *COMPREHENSIBILITY*, and *ATTRACTIVENESS* of SVO and OVS word order sentences with different pragmatic context cues. The results showed that SVO word order was rated significantly higher than OVS word order for all combinations of context and rating type. Additionally, the results gave no evidence that the ratings were influenced by the pragmatic cues provided by the context conditions for either word order. These results are in line with the hypothesis that SVO word order in Dutch main clauses is not created by topicalisation, as SVO word order was judged to be grammatical in all cases and no significant effect of context was found. The results did not give any evidence for or against the use of topicalisation in OVS word order, as it was judged to be ungrammatical in all cases.

Keywords: Dutch, word order, topicalisation

1. Background

1.1 Introduction

Dutch is a V2 language, yet no scientific consensus on the actual mechanisms involved in Dutch word order has so far been achieved (Broekhuis & Corver 2016). Scientific consensus among generative syntacticians is that the verb is moved to the second position of a main clause. What remains unclear are the mechanisms that move an element to the sentence-initial position.

Broekhuis & Corver (2016) argue that topicalisation is responsible for the sentence initial position. Bouma & Hendriks (2012) argue that speakers take the listener's needs into account when choosing the sentence initial element. This study investigates the possibility of different mechanisms of movement being present in Dutch for different word orders.

1.2 Dutch Word Order

Dutch main clauses and subordinate clauses do not have the same overt word order. Dutch subordinate clauses follow a SOV word order, where the subject precedes the object, which in turn precedes the verb. Dutch main clauses, on the other hand, position the finite verb in the second syntactic position. This leaves two possible hypotheses for the underlying word order. The underlying word order could mirror that of the main clause and the verb is then moved to the rear of the subordinate clause, or the subordinate clause word order is the underlying word order and the verb is moved forward to the CP in main clauses. Examples a and b in (1) show the analysis of the hypothesis that the main clause word order is the underlying structure. The words in angle brackets show the original position of the verb. In example a the verb is base generated in second position and remains there. In b the verb of the embedded clause *eet* 'eats' is generated on the second position of the embedded clause and then moved towards the end of the clause. Examples c and d in (1) show the analysis that the embedded clause reflects the underlying word order. In c the verb *eet* 'eats' is base generated at the rear of the sentence and then moved to the V2 position. In example d the verb *eet* 'eats' of the embedded clause is generated in clause final position and remains there.

- (1) a. Jan eet een appel
 Jan eats an apple

- b. Ik denk dat Jan <eet> een appel eet
I think that Jan <eats> an apple eats
- c. Jan eet een appel <eet>
Jan eats an apple <eats>
- d. Ik denk dat Jan een appel eet
I think that Jan an apple eats

Koster (1975) argues that the SOV word order in subordinate clauses reflects the underlying word order of Dutch. The first argument is based on Particle ‘movement’. Koster showed that the behaviour of particles in Dutch would be in line with the idea that the particle can be left near any position that was at some point occupied by the verb. Koster shows that in Dutch movement is obligatory in main clauses but never occurs in embedded clauses. The examples in (2) taken from Koster (1975) illustrate this. Example a in (2) shows particle movement in a Dutch main clause. The word *gaf* ‘gave’ in angle brackets denotes the original position of the verb. The particle *op* ‘up’ can only be positioned directly in front of the base generated position of the verb, in this case directly behind the surface position of the verb. Example a’ shows that placing the particle in front of the surface position of the verb *gaf* ‘gave’ is ungrammatical. The examples b and b’ show that the particle can only be placed in front of the surface position of the verb. It is ungrammatical to position the particle behind the surface position of the verb. Koster (1975) argues that this is because the surface position in the embedded clause reflects the underlying word order in Dutch. The particle in embedded clauses cannot be moved, as the verb in embedded clauses does not move.

- (2) a. Hij gaf op <gaf>.
He gave up <gave>.
- a’ *Hij op gaf <gaf>.
*He up gave <gave>.
- b. Hij zei dat hij opgaf.
He said that he gave up.
- b’ *Hij zei dat hij gaf op.
*He said that he gave up

If the underlying word order for Dutch is SOV, there must be a reason that the verb moves to the second position in main clauses, but not in subordinate clauses. Broekhuis & Corver (2016) point out that the finite verb in a main clause and the complementiser in a subordinate clause occupy the same syntactic position, namely the head of the CP. For example, subject pronouns are always right adjacent to the verb of a main clause, just as they are for the complementiser in a subordinate clause, as can be seen in the example adapted from Broekhuis & Corver (2016) in (3).

- (3) a. Gisteren was hij voor zaken in Utrecht. [main clause]
 Yesterday was he for business in Utrecht.
 ‘Yesterday he was in Utrecht on business.’
 a’. *Gisteren was voor zaken hij in Utrecht.
 b. Dat hij voor zaken in Utrecht was. [embedded clause]
 That he for business in Utrecht was
 ‘That he was in Utrecht on business’
 b’. * Dat voor zaken hij in Utrecht was.

The difference between the subordinate clause in (3b) and the main clause in (3a) is that the subordinate clause requires a complementiser, whereas the main clause does not allow one. This means that in subordinate clauses the complementiser position is filled by a complementiser, “dat” (that) or “of” (whether), and the verb cannot move to that position, as it is already occupied. The obligatory presence of the complementiser blocks the movement of the verb to the second position. Main clauses, however, do not require a complementiser. This means that the complementiser position, which is the head of the CP, is unoccupied and the verb can freely move towards it. This movement results in the overt V2 word order that is observed in Dutch main clauses.

The movement of the verb to second position in Dutch main clauses is always complemented by another movement that moves another element to the sentence-initial position. The standard analysis is that a constituent is moved to the specifier of the CP by a movement called topicalisation (Broekhuis & Corver, 2016). Topicalisation is a movement where an

element of a sentence is moved to the left or right periphery of a sentence (Abe, 2017).

Broekhuis & Corver (2016) show that there seem to be virtually no restrictions on the syntactic status of the topicalised element. Nominal and prepositional arguments, adjuncts, and clauses can all be topicalised. However, topicalisation is restricted to main clauses in Dutch (Broekhuis & Corver, 2016). Although, elements from embedded clauses can be topicalised out of their original clause into the specifier of the CP of the main clause via the specifier CP position of the embedded clause.

Topicalisation is a pragmatic movement that organises the information structure of a clause. Information structure can convey meaning not present in the words of a sentence (Pullum & Huddleston, 2002). Broekhuis & Corver (2016) indicate that one of the meanings that topicalisation can convey is an ABOUTNESS-topic. In this case, topicalisation indicates that the moved element is the ‘thing’ that the sentence is about and that the rest of the sentence is there to provide additional information about that ‘thing.’ The examples in (4) show how topicalisation can highlight different elements as the topic of the sentence; c.f. Broekhuis & Corver (2016). In (4a) ‘Jan’ has been topicalised and is the focus of the sentence. It is important that it is ‘Jan,’ who sent the letter to Marie. In (4b) ‘the letter’ has been topicalised, indicating that it is important that it is ‘the letter’ that has been sent.

- (4) a. [TOPIC Jan][COMMENT heeft de brief naar Marie gestuurd].
 Jan has the letter to Marie sent.
- b. [TOPIC De brief][COMMENT heeft Jan naar Marie gestuurd].
 The letter has Jan to Marie sent

Topicalisation is generally considered to be the standard analysis of the movement of an element to sentence-initial position in Dutch main clauses. However, there are some studies that have found indications that SVO word order may be the result of a different type of movement.

Bouma & Hendriks (2012) argue that SVO order is the most common form and that other word orders, such as OVS, are used only when strong enough pragmatic cues are present. A sentence consisting solely of a non-pronominal subject, non-pronominal object, and a verb should be structurally ambiguous, if verb agreement does not uniquely identify the subject. Either the subject or the object could have been topicalised. For example, a sentence like *Jan slaat Piet* ‘Jan

hits Piet’ does not provide any information on the grammatical roles of the constituents. There are two possible underlying structures; the underlying word order could be *Jan Piet slaat* ‘Jan Piet hits’, where *Jan* is the subject that is then topicalised, or the underlying word order could be *Piet Jan slaat* ‘Piet Jan hits’, where *Jan* is the object that is topicalised. However, Bouma & Hendriks (2012) have found that speakers of Dutch tend to prefer the SVO word order. They found that roughly 70% of the sentences in the corpus of Dutch spoken language (CGN) contain an SVO-order main clause. Furthermore, Bouma & Hendriks (2012) have found Dutch speakers tend to interpret the previously described structurally ambiguous sentences as being SVO word order. This means that *Jan slaat Piet* ‘Jan hits Piet’ is interpreted as having the underlying word order *Jan Piet slaat* ‘Jan Piet hits’, unless there is reason to use the other interpretation. Bouma & Hendriks (2012) call this partially frozen word order. This phenomenon might be an indication that the mechanism that causes movement to sentence-initial position may be more selective than previously thought.

Broekhuis & Corver (2016) point out that Dutch SVO word order is unlikely to be caused by topicalization. There is a difference in the behaviour of weak subject and object pronouns. Weak object pronouns cannot occur in sentence-initial position, as they cannot be topicalised as can be seen in examples a and b. in (5), adapted from Broekhuis & Corver (2016). In these examples the object ‘Peter’ can be topicalised, if given rough emphasis, but the weak object pronoun ‘m’ cannot be.

- (5) a. Peter heeft Marie gekust.
 Peter has Marie kissed.
 ‘Marie has kissed Peter.’
- b. *‘m heeft Marie gekust.
 *Him has Marie kissed.
 *‘Marie has kissed him.’
- c. Marie heeft Peter gekust.
 Marie has Peter kissed.
 ‘Marie has kissed Peter.’

- d. Ze heeft Peter gekust.
 She has Peter kissed.
 ‘She has kissed Peter.’

Weak subject pronouns on the other hand can be placed in the sentence initial position, as can be seen in examples c. and d. in (2). In these examples both ‘Marie’ and the weak pronoun subject ‘ze’ can be placed in sentence-initial position. This is an indication either that topicalisation has different constraints on subjects and objects, or that SVO word order can be created without use of topicalisation. An argument that SVO word order does not always use topicalisation comes from extraction from embedded clauses (Broekhuis & Corver, 2016). Weak subject pronouns cannot be extracted from embedded clauses, whereas topicalised phrases can be. The examples in (6) illustrate this; cf. Broekhuis & Corver (2016). Example a in (6) shows that the full NP subject of the embedded clause can be topicalised to the sentence-initial position, ‘My sister’ has been moved out of the subject position in the embedded clause to the specifier of the CP. The ungrammaticality of example b in (6) shows that the weak subject pronoun ‘she’ cannot be topicalised in the same way, ‘she’ cannot be moved out of the embedded clause. The fact that weak pronoun subject cannot be topicalised in this instance where topicalisation is allowed suggests that subject-initial sentences may not be derived by means of topicalisation (Broekhuis & Corver). Broekhuis & Corver (2016) suggest that there may be a Dutch-specific surface condition that the highest functional head in an extended projection must be lexically filled.

- (6) a. Mijn zuster_i zei Jan [dat t_i dit boek gelezen had].
 My sister said Jan COMP this book read had.
 b. *Ze_i zei Jan [dat t_i dit boek gelezen had].
 *She said Jan COMP this book read had.

1.3 Current study

The aim of the current study was to find experimental evidence that different kinds of movement are involved in Dutch main clause word order and whether those movements differ in their sensitivity to pragmatic cues. This study looked specifically at the difference in acceptability between SVO-word order and OVS-word order in Dutch sentences with context and then examined whether these word-orders differ in their sensitivity to context. The experiment will be conducted using a multivalent off-line grammaticality judgement task. Participants were asked to rate the *GRAMMATICALITY*, *COMPREHENSIBILITY*, and *ATTRACTIVENESS* of the target sentences. The hypothesis was that OVS word order is formed by topicalisation, whereas SVO word order should be formed via some form of syntactic movement. A topicalisation movement should show in the data as scoring highly on *GRAMMATICALITY* in all contexts, whilst increasing in *ATTRACTIVENESS* as the context more clearly establishes the moved element as given. In this case this means a higher *ATTRACTIVENESS* is expected for the *TOPIC CONTINUATION* condition, than for the *TOPIC SWITCH* condition, which, in turn, should be rated higher than *NON CONTINUATION*. A syntactic movement should show in the results by scoring highly on *GRAMMATICALITY*, whilst scoring highly on *ATTRACTIVENESS*, as well, without being modulated by context type. No significant effect of context type would be expected for any rating.

2. Methodology

2.1 Participants

17 people started the experiment, five of whom did not complete the experiment. Twelve people completed the experiment (mean age: 30; SD 19). There were 6 men and 6 women. All were native speakers of Dutch living in the Netherlands with normal or corrected to normal vision.

2.2 Materials

2.2.1 Terminology

Pragmatics do not necessarily influence the perceived grammaticality of a sentence, instead they can influence the felicity. The felicity roughly means how ‘right’ the sentence sounds to the hearer. In this study the grammaticality and felicity have been separated into three distinct categories: *GRAMMATICALITY*, *COMPREHENSIBILITY*, and *ATTRACTIVENESS*. The *GRAMMATICALITY* is

the strict judgement of the syntax of a sentence. The *COMPREHENSIBILITY* is the judgement of how easy a sentence is to understand. The *ATTRACTIVENESS* is the degree of how nice, or natural, the sentence sounds.

Another notion important to this study is the discourse topic. Generally speaking, the topic is what a clause is about (Ward, Birner & Huddleston, 2002). In this study, the topic is the element of the that the discourse is about, encompassing one or more sentences. All topics in this study should be the subject of at least one sentence; the other elements of the discourse should provide more information about a topic. Depending on the experimental condition, one or more topics may be present. In this study three terms will be used to denote topic status, *TOPIC CONTINUATION*, *TOPIC SWITCH*, and *NON CONTINUATION*. *TOPIC CONTINUATION* is a discourse where the topic remains the same throughout the entire discourse. *TOPIC SWITCH* denotes a discourse where the topic switches to an element that has previously been introduced into the discourse. *NON CONTINUATION* describes a discourse where the topic changes to an element that has no discernible relation to any previously mentioned element.

All these different types of topics have different levels of givenness. Givenness is the level of salience that a particular topic has in the discourse (Ward, Birner & Huddleston, 2002). If an element has been the topic for longer, it would become more salient, and should become easier to refer back to later in the discourse, even if there has been a segue. Generally speaking, it is easier for a reader or listener to comprehend a sentence if it starts with given information before new information is added. Readers should prefer sentences that start with a more given element.

2.2.2 Experiment

The experiment consists of a multivalent grammaticality rating task. The experimental items consisted of a short context of three sentences and a target sentence. The context is used to modulate the givenness of the sentence-initial element of the target sentence. This use of context to create different levels of givenness is based on Schoenmakers et al. (2021). The word order variable had two conditions: SVO and OVS. The context type variable has three conditions: *TOPIC CONTINUATION*, *TOPIC SWITCH*, and *NON CONTINUATION*. The rating type has three conditions: *GRAMMATICALITY*, *COMPREHENSIBILITY*, and *ATTRACTIVENESS*.

2.2.3 Word order

The target sentences have two different word orders: SVO and OVS. In SVO-word order the sentence-initial element will be the subject. In OVS-word order, the sentence-initial element will be the object. OVS word order items were created by taking an SVO item and reversing the order of the constituents as in example (7).

(7)	SVO:	De monteurs hebben de auto gerepareerd.
	OVS:	De auto hebben de monteurs gerepareerd.
Gloss:	SVO:	The mechanics have the car fixed.
	OVS:	The car have the mechanics fixed.

All sentence-initial elements and the other NPs in the target sentences are definite NPs to control for information load. A small NP is easier to process than a large one as it contains less information. For example, ‘the car’ is easier to process than ‘the car that was fixed by the mechanics’, even though they are the same syntactic category. The ease of processing may influence the ratings (Hofmeister & Sag, 2010). To minimise the effect of information load on the results, information density was controlled by ensuring that all NPs in the target sentences are definite and consist of a noun and a determiner only. Additionally, the grammatical number of the subject and object in all experimental items differed so the agreement on the verb always unambiguously indicated the subject. This was to reduce the chance that the sentence-initial object in the OVS condition was interpreted as a subject in its canonical position.

2.2.4 Context type

This experiment features three different context types, *TOPIC CONTINUATION*, *TOPIC SWITCH*, and *NON CONTINUATION*. Each of these three context types should modulate the givenness of the sentence-initial element of the target sentence to different extent. As readers prefer to read old information before they read new, contexts that provide more givenness should result in a higher rating for the target sentence. The higher givenness should provide a stronger preference for the given element to be in sentence-initial position. The preceding context for all experimental items consists of three sentences. In the *TOPIC CONTINUATION* condition, the first sentence of the context introduced the sentence-initial element of the target sentence as an object. The two

following context sentences feature that element as their respective subjects to establish that element as the topic of the discourse. The target sentence then continues the previously established topic. An example of this can be seen in (8), the target sentence starts with the subject *de monteurs* ‘the mechanics’. *De monteurs* has been previously mentioned as the object of the first sentence. The subject pronouns of the following context sentences all refer back to ‘the mechanics’ unambiguously, as they are matched for grammatical number. As ‘the mechanics’ has been referenced multiple times in this context, its givenness should be relatively high.

(8) Context: De klant belt de monteurs. Ze zijn traag om de telefoon op te nemen. Ze zijn pas net klaar met sleutelen.

Target (SVO): De monteurs hebben de auto gerepareerd.

Gloss: Context: The customer calls the mechanics. They are slow to the phone up pick. They only just finished tinkering.

Target (SVO): The mechanics have the car fixed

The *TOPIC SWITCH* condition also introduces the sentence-initial element of the target sentence as the object of the first sentence of the context. In this condition, however, the two following context sentences have the same subject as the first context sentence. This means that the subject of the first context sentence is established as the topic of the discourse. The target in this condition switches the topic away from the previously established topic to the object of the first context sentence. An example of this can be seen in (9), *de monteurs* ‘the mechanics’ is the first element of the target sentence there and has already been mentioned as the object of the first sentence of the context. In this example the subject pronouns of the other context sentences cannot refer to ‘the mechanics’ as they are not matched for grammatical number. ‘The mechanics’ is thus only referred to once in the context and should be less given than in the *TOPIC CONTINUATION* condition.

(9) Context: De klant belt de monteurs. Ze komt er zo aan. Ze heeft wat vertraging.

Target (SVO): De monteurs hebben de auto gerepareerd.

Gloss: Context: The customer calls the mechanics. She will be arriving shortly. She is running a bit late.

Target (SVO): The mechanics have the car fixed

The *NON CONTINUATION* condition does not introduce the sentence-initial element of the target sentence in the context. Instead, the context establishes a completely different topic to the discourse. The target sentence does not continue the topic and introduces a previously unmentioned and incongruous topic. This was achieved by pairing the target sentences with contexts tailored to other target sentences. In the example in (10), *de monteurs* ‘the mechanics’ is the initial element of the target sentence. Unlike in the other context conditions ‘the mechanics’ are not mentioned at all in the preceding context. In this case, that context features a comic performing sketches. ‘The mechanics’ are therefore a discourse new element, and should have minimal givenness.

(10) Context: De komiek voert enkele sketches op. Ze zijn erg verschillend. Ze duren alleen te lang.

Target (SVO): De monteurs hebben de auto gerepareerd.

Gloss: Context: The comic performs some sketches. They are very different. They last just too long.

Target (SVO): The mechanics have the car fixed.

Fillers were present in the experiment as well. They consisted of pieces of context with either grammatical or ungrammatical target sentences. The fillers differed from the experimental items either in the structure of the target sentences, e.g., the target did not have an object, or in the context, e.g., no one particular topic was maintained. The ungrammatical fillers were created by moving the verb of a grammatical filler to a V3 position. The ungrammatical fillers were intended to ensure that participants did not rate the *GRAMMATICALITY* by rote.

2.2.5 Rating type

This study makes use of a multivalent rating system to more accurately assess any potential effects of the context effects. Phillips (2013) points out that participants in an experiment will use the rating scale they are provided with. This means they may conflate different categories of effects into a single score; they could, for example, score a non-canonical sentence lower on grammaticality if the word order was not suitably motivated pragmatically. A possible result of such a conflation is that the results of a monovalent experiment do not provide any clue to the cause of the lowered rating. For example, a lowered monovalent grammaticality rating for an OVS sentence in this experiment may, therefore, have been caused by an effect of the context or of the word order itself. To improve accuracy of the judgement task, more judgement modalities can be added to the experiment. These judgement modalities should be modalities that are influenced by the phenomenon that is being investigated. This should allow participants to provide more accurate information on the cause of their rating. For example, if they consider a sentence to be ugly, but grammatical, a multivalent rating containing both grammaticality and attractiveness would allow participants to convey this information. A monovalent grammaticality would only allow for the grammaticality or ugliness of the sentence to be assessed, and therefore provides less detailed information.

This study looks at topicalisation, which is a pragmatically motivated movement. This may mean that any effects found may be due to either felicity or grammaticality. This means that this experiment should have a multivalent rating system that encompasses modalities that are affected by either syntactic or pragmatic cues. This allows any participants to allocate any difficulties with a sentence to the appropriate category. In this study the relevant categories are *Grammaticaliteit* ‘Grammaticality’, *Begrijpelijkheid* ‘Comprehensibility’, and *Aantrekkelijkheid* ‘Attractiveness’. The *GRAMMATICALITY* category is used to assess what participants think of syntactic structures. The *COMPREHENSIBILITY* category is used to assess whether participants can understand sentences. The *ATTRACTIVENESS* category is used to assess the level of pragmatic motivation for a particular word order by scoring how pleasant the sentences were to read. The *ATTRACTIVENESS* rating should be most affected by the different context types, as the contexts influence the level of preference for an information structure, rather than the actual grammaticality of a word order. The *ATTRACTIVENESS* should be high when the givenness is high,

such as with the *TOPIC CONTINUATION* context, and low when the givenness is low, such as with the *NON CONTINUATION* context.

2.3 Procedure

The experiment was performed as part of an online survey. The participants could choose whether to participate in the experiment on their smartphone, or on their (laptop) computer. The participants were presented with one practice trial to familiarise them with the task. After the practice trial the experiment was started. Items were shown in six sets of eleven items, where each set contained one of each combination of word order and context type and five fillers. Both the overall order of the sets and the internal order of items within the sets were randomised to reduce the probability of any unwanted repetition effects occurring. For every item the participant was asked to rate the *GRAMMATICALITY*, *COMPREHENSIBILITY*, and the *ATTRACTIVENESS* of the item on three separate scales, ranging from 1 to 5. When the participant had finished rating a set of items, they could choose to move to the next set via a button at their own discretion. The experiment consisted of a total of 36 experimental items and 30 fillers. All participants were shown all of the experimental items once.

3. Results

3.1 Ratings

To assess whether SVO and OVS word order are rated differently, average ratings have been calculated for every combination of word order, context type, and rating type. The average *GRAMMATICALITY* ratings for the SVO word order were 4.58 (SD = 0.76) for *TOPIC CONTINUATION*, 4.65 (SD = 0.73) for *TOPIC SWITCH*, and 4.66 (SD = 0.70) for *NON CONTINUATION*. The average *GRAMMATICALITY* ratings for the OVS word order were 1.72 (SD = 1.28) for *TOPIC CONTINUATION*, 1.98 (SD = 1.44) for *TOPIC SWITCH*, and 2.07 (SD = 1.53) for *NON CONTINUATION*. Figure 1 shows these results as a bar graph. The average ratings of the SVO word order indicate that that word order was, on average, judged to be grammatical. The lower average ratings of the OVS word order indicate that OVS word order was seen as somewhat ungrammatical. The large standard deviation for OVS may have been caused by disagreement between speakers, as will be discussed in more detail later.

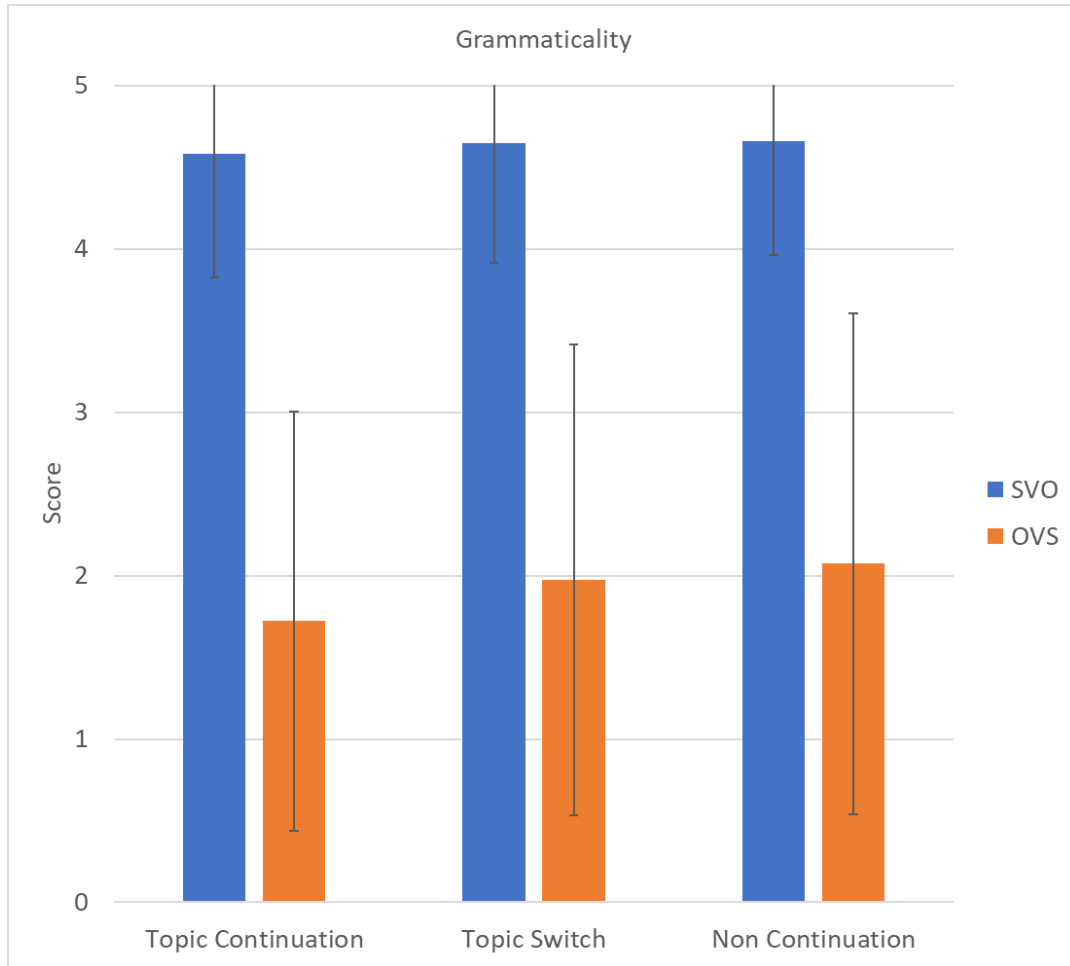


Figure 1. The average *GRAMMATICALITY* scores for all combinations of word orders and context types.

SVO word order was judged to be comprehensible for the *TOPIC CONTINUATION* and *TOPIC SWITCH* context types and somewhat comprehensible for the *NON CONTINUATION* context type. The average *COMPREHENSIBILITY* ratings for the SVO word order were 4.67 (SD = 0.47) for *TOPIC CONTINUATION*, 4.55 (SD = 0.71) for *TOPIC SWITCH*, and 3.23 (SD = 1.82) for *NON CONTINUATION*. OVS word order was judged to be somewhat comprehensible for the *TOPIC CONTINUATION* and *TOPIC SWITCH* context conditions and slightly less comprehensible in the *NON CONTINUATION* context condition. The *COMPREHENSIBILITY* ratings for OVS word order were 2.98 (SD = 1.40) for *TOPIC CONTINUATION*, 3.00 (SD = 1.36) for *TOPIC SWITCH*, and 2.29 (SD = 1.55) for *NON CONTINUATION*. These results have been visualised in figure 2.

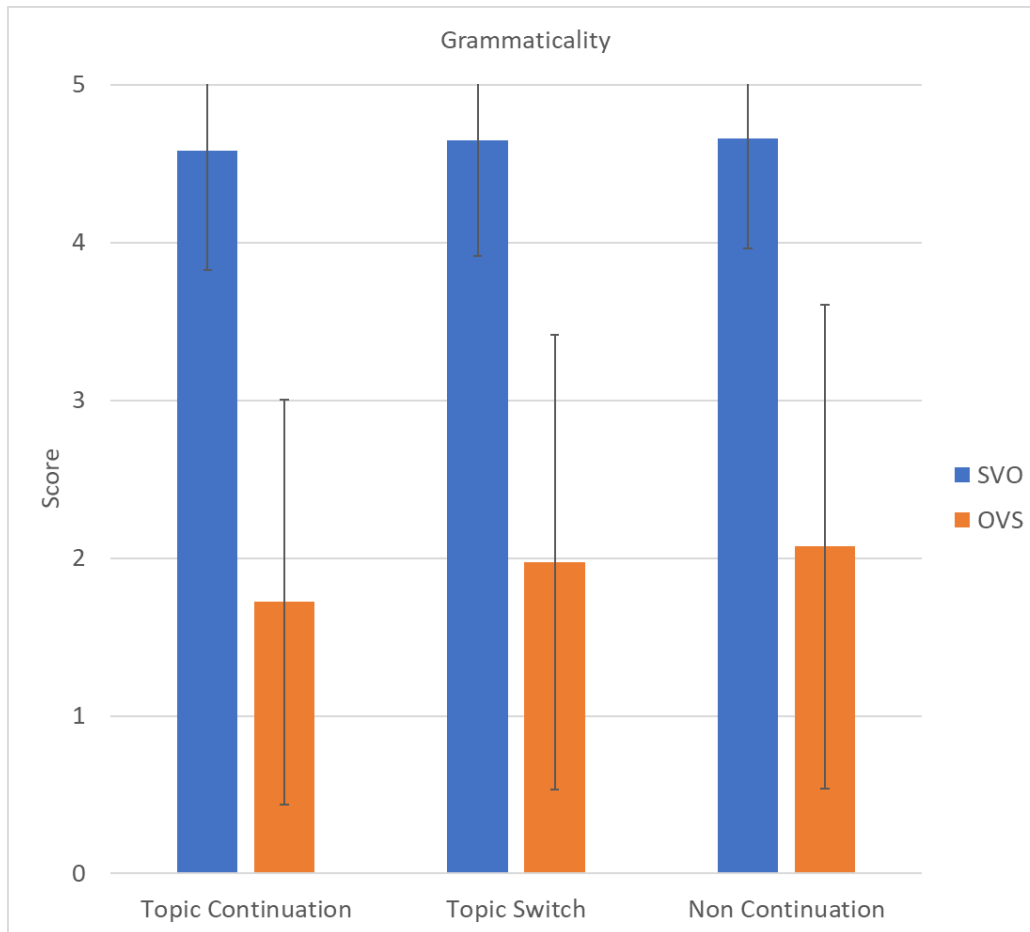


Figure 2. The average *COMPREHENSIBILITY* scores for all combinations of word order and context type.

SVO word order was judged to be attractive for the *TOPIC CONTINUATION* and *TOPIC SWITCH* context types and somewhat attractive for the *NON CONTINUATION* context type. The average *ATTRACTIVENESS* ratings for the SVO word order were 4.13 (SD = 1.06) for *TOPIC CONTINUATION*, 4.26 (SD = 0.97) for *TOPIC SWITCH*, and 3.04 (SD = 1.55) for *NON CONTINUATION*. OVS word order was judged to be quite unattractive for all context types. The *ATTRACTIVENESS* ratings for OVS word order were 1.77 (SD = 1.30) for *TOPIC CONTINUATION*, 1.77 (SD = 1.25) for *TOPIC SWITCH*, and 1.45 (SD = 1.21) for *NON CONTINUATION*. Figure 3 shows a graph of these results.

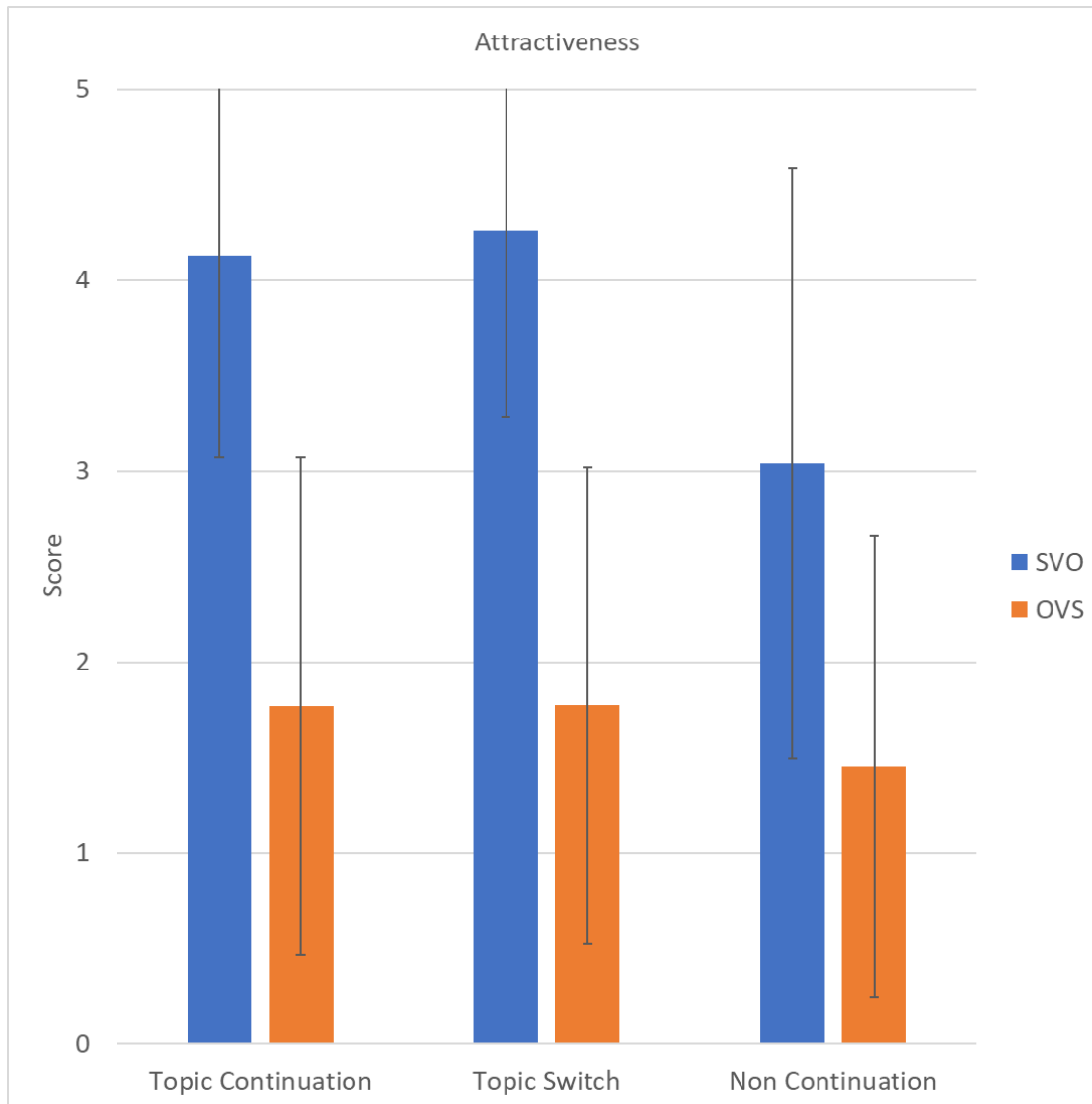


Figure 3. The average *ATTRACTIVENESS* scores for all combinations of word order and context type.

The results were analysed to ascertain whether the large standard deviation for OVS word order, in particular, might have been caused by some experimental items being seen as more acceptable than others, or by disagreement by the participants on the ratings. No experimental item seems to score consistently higher than the others for the same combinations of word order, context type and rating type. Some items seem to score higher than the others for one particular combination of word order, context and rating, but never for multiple combinations. However, there was great variance in the ratings between participants, with some participants scoring consistently higher or lower than others. For example, one participant had an average rating of

3.92 for the OVS *NON CONTINUATION GRAMMATICALITY* condition, whilst another participant had an average rating of 0.50 for that condition. It appears the judgements can vary greatly between participants. There was also a great variance in the scores between different experimental items in the same experimental condition for the same participant. One participant scored one OVS *NON CONTINUATION GRAMMATICALITY* item as high as 5 and another as low as 0.3.

3.2 Word order effects

To test whether the different ratings for SVO and OVS word order were significant, the ratings of the different word orders were compared with each other for each different combination of context type and rating type. Nine two-tailed non-equal-variance T-tests were performed and found significant results in all combinations. For the *GRAMMATICALITY* rating the p-values for the difference between SVO and OVS word order were *TOPIC CONTINUATION* $p < 0.001$, *TOPIC SWITCH* $p < 0.001$, *Non discourse continuation* $p < 0.001$. This means that the OVS word order condition was rated to be significantly less grammatical than SVO word order under all context conditions. For the *COMPREHENSIBILITY* rating the acquired p-values were *TOPIC CONTINUATION* $p < 0.001$, *TOPIC SWITCH* $p < 0.001$, *Non discourse continuation* $p = 0.001$. This means that the lower *COMPREHENSIBILITY* of OVS word order was significant for all context conditions, as well. For the *ATTRACTIVENESS* rating the p-values were *TOPIC CONTINUATION* $p < 0.001$, *TOPIC SWITCH* $p < 0.001$, *Non discourse continuation* $p < 0.001$. This means that the lower *ATTRACTIVENESS* rating for OVS word order was significant across all context conditions. In sum, OVS word order was rated lower than SVO word order on all rating types and in all context conditions and this difference was significant in all cases. This provides evidence that SVO and OVS word order may differ in some way in their underlying mechanisms.

3.3 Context effects

To assess whether the context conditions influenced the ratings, the ratings of the different context types were also compared with each other for every combination of word order and rating type to assess the effect of context. Three two-tailed non-equal-variance T-tests were performed between all context types for all word order and rating type combinations. No significant effects were found for the *GRAMMATICALITY*-SVO combination (*TOPIC CONTINUATION*-*TOPIC SWITCH*: $p = 0.584$, *TOPIC CONTINUATION*-*NON CONTINUATION*: $p = 0.507$, *TOPIC SWITCH*-*NON*

CONTINUATION: $p=0.917$). This indicates that SVO word order was judged to be grammatical regardless of the context condition. It appears that context does not significantly influence the perceived *GRAMMATICALITY* of SVO sentences.

Two significant effects were found in the *COMPREHENSIBILITY* and SVO combination for the *NON CONTINUATION* context type (*TOPIC CONTINUATION-TOPIC SWITCH*: $p=0.237$, *TOPIC CONTINUATION-NON CONTINUATION*: $p<0.001$, *TOPIC SWITCH-NON CONTINUATION*: $p<0.001$). This indicates that SVO sentences are perceived to be significantly less comprehensible when the preceding context does not introduce any of the discourse referents in the target sentence. However, there was no significant difference between the *TOPIC CONTINUATION* and *TOPIC SWITCH* context types. As these context types differ in the level of givenness they create, it seems that givenness alone may not be responsible for the lower *COMPREHENSIBILITY*.

Two significant effects were also found in the *ATTRACTIVENESS* and SVO combination for the *NON CONTINUATION* context type (*TOPIC CONTINUATION-TOPIC SWITCH*: $p=0.457$, *TOPIC CONTINUATION-NON CONTINUATION*: $p<0.001$, *TOPIC SWITCH-NON CONTINUATION*: $p<0.001$). This is an indication that *NON CONTINUATION* context lowers the *ATTRACTIVENESS* rating of SVO sentences, just as it lowers the *COMPREHENSIBILITY* rating.

No significant effects were found for the *GRAMMATICALITY* and OVS combination (*TOPIC CONTINUATION-TOPIC SWITCH*: $p=0.265$, *TOPIC CONTINUATION-NON CONTINUATION*: $p=0.136$, *TOPIC SWITCH-NON CONTINUATION*: $p=0.692$). This indicates that OVS word order was judged to be ungrammatical, regardless of context type. The *GRAMMATICALITY* was not modulated by the context.

Two marginally significant effects were found for the *COMPREHENSIBILITY* and OVS combination for the *NON CONTINUATION* context type (*TOPIC CONTINUATION-TOPIC SWITCH*: $p=0.947$, *TOPIC CONTINUATION-NON CONTINUATION*: $p=0.005$, *TOPIC SWITCH-NON CONTINUATION*: $p=0.004$). This is an indication that the *NON CONTINUATION* context type reduces the *COMPREHENSIBILITY* of OVS sentences, just as it reduces that of SVO sentences. The *TOPIC CONTINUATION* and *TOPIC SWITCH* contexts do not seem to differ in their effect on *COMPREHENSIBILITY* here, as well.

No significant effects were found for the *ATTRACTIVENESS* and OVS combination (*TOPIC CONTINUATION-TOPIC SWITCH*: $p=0.979$, *TOPIC CONTINUATION-NON CONTINUATION*: $p=0.134$, *TOPIC SWITCH-NON CONTINUATION*: $p=0.119$). This is an indication that OVS word order is judged to be

unattractive regardless of context type. It appears that the *ATTRACTIVENESS* of OVS word order is insensitive to context.

3.4 comparison to predictions

The results of the experiment do not seem to be fully in line with the predicted behaviour of SVO and OVS sentences in Dutch main clauses. The prediction was that the OVS word order would be judged to be grammatical, but depending on the context less attractive. Yet, there were significant differences between the SVO and OVS word orders in all contexts and across all rating types. The reason for this appears to be that the scores for the OVS word order were lower than expected for many conditions. OVS was predicted to be seen as grammatical in all cases, yet the average *GRAMMATICALITY* score was low for all context type conditions. Furthermore, there is no evidence that the *ATTRACTIVENESS* of OVS sentences is modulated by the context. No significant effect was found across context types for the *ATTRACTIVENESS* score of OVS sentences. The prediction was that the *TOPIC CONTINUATION* context type would be scored higher than the *TOPIC SWITCH* context, which in turn was predicted to score higher than the *NON CONTINUATION* context. Instead, all three contexts scored low on *ATTRACTIVENESS*. Unlike the OVS word order, SVO word order results were largely in line with the expectations. SVO word order was scored highly on *GRAMMATICALITY* for all contexts. It was also scored highly on *COMPREHENSIBILITY* and *ATTRACTIVENESS* in the *TOPIC CONTINUATION* and *TOPIC SWITCH* contexts. The only unexpected results were the relatively low *COMPREHENSIBILITY* and *ATTRACTIVENESS* scores for the *NON CONTINUATION* context. These results will be discussed in more detail later in section 4.1. Overall, the results appear to support the prediction that SVO word order is not realised by topicalisation, as the results diverge significantly from the predictions for topicalisation. An interesting and unexpected outcome of the experiment is that OVS word order also seems to diverge from the predictions made for topicalisation.

4. Discussion

Neither SVO, nor OVS, word order shows any evidence for being produced by topicalisation. The results, however, are in line with word orders produced by a grammatical constraint. No significant effect of context type on *GRAMMATICALITY* was found for either word order. Furthermore, the *COMPREHENSIBILITY* and the *ATTRACTIVENESS* scores did not show any

significant effects, except for the lower scores for *NON CONTINUATION* context which will be discussed in section 4.1. This insensitivity to context is what is expected for a syntactic constraint. The two word orders are also comparable in that for both word orders the *COMPREHENSIBILITY* of the *NON CONTINUATION* context type is significantly lower than the *COMPREHENSIBILITY* of the other contexts. The similarities seem to indicate that both word orders are created using a similar syntactic mechanism. But there is also one major difference between the two word orders and that is that the OVS word order is judged to be ungrammatical, whereas SVO is grammatical. The fact that the SVO word order is both grammatical and insensitive to context supports the idea that the word order is not governed by topicalisation. The fact that this experiment has found no evidence that OVS word order is created by topicalisation does not necessarily mean that OVS word order is not governed by topicalisation. It may quite simply be that pragmatic givenness alone is not a strong enough motivation for the topicalisation of the object in Dutch main clauses. If this is the case, the OVS word order would have to be interpreted as a faulty positioning of the object. The acceptability score then does not reflect the topicalisation movement, but the violation of Dutch word order where the subject precedes the object. It would then make sense that the pattern of the results shows great similarity to a grammatical word order. Another possible explanation for the results is that the participants did not recognise the topicalised object as an object, but interpreted it as the subject of the sentence. If this is the case the results would be caused by perceived agreement errors. The sentences would then be understood as SVO sentences where the verb is in agreement with the object, rather than the subject. This should give similar results as the sentences would be ungrammatical, but entirely comprehensible. Regardless of whichever explanation is correct, the findings beg the question whether the topicalisation of the object in Dutch main clauses differs from the topicalisation of other constituents. It seems unlikely that topicalisation of other constituents is as restricted as that of the object. Dutch sentences starting with an adverbial do not sound ungrammatical, after all (Broekhuis & Corver, 2016). The results of this experiment do not provide any evidence for any particular reason that the topicalisations should differ. A possible direction for future research may be to discover the reason for the different requirements for the topicalisation of objects and other constituents in Dutch.

Another question that is raised by the results of this experiment is what the exact nature is of the syntactic constraint that results in Dutch SVO main clause word order. The results only

indicate that SVO word order is created by a syntactically motivated movement, rather than topicalisation. They do not, however, provide any clues to the mechanism by which the word order is created. Broekhuis & Corver (2016) argue for a language-specific surface condition that moves the head to the highest filled functional head. The results of this experiment are in line with this analysis, but further research is required to establish the exact mechanism. If such a mechanism is indeed present it may help explain the strength of wh-islands in Dutch main clauses. Beljon et al. (2021) offer an explanation for the fact that Dutch main clauses are strong syntactic islands using featural Relativized Minimality. This explanation relies on the presence of an unspecified feature, [F], that triggers the movement of an element to sentence initial position in Dutch V2 word order. However, if a single feature was responsible for the movement of any element into sentence initial position Minimal Search would predict that only the highest position in the syntactic tree would be eligible for movement (Chomsky, 2013). This would mean that the subject is always moved from its position in the specifier of the verb phrase to the sentence-initial position. This would mean that Dutch main clauses would effectively be SVO word order. This explanation would therefore be in line with the presence of a mechanism that prefers SVO word order.

4.1 Topic non continuation

The *NON CONTINUATION* context type was scored lower on *COMPREHENSIBILITY* than the other context types for both SVO and OVS word order. This finding may have been caused by a semantic clash between the context and target sentence. Cunnings & Sturt (2018) have found that plausibility can affect the reading times of sentences. The more unexpected the sentence is, the longer it takes to read. In the *NON CONTINUATION* context the target sentence bears no relation to the preceding context and that makes it unexpected. The context establishes a topic and the target does not follow upon it. It diverges wildly from it. Both the *TOPIC CONTINUATION* and the *TOPIC SWITCH* contexts introduce the sentence-initial element of the target, the *NON CONTINUATION* context does not. The context creates a certain expectation for the content of the target sentence, but that is not borne out. This increases the surprisal of the target, thus making it more difficult to comprehend. Furthermore, the lower rating would be in accordance with the link between

processing difficulties and acceptability ratings found by Hofmeister & Sag (2010). The mismatched context makes the sentence more difficult to process, resulting in a lower rating.

This reduced *COMPREHENSIBILITY* also seems to correlate with a reduced *ATTRACTIVENESS* score. The *NON CONTINUATION* context had a significantly lower score on both *COMPREHENSIBILITY* and *ATTRACTIVENESS* for the SVO word order. This seems to be a fairly intuitive correlation. It would make sense that sentences that are more difficult to comprehend are considered to be less attractive, even if they are recognised as being grammatical. The unexpected finding here is that no significant effect of context was found for the *ATTRACTIVENESS* of OVS sentences, whilst a significant effect was found for *COMPREHENSIBILITY*. One would expect that a lower *COMPREHENSIBILITY* would correlate with a lower *ATTRACTIVENESS* here, as well. It may be the case that the *ATTRACTIVENESS* score was influenced by a floor effect. The score for the *ATTRACTIVENESS* of the other context types was already quite low, so it may be that participants were loath to score the *NON CONTINUATION* even lower, as a minimal score would be on par with gibberish. However unattractive the combination of *NON CONTINUATION* context and OVS word order was, it was still an understandable sentence containing all the elements necessary to form a grammatical sentence. The score can only go so low before it stops reflecting that and starts reflecting gibberish. It is also entirely possible that a significant effect of *NON CONTINUATION* on the *ATTRACTIVENESS* would appear if the sample size of the participants is increased. Relatively few participants completed the experiment and that may have masked the significance of the effect. Future research would do well to ensure sufficient participants complete the experiment to ensure no potentially significant results are missed.

4.2 Rating types

The results of the experiment show that using a multivalent rating system for acceptability judgements can be important. Both the *COMPREHENSIBILITY* ratings and the *ATTRACTIVENESS* ratings show effects of context that did not appear in the *GRAMMATICALITY* ratings. This means that the multivalent rating provides more usable data than a simple monovalent grammaticality rating. Although the additional rating types did not provide crucial information on the analysis of topicalisation for SVO and OVS word orders, they did show an interesting effect of context on comprehension. Future research focussing on pragmatic effects using acceptability ratings would

probably be best conducted using a multivalent rating system. The additional ratings provide a wealth of data that can show effects that would otherwise go unnoticed.

4.3 Limitations and further research

One important limitation of this study is that it did not control for syntactic persistence. Syntactic persistence is the tendency to repeat a syntactic structure across multiple sentences (Hartsuiker & Kolk, 1998). Hartsuiker & Kolk (1998) have found evidence that syntactic persistence is present in Dutch. This means that speakers of Dutch may prefer sentences that match the structure of preceding sentences over those that have a different structure. The context texts used in this study all followed a similar structure, where the first sentence introduces two discourse referents and the following two sentences feature one of these referents as the sentence-initial subject. A result of this setup is that all sentences in the contexts start with the subject. Only the SVO word order condition used target sentences starting with the subject. OVS word order had a sentence-initial object and therefore had a slightly different syntactic structure. This means that the participants may have preferred the SVO word order condition, due to that syntactic structure more closely matching that of the sentences in the preceding context. The effect may therefore have been modulated by syntactic structures of the sentences in the context, rather than the givenness provided by the context. It is recommended that future research takes care to ensure that any context matches or mismatches the syntactic structure of the target sentence equally across all word order conditions. This can be done by starting the sentences in the context with linking adverbials like *daarna* ‘after that’ or *toen* ‘then’.

Another limitation of the study is that it did not find any evidence that the experimental setup actually modified the givenness of any referent. The results were in line with what one would expect if SVO word order was grammatically correct and OVS was ungrammatical. Neither the SVO, nor the OVS word order showed any significant differences between the *TOPIC CONTINUATION* and *TOPIC SWITCH* context types for any rating type. As was discussed earlier, the lower ratings for *NON CONTINUATION* may have been due to a semantic clash, rather than a lower givenness alone. These results can mean that SVO and OVS word order do not have the same requirements for topicalisation as other word orders, or that the experimental setup did not licence topicalisation in general. To assess whether SVO and OVS behave differently with

regards to topicalisation than other word orders, future research might look into more word orders. Sentences starting with adverbials might be a suitable candidate. If sentences starting with adverbials are influenced by context, but SVO and OVS are not in the same experimental condition, that may be evidence that the requirements for topicalisation are not equal for all word orders. If no effect of context is found for any word order it may be that the experimental setup does not provide the right cues for topicalisation.

One reason that the experimental setup may not have licenced topicalisation in general as the relation between the sentence-initial element and the preceding discourse for the *TOPIC CONTINUATION* and *TOPIC SWITCH* context types was one of identity. The element was the same as a previously introduced referent. Ward & Prince (1991) have found that the topicalised element needs to be in a salient anaphoric relation to another salient element in the discourse. Three possible semantic relations are posited, a higher element relation, a lower element relation, and an alternate element relation. The higher element relation indicates that a referent in the preceding discourse is a subset of the topicalised element. The lower element relation indicates that the topicalised element is a subset of a referent established in the previous discourse. The alternate element relation means that both the topicalised element and a referent established in the discourse are a subset of the same superset. Some examples taken from Ward & Prince (1991) are shown in (11).

(11) Higher element:

When I was on surveillance, during this hijacking case, we're working for a newspaper. The guys delivering were selling papers on the side. The newspaper was earning a fortune. These guys knew they were being tailed and they still continued the same shit. *People like that* you have no sympathy for, they're stupid.

Lower element:

GW: Have you finished the article yet? MR: Almost. *The conclusion* I still have to do.

Alternate elements:

GW: Did you get any more clues to the crossword puzzle? SM: No. *The cryptogram* I can do like that. The crossword puzzle is hard.

In the first example in (11) *People like that* is a higher element than the specific people mentioned in the preceding discourse. The people mentioned in the discourse are a subset of *People like that*. In the second example in (11) *The conclusion* is a lower element than the article mentioned in the discourse. The conclusion is a subset of the article, as it is a part of the article, but not the entirety of it. In the third example, *the cryptogram* is an alternate element to the crossword puzzle mentioned in the discourse. Both *the cryptogram* and the crossword puzzle are subsets of puzzles. As the experimental items in the current study did not licence topicalisation in any of these ways, it is possible it did not licence topicalisation at all. Future research should take care to ensure that any preceding discourse establishes referents with an appropriate relation to the topicalised element.

Another interesting direction for future research is to investigate whether there is an effect of cultural, educational, or regional background on the grammaticality ratings of different word orders. Participants in this experiment showed a large variance in their ratings of some word orders, with some judging a particular item to be entirely grammatical, whilst others judged that item to be entirely ungrammatical. It might be worthwhile to investigate the cause of this disparity. This study did not collect much demographical data, as the disparity between participants was not expected. As such, it is difficult to provide a clear direction of the possible cause for the disparity. Furthermore, no statistical analysis was performed on the significance of the difference between participants, combined with the low number of participants, it may be possible that the disparity in ratings is an artefact.

5. Conclusion

This study has found experimental evidence that SVO word order in Dutch main clauses can be created without the use of topicalisation. SVO word order sentences were judged to be grammatical, comprehensible, and attractive in all tested context conditions. No evidence has been found that different context types influence the grammaticality judgments of SVO sentences. This result is unexpected when SVO word order is analysed as the result of topicalisation, as topicalisation should be sensitive to pragmatic context, but in line with a grammatical mechanism that generates SVO word order. This study has also found potential evidence that OVS word order may be more restricted than previously thought. OVS word order

was expected to be judged as grammatical in some of the experimental conditions, but it was judged to be ungrammatical in all context conditions. The results are an indication that topicalisation in Dutch main clauses should prove a fruitful topic for future research.

Word count (excluding references)
: 8793

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