

Variable V2 in Norwegian Heritage Language: An effect of crosslinguistic influence?

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1. Introduction

In this paper we investigate verb second (V2) word order in declaratives in Norwegian heritage language spoken in North America, often referred to as American Norwegian, focusing on variation that exists across speakers and linguistic contexts (see Polinsky, 2018 for an extensive discussion of the term ‘heritage language’). V2 in Norwegian is found in both subject-initial and non-subject-initial declaratives, as a requirement that the finite verb appear in second position, following any non-subject constituent and preceding the subject in the latter case (XVS) and preceding adverbs/negation in the former (SVAdv), illustrated in (1)-(2). English word order differs from Norwegian in these cases, as English generally does not display verb movement in declaratives.

(1) Vanligvis **leser vi** mange bøker i juleferien.

usually read we many books during Christmas break

‘We usually read many books during Christmas break.’

(2) Vi **leser vanligvis** mange bøker i juleferien.

we read usually many books during Christmas break

‘We usually read many books during Christmas break.’

The data investigated come from a corpus of spontaneous production by 50 elderly heritage speakers, mainly 3rd generation immigrants. They were monolingual Norwegian from birth, but generally dominant in English from school age, and throughout their adult life they have experienced a severe reduction in input and use of the heritage language. Our results show that V2 word order is relatively robustly attested in the data, although there are also a number of occurrences of non-V2, indicating a certain amount of attrition of the heritage language syntax. We adopt the definition in Schmid and Köpke (2017, p. 638) that attrition is the “process by which (a) pre-existing linguistic knowledge becomes less accessible or is modified to some extent as a result of the acquisition of a new language, and (b) L1 production, processing or comprehension are affected by the presence of this other language”. In line with this, we analyze the Norwegian heritage language data using the model proposed by Putnam and Sanchez (2013), who argue that lower activation of the heritage language – for both production and comprehension purposes - may result in a gradual replacement of properties of the heritage language by properties of the majority language.

The paper is organized as follows. Section 2 provides relevant background information on the syntax and acquisition of V2, including previous work on different populations. The current study is described in section 3, and section 4 presents the research questions and predictions. Section 5 outlines our results, which are then subsequently discussed in section 6. Some concluding remarks are made in section 7.

2. Background

2.1 The syntax of V2

Like most Germanic languages, Norwegian generally displays V2 word order, as shown in (1)-

(2) above. Scholars have taken different positions on the issue of whether subject-initial declaratives have the same structure as non-subject-initial declaratives. The symmetric and asymmetric analyses are based on different underlying derivations, specifically regarding how high the verb moves: According to the symmetric analysis, the verb moves to the left periphery (to C) in both subject- and non-subject-initial declaratives (den Besten, 1983; Taraldsen, 1986; Schwartz & Vikner, 1996; Weerman, 1989; Holmberg & Platzack, 1995; Vikner, 1995; Haegeman, 1996; Platzack, 1998; van Craenenbroeck & Haegeman, 2007, among many others). According to the asymmetric analysis, this is only the case in non-subject-initial declaratives, while the verb moves to the inflectional domain in subject-initial declaratives (e.g., Travis, 1984, 1991; Zwart, 1993, 1997; Mikkelsen, 2015; Haegeman & Greco, 2018; Westergaard, Lohndal, & Alexiadou, 2019). We illustrate the asymmetric analysis in (3), setting aside potential additional functional projections.

- (3) a. Subject-initial declaratives: [CP [C C] [IP subject [I V] [vP t_{subject} tV ...]]]
 b. Non-subject-initial declaratives: [CP XP [C V] [IP subject [I tV] [vP t_{subject} tV ...]]]

Recent arguments in favor of an asymmetric analysis are found in Westergaard, Lohndal and Alexiadou (2019), who base their account on data from L1 and L2/Ln acquisition, heritage languages and urban ethnolects and show that subject-initial and non-subject-initial declaratives behave differently. For example, in German urban vernacular, V2 is sometimes replaced by non-V2 in non-subject-initial declaratives, while V2 is completely intact in subject-initial declaratives (with adverbs) (Walkden 2017), and in English L2 acquisition by L1 Norwegian learners, the “unlearning” of V2 is much faster in the former context than in the latter (Westergaard, 2003). Considerable research has also demonstrated significant variability within and across V2 languages, arguing that V2 languages are not homogenous, and that V2 itself is

a collection of many smaller rules (Weerman, 1989; Westergaard, 2009a; Westergaard, Lohndal & Vangsnes, 2017; Wolfe 2018; Lohndal, Westergaard & Vangsnes, 2020). Some of the V2 variation attested is discussed in the next section.

Approximately 30-40% of all declaratives in a Germanic V2 language start with a constituent other than the subject, entailing that there is considerable evidence for a V2 grammar in the input to learners (Lightfoot, 1999; Bohnacker & Rosén, 2008; Westergaard, 2009b). In comparison, a non-V2 language such as English has a much lower proportion of non-subject-initial declaratives, and instead the initial position is typically filled by the subject. Yang (2001, p. 242) observes that “[b]ased on the Penn Treebank, a corpus of modern English, . . . less than 10% of all sentences have V<2 word order”. Yang’s percentage includes both XSV and SXV structures, thus confirming that XSV is rare in English. This means that Norwegian has V2 word order and a high number of non-subject-initial declaratives, whereas English is SVO and prefers subjects in initial position.

2.2 V2 variation

It is well known that V2 word order is not obligatory in all contexts in Norwegian (e.g., Vangsnes, 2005; Westergaard, 2009a). The variation is dependent on factors such as clause type (e.g., declarative vs. wh-question), the initial constituent (e.g., phrasal vs. monosyllabic wh-elements), and information structure (whether the subject conveys given or new and/or focused information). For example, if the initial element is the adverb *kanskje* ‘maybe’, both V2 and non-V2 word orders are possible, as illustrated in (4), while all other non-subject-initial elements (adverbs, objects, etc.) require V2 (cf. Eide, 2011; Bentzen, 2014).

- (4) Kanskje vil studentene / studentene vil drikke øl.
maybe will students.def / students will drink beer

‘Maybe the students will drink beer.’

Non-V2 word order in *wh*-questions is widespread in Norwegian dialects (cf. e.g., Westergaard, Vangsnes & Lohndal, 2017; Lohndal, Westergaard & Vangsnes, 2020). While there is considerable micro-variation across dialects, a common distinction is that V2 is required if the *wh*-element is long (more than one syllable), as in (5), while both word orders are grammatical if the *wh*-element is monosyllabic; see (6a–b), which have been taken from a corpus of spontaneous production of the Tromsø dialect (Anderssen, 2006). In the latter context, the choice between the two is dependent on information structure: Non-V2 is used if the subject conveys given information (typically a pronoun, as in 6b) and V2 if the subject expresses new information (often a full DP in combination with the verb *være* ‘be’, as in 6a). A typical distribution in spontaneous speech for the two word orders is provided in Table 1, where pronominal subjects are used as a proxy for given and full DPs for new information (from Westergaard 2009a, p. 58).¹

(5) Korsn **sir du** det? / *Korsn du sir det? V2
how say you it / how you say it?
‘How do you say it?’

(6) a. kor **er skoan** hannes henne? (INV, file Ole.17) V2
where are shoe.DEF/PL his LOC
‘Where are his shoes?’

b. kor **dem er** henne? Non-V2
where they are LOC
‘Where are they?’

¹ The empty subject *det* ‘it’ behaves like full DPs in this respect (see Westergaard, 2009b).

Table 1. Proportion of V2 with different subject and verb combinations in questions with monosyllabic wh-words, one speaker in corpus of child-directed speech (Anderssen, 2006).

Subject \ Verb	<i>være</i> ‘be’	Other V
Full DP/ <i>det</i>	82.6% (128/155)	20.8% (5/24)
Pronoun	20% (1/5)	1.7% (2/116)

The word order variation in Norwegian is often argued to be a result of diachrony in process (e.g., Westergaard, 2009a; Westergaard et al., 2017). Similar patterns are also found in historical data of English. In Old and Middle English, there is considerable and systematic variation between V2 and non-V2 in declaratives: If the subject is a full DP, the verb typically precedes it, resulting in V2 (although non-V2 is attested in about 30% of these contexts). If the subject is a pronoun, on the other hand, the verb virtually always follows it. This pattern is illustrated by the following examples from Haeberli (2002, p. 88–90).

- (7) On his dagum **sende Gregorius** us fulluht (Anglo-Saxon Chronicle A2 18.565.1)
in his days sent Gregory us baptism
‘In his time, Gregory sent us Christianity’
- (8) & fela ðinga **swa gerad man sceal don** (Laws 4 448.5.4)
and many things so wise man must do
‘And such a wise man must do many things’
- (9) Hiora untrymnesse **he sceal** ðrowian his heortan (Cura Pastoralis 60.17)
their weakness he shall atone his heart
‘He shall atone in his heart for their weakness’

A number of studies have analyzed this word order variation as the result of information structure (e.g., Bech, 2001; Westergaard, 2009c; van Kemenade & Westergaard, 2012): When the subject is new and/or focused information, typically a full DP, the word order is V2, while the word order is normally non-V2 if the subject conveys given information, typically a pronoun. It should be pointed out that there are also certain exceptions to this pattern, notably related to the initial element. If a declarative is introduced by the elements *þa/þonne* ‘then’ or other short adverbs such as *nu* ‘now’, the word order is (almost) categorically V2, even with pronominal subjects, illustrated in (10), from Bech (2001, p. 3).

- (10) *þa siglde he þonan suðryhte be lande* (Orosius 14:16)
then sailed he from.there southwards along coast
‘Then he sailed from there southwards along the coast’

2.3 *The development of V2*

V2 word order is attested in spontaneous data from monolingual children from a very early age. In corpora of Germanic V2 languages, finite verbs appear in second position from the earliest relevant utterances (e.g., Clahsen, 1990 for German, Blom, 2003 for Dutch, Waldmann, 2012 for Swedish, and Westergaard, 2009b for Norwegian). Furthermore, Norwegian children seem to have no problem with V2 variation, producing V2 and non-V2 in appropriate contexts, as shown by the following examples from Westergaard (2009b, p. 161 and p. 142); cf. examples (5)-(6) above. Such findings are accounted for by the Micro-cue Model (Westergaard, 2009b, 2014), arguing that children are not learning by setting major parameters, but are sensitive to fine distinctions in the grammar from early on.

- (11) *koffer har han fått den?* (Ina.22, age 2;10.2)

why has he got that

‘Why did he get that?’

(12) ka **du gjør?** (Ann.10, age 2;3.9)

what you do

‘What are you doing?’

While most bilingual children separate their two languages from the earliest possible utterances (e.g., De Houwer, 2009), crosslinguistic influence is also a characteristic of bilingual acquisition. With respect to V2 word order, this influence may go in either direction: Investigating three Norwegian-English children growing up in Norway, Anderssen and Bentzen (2018) find that the V2 word order of Norwegian affects the acquisition of inversion and *do*-support in English, while Döpke (1998), who investigated three English-German children growing up in Australia, finds that there is influence from English at a very early stage, resulting in occasional non-V2 in the children’s German. This is illustrated in (13), where the finite verb has not moved across negation, which would be required in adult German.

(13) you **nich hast** Motor inne Boot (CW–G 2:10) (Döpke, 1998, p. 571)

you not have engine in-the boat

‘You haven’t got an engine in your boat.’

This instability of V2 /non-V2 word order in early learners is also visible in attrition contexts. Flores (2010) shows that Portuguese heritage speakers growing up in Germany experienced erosion of V2 word order after losing contact with German input (when returning to Portugal). Importantly, the attrition of V2 was clearly linked to age: Speakers who returned before age 11 displayed great variability in the production of V2, while speakers returning after age 11

showed minimal attrition. Flores argues that language acquisition is followed by a stabilization phase in adolescence, and that the attrition effects are due to insufficient activation of the German grammar.

In L2/Ln acquisition, V2 word order has been shown to be demanding for learners unless they have previously acquired a language with a V2 requirement (e.g., Brautaset, 1996, for Norwegian). Investigating L2 acquisition when both languages have V2 syntax, Bohnacker and Rosén (2008) found that learners generally do not have difficulty with V2. However, based on a study of Swedish L2/Ln learners of German, they show that differences in pragmatic structure across V2 languages (reflected in different distributions of types of initial elements in non-subject-initial declaratives) may cause transfer from the L1 to the L2. Thus, while the initial position of non-subject-initial declaratives in Swedish is mainly occupied by short and informationally light elements, German typically allows longer and informationally heavier elements. The L2/Ln learners were found to produce the L1 pattern in the L2 for an extended period of time.

Diachronic evidence also shows a correlation between V2 word order and a high proportion of non-subject-initial declaratives. In the historical development of English, the loss of V2 goes hand in hand with a reduction of non-subject-initial declaratives, which has often been related to the clause-initial position being increasingly defined as a subject position (e.g., van Kemenade & Los, 2006; Speyer, 2008). Furthermore, the loss of V2 takes place in small steps, affecting different linguistic contexts at different times (e.g., van Kemenade & Westergaard, 2012), which has been accounted for by the Micro-cue Model in Westergaard (2009c); see also Westergaard (2017) for a more general overview of stepwise historical development. This is relevant for the possible loss of V2 in a heritage language situation.

2.4 V2 in heritage languages

In studies of adult heritage speakers, any deviation from the non-heritage variety may be due to what is often referred to as incomplete or differential acquisition (Montrul, 2008; Kupisch & Rothman, 2016) or language attrition (Schmid & Köpke, 2017). It may be predicted that V2 word order is vulnerable in heritage populations whose dominant language is not V2, e.g., English. However, previous research has so far shown that there is less attrition of V2 than one might have expected.

Håkansson (1995) studied five bilingual expatriate Swedes who grew up with English or French as the majority language (both generally non-V2), finding that Swedish word order (including V2) was generally stable. The heritage speakers were compared to L2 learners of Swedish, who were found to frequently produce V2 violations. Furthermore, the heritage speakers had a fairly native-like proportion of subject- and non-subject-initial declaratives (58-75% subject-initial), which was not the case for the L2 learners (82-97% subject-initial). Håkansson (1995, p. 160) thus argues that ‘the V2 rule resists attrition’ (but cf. the attrition data from Flores (2010) mentioned in the previous section). Similar findings have been made for heritage German. Investigating non-subject-initial declaratives produced by German Jews who immigrated to England and the US in the 1930s, Schmid (2002) found only 2% V2 violations. Considering German heritage speakers in Canada and the Netherlands, Jackson, MacDermott and Schmid (2009) found that they had no problems with V2 syntax, but the two groups diverged in their fronting patterns: The speakers in the Netherlands had a proportion of non-subject-initial declaratives matching the controls, while the Canadian group had a lower proportion (though still above English values). This demonstrates the subtle influence that a majority language can have on a minority language.

More recently, there has been considerable research into word order in Germanic heritage varieties, focusing in particular on verb movement, e.g., Hopp and Putnam (2015) for Moundridge Schweitzer German, Kühl and Heegård Petersen (2018) for heritage Danish,

Arnbjörnsdóttir, Thrainsson and Nowenstein (2018) for heritage Icelandic, Larsson and Johannessen (2015) for heritage Swedish, Eide and Hjelde (2015) and Westergaard and Lohndal (2019) for heritage Norwegian. While findings indicate that V2 word order is generally intact, these recent studies also attest more variation. Interestingly, Hopp and Putnam (2015) find some over-use of V2 in embedded clauses (typically used with complementizers *dass* ‘that’ and *weil* ‘because’). As this cannot be due to direct influence from English, they argue that “the combination of lesser use or activation of [Moundridge Schweitzer German] and cross-linguistic influence from English which does not instantiate asymmetric word order in main and subordinate clause contexts leads to a particular type of leveling of word order distinctions across clause types within the constraints afforded by German syntax” (Hopp & Putnam, 2015, p. 206). The other more recent studies find that individual speakers may occasionally violate V2 in main clause declaratives, and some speakers may also violate it more generally, which has been argued to relate to fluency (Johannessen & Salmons, to appear).

For example, while V2 is generally robustly attested in the production of many speakers of heritage Norwegian, there are also a number of examples of non-V2 in the data. Thus, heritage Norwegian may be considered to have variable V2 word order. Eide and Hjelde (2015) demonstrate that there is a difference between subject-initial and non-subject-initial declaratives with respect to V2 (cf. section 2 and the syntactic difference between these two constructions according to the asymmetric analysis). The speaker that they investigated never violated V2 in the former clause type, cf. (14), from Eide and Hjelde (2015, p. 89), but she frequently produced non-V2 structures in non-subject-initial declaratives, as in (15).

(14) Nei, je **visste itte** henne.

no I knew not her

‘No, I didn’t know her.’

- (15) Og der **dem lager** vin.
and there they make wine
'And there they make wine.'

This discrepancy is also found in Arnbjörnsdóttir et al.'s (2018) study of heritage Icelandic. In an acceptability judgement test, heritage speakers were often found to accept both V2 and non-V2 in non-subject-initial declaratives, as in (16), while they clearly preferred V2 in subject-initial declaratives, such as (17).

- (16) Á morgun **sjáum við/við sjáum** það
tomorrow see we/we see it
'Tomorrow we see it.'
- (17) Kristín **talar stundum/stundum talar** ...
Kristin speaks sometimes/sometimes speaks ...
'Kristin sometimes speaks ...'

Generalizing across these findings, an obvious explanation for the appearance of non-V2 word order seems to be the influence of the dominant non-V2 language. It is well known that in bilinguals, the two languages are always active, and in monolingual mode, one of the languages needs to be inhibited (e.g., Hartsuiker, Pickering & Veltkamp, 2004; Martin, Dering, Thomas & Thierry, 2009; Putnam, Carlson & Reitter, 2018). Generally, inhibiting the dominant language is harder than inhibiting the weaker language, which suggests that in heritage speakers, the dominant language exerts a special influence on the weaker language. An example of this from heritage Danish is found in Köhl and Heegård Petersen (2018), who demonstrate that, when the initial element of a declarative is provided in English or contains an English

element, it is much more likely that the word order will be non-V2. Thus, code-switching mode may make it harder to inhibit the syntax of the dominant language.

Finally, in their small-scale study of heritage Norwegian, Westergaard and Lohndal (2019) investigate 16 speakers in the Corpus of American Nordic Speech (CANS, Johannessen, 2015b), and conclude that the syntax of V2 is generally intact in the grammar of Norwegian heritage speakers. The non-V2 that appears in production is argued to be the result of (non-representational) cross-linguistic influence from English. They also suggest that this may eventually cause a representational change in the heritage grammar. For example, the speakers of heritage Icelandic studied by Arnbjörnsdóttir et al. (2018) may have developed further in that direction, since they do not only produce non-V2, but also to some extent accept it in acceptability judgement tasks. Furthermore, Westergaard and Lohndal (2019) find a clear correlation between the number of V2 violations and the proportion of non-subject-initial declaratives, in that the lower this proportion, the more V2 violations are produced; i.e., the same correlation that has been found in L2/Ln acquisition and in diachrony (cf. section 2.3). In the current study, we ask additional research questions (in section 4) and investigate Norwegian heritage language further by incorporating more speakers and data than in the Westergaard and Lohndal (2019) study.

3. Our study

The current study is based on data of 50 speakers of Norwegian heritage language from the CANS corpus. These speakers are 2nd-4th-generation immigrants, aged approximately 70-90 at the time of the interviews. They were monolingual Norwegian from birth until around age 5-7, which means that we must assume that V2 syntax has been acquired before their exposure to

English (cf. the early acquisition of V2 reported in section 2.3). As the Norwegian heritage speakers have not passed on the language to the next generation, many of them have not used their heritage language for decades, and they are clearly dominant in English today (see Haugen, 1953 for more on the background of Norwegian heritage language). Furthermore, as a result of schooling exclusively in English, these heritage speakers have minimal or no literacy in Norwegian.

The corpus consists of transcribed speech collected through structured conversations and interviews. Unfortunately, there is relatively sparse data per speaker, typically a recording of approximately an hour or so. We have investigated the transcribed files manually, since it is not possible to search the corpus based on syntactic function. We have investigated all declaratives, and subject-initial as well as non-subject-initial declaratives have been identified and sorted according to whether or not they exhibit a V2 or a non-target-consistent non-V2 word order. Importantly, well-known exceptions to V2 have been discarded, for example, initial *kanskje* ‘maybe’ (cf. section 2.2). All files have been checked by at least two native speakers of Norwegian.

4. Research questions and predictions

Based on the linguistic structure of the speakers’ majority and heritage languages as well as findings from previous research, we investigate three research questions and propose corresponding predictions. The first research question concerns a possible replication of an interesting correlation found in Westergaard and Lohndal (2019), now based on a higher number of participants, while the second and third questions focus on yet unexplored aspects of variation in Norwegian heritage language.

RQ1: Is the proportion of non-subject-initial declaratives affected in this heritage language situation? If so, what is the relationship between the reduction of non-subject-initial declaratives and the production of non-V2 syntax? That is, will the finding of Westergaard and Lohndal (2019), which was based on only 16 speakers and with a weak correlation ($t = -2.52, p = .024, R^2 = 0.31$), hold up when more speakers are investigated?

Based on the previous findings in Westergaard and Lohndal (2019), we predict that there will be a correspondence between the proportion of non-subject-initial declaratives and the number of V2 violations found in the data. That is, we expect that speakers who produce fewer non-subject-initial declaratives also produce more examples of non-target-consistent non-V2.

RQ2: Is V2 syntax equally vulnerable in subject-initial and non-subject-initial declaratives?

In accordance with the Micro-cue Model (Westergaard 2009b) as well as the asymmetric analysis of V2 in declaratives (cf. section 2.1), we predict that there will be a discrepancy between subject-initial and non-subject-initial declaratives with respect to word order in this population. More specifically, as indicated in some previous research on heritage languages (cf. Eide & Hjelde, 2015, Arnbjörnsdóttir et al., 2018), we expect that subject-initial declaratives (AdvV word order) should be less vulnerable to attrition than non-subject-initial declaratives (XVS word order).

RQ3: Is the choice of V2 vs. non-V2 dependent on syntactic or information structure factors, similar to what has been found in other languages with variable V2? That is, will there be

variation that is dependent on the type of subject (pronoun vs. full DP), type of verb (auxiliary, lexical verb or *be*), or the initial element (length, frequency, or function)?

For RQ 3, we have no clear prediction, but the following consideration: If we find that the V2 variation is systematic and dependent on syntactic or information structure factors, we may conclude that this is part of the stable representation in the grammar of these heritage speakers. A more unsystematic use of V2 would indicate that the attrition/change may not (yet) have affected the representation of the grammar, but that it has been weakened by lack of input and use and thus has become more vulnerable to cross-linguistic influence from the dominant language in production (cf. Putnam & Sanchez, 2013). In a similar vein, any statistical differences across linguistic contexts (clause types, initial elements, etc.) would be compatible with models of acquisition/attrition/change that argue for development in small steps (cf. references in section 2.1-4). Lastly, it is worth adding that in general we would expect Norwegian speakers to exhibit similar patterns to those found for speakers of other heritage languages in comparable situations.

5. Results

5.1 Overview of participants and dataset

The 50 speakers in the CANS corpus produce a total of 10,609 declaratives. Out of these, 230 sentences show illicit non-V2 word order (2.2%). In this study, we focus on a subset of the declarative utterances in the corpus that either have or could potentially have non-V2. Thus, we have included non-subject-initial declaratives, which typically have an adverbial or (more rarely) an object in initial position (XVS/XSV) and subject-initial declaratives with a sentence

adverbial (SVA/SAV). Simple SV(O) clauses without adverbs are excluded, as it is impossible to distinguish a V2 grammar from an SV(O) grammar in this context.² This leaves a reduced dataset where the V2 violations make up 6.5% (230/3,534). In this dataset, there are still contexts where English and Norwegian have the same surface word order, i.e., subject-initial declaratives with an auxiliary preceding negation or a high adverb, e.g., ‘John will *not* buy a house’ or ‘John has *probably* bought a house’. If we exclude this category from the calculation and only focus on contexts where Norwegian has obligatory V2 and English does not, the percentage of non-V2 increases to 8.9% (230/2,836). Finally, the proportion of non-V2 in non-subject-initial declaratives is 9.6% (188/1,961), while it is only 2% (32/1,574) in subject-initial declaratives. As we will see, this is due to the most common sentence adverb being negation, a context with very few word order violations (6/1,320). The number of V2 violations in the different subsets of the database mentioned above is given in table 2.

Table 2. Overview of the total production of declaratives in CANS, Norwegian heritage speakers (n=50).

	Total	Potential	Obl. non-	Non-	Sentence	Sentence
	Declaratives	non-V2	V2	in subject-	adverb,	adverb,
			English	initial	incl. neg	excl. neg
V2	10,379	3,314	2,606	1,773	1,532	220
	(97.8%)	(93.5%)	(91.1%)	(90.4%)	(98%)	(89.4%)
*Non-	230	230	230	188	32	26
V2	(2.2%)	(6.5%)	(8.9%)	(9.6%)	(2%)	(10.6%)
Total	10,609	3,534	2,836	1,961	1,564	246

² Furthermore, we excluded 16 sentences with non-V2 containing sentence adverbs such as *kanskje* ‘maybe’ and *bare* ‘only’, which are grammatical in non-heritage Norwegian.

The number of V2 violations may look small, but it is notably higher than for the German speakers investigated in Schmid (2002) and the expatriate Swedes analyzed by Håkansson (1995). There is also a large spread in the data: While many of the speakers seem to have a fully intact V2 grammar, others show considerable variation.

In the following we walk through the results of our study in detail. For the analyses, we used mixed effects logistic regressions in R from the `lme4` package (Bates et al. 2015). All models include at minimum a random intercept for speakers; other random effects are specified in the individual results section. *P*-values for main effects and interactions were obtained from the ANOVA-function in `lme4` (χ^2 statistics from comparison of the goodness of fit from models with or without the relevant predictors or interactions). When explicitly stated, *p*-values and β -coefficients are taken directly from the regression tables. In case of multiple comparisons, Tukey-adjusted *p*-values were obtained from the `emmeans` package in R (Lenth 2021).

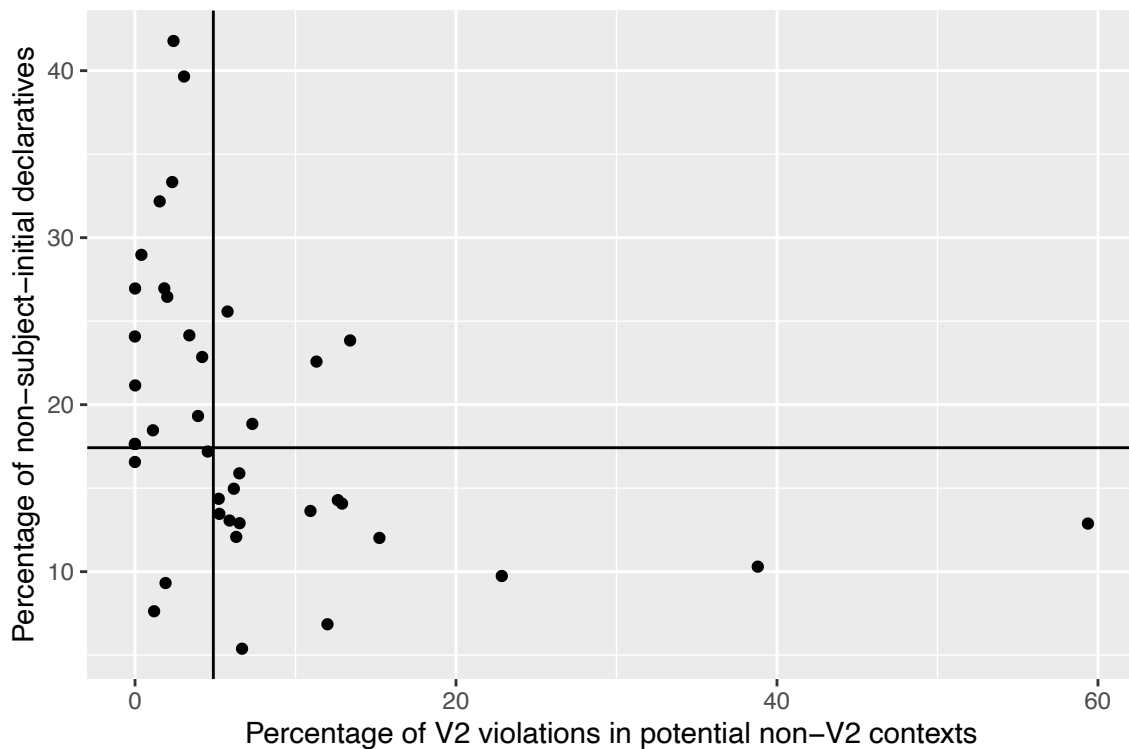
5.2 Proportion of non-subject-initial declaratives and V2 violations

Based on previous research, we predicted that speakers that have problems with V2 also produce fewer contexts for this word order. As mentioned in section 2.1, the percentage of non-subject-initial declaratives in non-heritage Norwegian is around 30%. In Table 2, we can see that, taken together, the 50 heritage speakers in the corpus produce 18.5% (1,961/10,609) non-subject-initial declaratives (cf. column “Non-subject initial”), which is significantly lower than the expected 30%, $\chi^2(1) = 1240, p < .001$. Thus, as a group, the heritage speakers show a non-native pattern with respect to non-subject fronting.

Our RQ1 asks whether there is a correlation between V2 violations and the proportion of non-subject-initial declaratives at an individual level. The 50 speakers in the corpus are far from a homogeneous group, and we find variation between individual speakers with respect to (a)

the number of declaratives produced (range: 7-812), (b) the percentage of non-subject initial declaratives out of all declaratives produced (range: 0-42%), and (c) the percentage of V2 violations (range: 0-82%). To investigate the relationship between the rate of non-subject-initial declaratives and V2 violations, we excluded participants with fewer than 80 declaratives (10 speakers), since little can be said about potential V2 violations and fronting patterns with such small amounts of data. We show the spread in the data and the relationship between non-V2 and the proportion of non-subject-initial declaratives in Figure 1. The horizontal line shows the median value for non-target-consistent non-V2 (calculated as the number of V2 violations divided by the total number of potential non-V2 contexts), and the vertical line indicates the median value for non-subject-initial declaratives.

Figure 1. The relationship between the proportion of non-subject-initial declaratives and V2 violations in the production of Norwegian heritage speakers ($n=40$).



The graph shows that 16 out of the 20 speakers below the non-subject-initial median fall on the right-hand side of the non-V2 median split, while the reverse holds for the group above the median. That is, the speakers who produce few non-subject-initial declaratives produce a higher proportion of V2 violations compared to speakers who have a fronting distribution that is more similar to non-heritage Norwegian. To test the significance of the effect of non-subject fronting on V2 violations, we fit a logistic regression model with the total number of non-V2 in relation to the total number of V2 in potential non-V2 contexts per participant as the dependent variable, and proportion of non-subject-initial declaratives as the predictor, and speaker as a random intercept term. The model reveals a significant effect of the proportion of non-subject-initial declarative on V2 violations ($\beta = -0.073$, $SE = 0.024$, $p < .01$).

Despite the considerable variation between speakers, it is worth noting that all participants produce some instances of V2 in contexts where non-V2 would have been the only option in English, and also that only six out of the 40 participants make no V2 violations at all.

5.3 Comparing subject- and non-subject-initial declaratives

As we showed in Table 2, V2 violations occur both in non-subject-initial and subject-initial declaratives, as illustrated in (18)-(19), but are infrequent in the latter (2%) compared to the former (9.6%, $\chi^2(1) = 87, p < .001$). This result confirms previous findings in Eide and Hjelde (2015) and Arnbjörnsdóttir et al. (2018) and indicates that the Norwegian heritage speakers make a distinction between subject-initial and non-subject-initial declaratives. This also lends support for an asymmetric analysis of V2 discussed in section 2.1, where changes in one context do not affect the other, as discussed in Westergaard et al. (2019).

(18) Quicktrip **de kaller** det (coon_valley_WI_02gm)

quicktrip they call it

‘Quicktrip they call it.’

(19) Han **aldri kom** ... (flom_MN_02gm)

he never came

‘He never came.’

As mentioned above, the by far most common adverb in subject-initial declaratives is the negation *ikke*, illustrated in (20) with V2 and (21) with non-V2 word order. The latter word order is extremely rare. For other sentence adverbs, which are much less frequent in the material, the V2 violations appear in 10.6% of all cases, which is not significantly different from non-subject-initial declaratives ($\chi^2(1) = 0.28, ns$).

(20) Jeg **gikk ikke** på skolen der (Wanamingo_MN_04gk)

I went not on school there

‘I didn’t go to school there.’

(21) Vi **ikke gjorde** det ... (billings_MT_01gm)

we not did it

‘We didn’t do it.’

The finding that there is no significant difference between V2 violations in non-subject-initial declaratives and subject-initial declaratives with adverbs other than negation could be taken to somewhat weaken the support for the asymmetric analysis. In section 6, we discuss the implications of this finding on the asymmetric V2 analysis in detail.

5.4 Syntactic and information structure factors

To further explore potential grammatical asymmetries in V2, we now consider whether there are similar patterns in Norwegian heritage language as in other systems with variable V2, such as Old/Middle English and Norwegian dialects discussed in section 2.2. In this section, we explicitly test if the lexical and structural properties of (a) the finite verb, (b) the subject, and (c) the fronted (non-subject) element, as well as (d) the length of the fronted element affect the likelihood of V2 violations. We carry out the analysis in two steps: first we investigate the effect of the verb and the subject based on the whole data set, i.e., including both subject-initial and non-subject-initial declaratives (section 5.4.1), and then we investigate the role of the initial element (in addition to subject and verb) on a subset of the data that includes only the non-subject-initial sentences (section 5.4.2).

5.4.1 The effect of type of subject and verb

In the annotation of the dataset, verbs were coded as either lexical verbs, auxiliaries or copulas, but auxiliaries and copulas were later collapsed in the analysis as there was no difference

between them with respect to V2 violations. The syntactic subjects in the dataset were coded as pronoun, DP or *det* (the pronoun *it*, often used as pleonastic subject). We give the number of V2 violations for the two levels of verbs and three levels of subjects in table 3. We analyzed the data using logistic mixed effects regression (see section 5.1) with the verb placement as dependent variable and Verb and Subject as predictors, and we include a random intercept for subject placement (subject initial vs. non-subject initial sentences) in addition to a random intercept for Speaker. The model reveals a main effect for Verb, $\chi^2(1)= 14.3$, $df = 1$, $p < .001$, and a main effect of Subject, $\chi^2(2)= 9.8$, $p < .01$, but no reliable interaction between subject and verb type, $\chi^2(2)= 4.5$, $p = .11$. As table 3 shows, V2 violations are more frequent with lexical verbs (8,4%) compared to auxiliary verbs (3.6%), and less frequent with the pleonastic subject *det* ‘it’ (2.5%) compared to DP subjects (9.7%) and pronominal subjects (7.3%). Pairwise comparisons reveal that V2 violations are significantly less likely to appear with the pleonastic subject *det* compared to both DP subjects and pronominal subjects (odds ratio = 0.38, $SE = 0.14$, $p < .05$, and odds ratio = 0.45, $SE = 0.12$, $p < .01$). Although there is a higher proportion of V2 violations with DP subject compared to pronominal subjects, this difference is not significant.

Table 3. Subject and verb types in non-subject-initial declaratives with non-V2 word order produced by Norwegian heritage speakers ($n=50$).

	Lexical verb	Auxiliary (incl. <i>be</i>)	Total
Pronoun	152/1,820 (8.4%)	37/755 (4.9%)	189/2,575 (7.3%)
<i>Det</i> (it)	8/155 (5.2%)	11/614 (1.8%)	19/769 (2.5%)
DP	14/100 (14%)	4/86 (4.7%)	18/186 (9.7%)
Total	174/2075 (8.4%)	52/1,455 (3.6%)	226/3,304 (6.4%)

Overall, we see a pattern where V2 violations are most likely with lexical verbs and lexical DP subjects (14%) and least likely with auxiliary/copula verbs combined with pleonastic subjects (1.8%). The pattern is thus different from the variable V2 systems discussed in section 2.2, in that light subjects in heritage Norwegian are less likely to appear with V2 violations. In the current data, combinations of simple, frequent and semantically light verbs and subjects rarely give rise to V2 violations.

5.4.2 *The effect of form, function and length of the initial element*

In this section, we only consider the non-subject-initial declaratives. This subset of the data consists of 1,959 sentences, with a total of 9.6% V2 violations. Here, we will first report the effects of the form and function of the initial phrase on V2 violations, and then investigate if the length (in words) of the initial element affects likelihood of V2 violations. The first element of the clause was coded for form and function, in a total of eight different categories exemplified in (22)-(29): embedded clauses (22), prepositional phrases (23), adverbial phrases (24), objects (including predicate nominals and selected adverbs) (25), simple temporal adverbs *da/nå* ‘then’/‘now’ (26), clauses/phrases followed by connective adverb *så* (27), quotes (28), and the simple connective adverb *så* ‘so’/‘then’ (29).

(22) Når jeg begynte på skole **vi alle snakka** ... (billings_MT_01gm) – Non-V2

when I started on school we all spoke ...

‘When I started school we all spoke ...’

(23) I nittenhundreogfemtini **min yngste søster var** ... (vancouver_WA_01gm) – Non-V2

in nineteenhundredandfifty-nine my youngest sister was ...

‘In 1959 my youngest sister was ...’

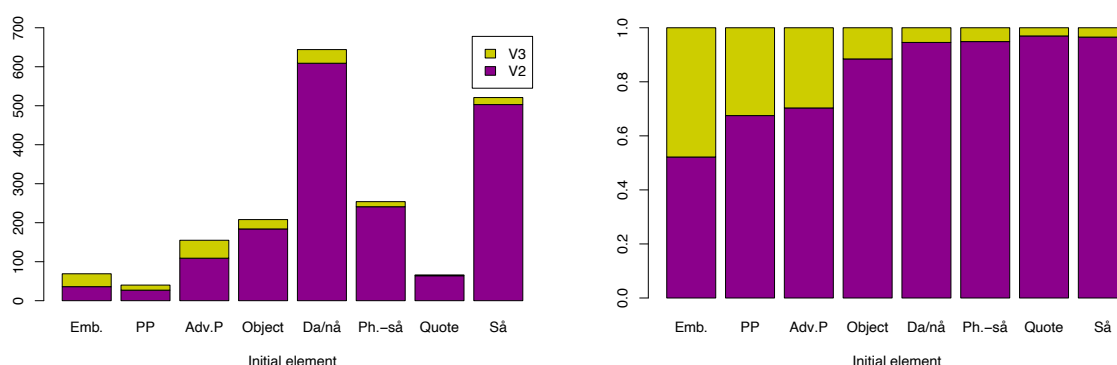
(24) Denne vinteren **vi hadde** ... (albert_lea_MN_01gk) – Non-V2

- this winter we had ...
 ‘This winter we had ...’
- (25) Tobakk **hadde vi** ... (coon_valley_WI_04gm) – V2
 tobacco had we ...
 ‘Tobacco had we ...’
- (26) Da **fikk vi** ... (rushford_MN_01gm) – V2
 then got we ...
 ‘Then we got ...’
- (27) Når vi kom der så **de ville** ... (harmony_MN_02gk) – Non-V2
 when we came there so they wanted ...
 ‘When we got there, then they wanted ...’
- (28) «Nei takk» **jeg sa** ... (harmony_MN_02gk) – Non-V2
 no thanks I said ...
 ‘No thanks, I said ...’
- (29) Så **drog denne store båten** ... (flom_MN_01gm) – V2
 then left this big boat ...
 ‘Then this big boat left ...’

To investigate if the category of the first element has an effect on word order, we fit a logistic regression model with Initial element (eight levels, see 22-29 above) as the predictor, and verb placement as the dependent variable. We include Subject and Verb as random variables in addition to participant. We find a significant effect of initial element ($\chi^2(7)= 140, p < .001$) on verb placement, which we illustrate in real numbers in Figure 2a and proportions in Figure 2b. As we see, the short adverbial elements *da/nå* and *så* are by far the most common initial elements in non-subject-initial declaratives. Figure 2b shows that non-V2 is relatively rare in

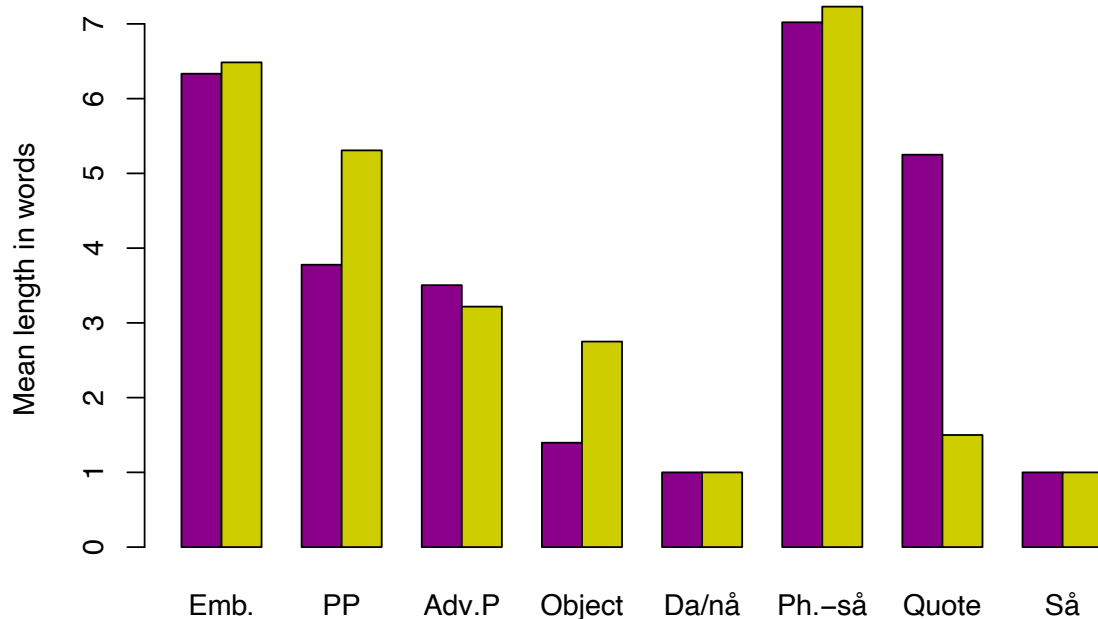
sentences with these short initial adverbs (including *så* preceded by an initial clause/phrase). V2 violations are most frequent with fronted embedded clauses, PPs and adverbial clauses. Pairwise comparisons reveal that the proportion of V2 violations is significantly higher with initial embedded clauses, adverbs, PP's and objects compared to initial monosyllabic elements *da/nå* and *så* (all p 's < .001, except for objects vs. *så*, $da/nå$, $p < .05$). The proportion of V2 violations is not significantly different for the three categories embedded clauses, adverbs and PPs. Sentences with fronted objects have significantly lower proportion of V2 violations compared to sentences with fronted embedded clauses ($p < .001$) and adverbs ($p < .01$).

Figure 2a-b. Raw numbers of V2 (blue) and non-V2 (red) after different initial elements in non-subject-initial declaratives (2a) and proportions of the two word orders (2b); Norwegian heritage speakers ($n=50$).



The results suggest that V2 violations are more frequent with potentially longer/heavier fronted elements like embedded clauses and PPs than shorter elements, like the monosyllabic elements *da/nå* and *så*. In figure 3, we illustrate the mean length of each of the categories of the initial elements when they appear in V2 sentences (blue) and non-V2 sentences (red).

Figure 3: The proportion of V2 and non-V2 word order as a function of the length of the initial element in non-subject-initial declaratives; Norwegian heritage speakers ($n=50$).



The three categories with the highest proportion of V2 violations (Emb, PP and Adv.P), are, as expected, on average longer than the other categories of fronted elements. The exception is the Phrase-*så* category, but here we have reason to suspect that the phrase preceding *så* is not part of the actual clause, which makes it more accurate to group this category with the *så*-category. Within the individual categories, there is no obvious effect of length; the average number of words of the initial element does not affect the likelihood of V2 violations within the individual categories. To test if V2 is mainly affected by the form and function or the length of the initial element, we compare fully specified models (predictors: category of initial element, and length of initial element, and Verb, Subject and speaker as random effects), with models that lack either category or length of the initial element as predictors. The model comparisons reveal an effect of category beyond the effect of length ($\chi^2(7)= 140, p < .001$, but no effect of length beyond the effect of category ($\chi^2(1)=0.19, ns$). Note that the effect of category over length is not only driven by the categories that are inherently invariable for length (*så, da/nå*); we get a

similar result when comparing models that only include the length-varying categories embedded clause, PP, adverb phrase, object and quote ($\chi^2(4)= 46, p < .001$ for category, and $\chi^2(1)= 0.40, ns$ for length). In short, we find that short elements that frequently occur in a fronted position rarely give rise to V2 violations, while heavier phrase types like PPs and embedded clauses, that also relatively rarely occur in fronted position, are more likely to induce V2 violations. Yet, for the “heavy” categories, we find no obvious effect of length: it is the mainly the form of the fronted element (clause, PP, AP), and not the absolute length, that has an effect on verb placement.

6. Discussion

In section 4 we formulated three research questions for this study. We repeat them here for convenience (in a slightly shortened form) and discuss them in turn:

RQ1: Is the proportion of non-subject-initial declaratives affected in this heritage language situation? If so, what is the relationship between this reduction and the production of non-V2 syntax?

As in previous studies on V2 violations in potentially attrited speakers of Germanic languages, there are relatively few cases of non-V2 word order in the corpus. This is related to a clear reduction in the main context for V2 (non-subject-initial declaratives) in the data. Importantly, we also find a correlation between the fronting patterns and V2 violations: speakers who have a distribution of non-subject-initial declaratives similar to the Norwegian baseline have a significantly lower proportion of V2 violations. We can thus confirm the findings from Westergaard and Lohndal (2019): Speakers who produce fewer contexts for V2 are less target-

like in their production. Still, speakers who produce a relatively small proportion of non-subject-initial declaratives all to some extent produce V2 in contexts where the English translational equivalent would require non-V2, suggesting that these heritage speakers generally have a V2 grammar. However, speakers who practice their “V2 muscle” less, so to speak, by mainly producing simple SVO word order (which is grammatical in both languages) are relatively more likely to produce non-V2 word order. This suggests that the V2 violations produced by the heritage speakers are the result of a lack (and in many cases complete absence) of activation of the Norwegian grammar, similar to the loss of exposure to German experienced by the Portuguese-German returnees discussed in Flores (2010) mentioned above. Since the Norwegian heritage speakers are all elderly people, the lack of exposure and use has also lasted for an extended period of time. Thus, in line with Putnam and Sanchez (2013), we argue that this lacking activation weakens the representation of V2 syntax. Without any other relevant group to compare to (e.g., Norwegian heritage speakers in an environment where another V2 language is the majority language), it remains unclear whether this is simply due to these heritage speakers resorting to a “simpler” grammar without movement, or whether this is due to crosslinguistic influence from the dominant language in production. If the latter, this result would show that crosslinguistic influence can be relatively subtle, not only affecting a structure directly, but also the distribution of contexts for this structure.

RQ2: Is V2 syntax equally vulnerable in subject-initial and non-subject-initial declaratives?

As shown in the previous section, V2 violations are significantly more frequent in non-subject-initial declaratives than in subject-initial ones, confirming previous findings in Eide and Hjelde (2015) and Arnbjörnsdóttir et al. (2018) from Norwegian and Icelandic heritage language respectively. This result also lends further support to the asymmetric analysis of verb movement

discussed in section 2.1, which argues that verb movement targets different landing sites in the two contexts. Thus, when one structure is affected (in an acquisition or attrition context), the other one may be unaffected, which is entirely in line with the predictions and general logic of the asymmetric analysis. However, this distinction disappears when we disregard negation (the by far most frequent adverb in subject-initial declaratives), since V2 violations are virtually non-existent when negation is involved, but appear with other adverbs with approximately the same frequency as in non-subject-initial declaratives. The finding partly weakens the support for the asymmetric analysis. After all, as a group, these Norwegian heritage speakers do not seem to distinguish between the two contexts, unless negation is involved. Generally, the speakers who make more than one V2 violation with adverbs produce a relatively high proportion of V2 violations also in non-subject-initial declaratives. However, this correlation does not necessarily mean that one phenomenon is caused by the other: If we compare the Norwegian heritage speakers' performance on other linguistic properties, as has been done in Lundquist, Anderssen, Lohndal and Westergaard (2020), we see that V2 violations correlate with e.g., the production of pre- vs. postnominal possessives. Since these two phenomena can hardly be argued to be causally related, they could simply be the result of language attrition affecting several parts of the grammar at the same time. This could of course also be the case for subject-initial and non-subject-initial declaratives. Thus, it may very well be that some speakers have a fully intact V2 grammar in subject-initial declaratives (verb movement across adverbs), while experiencing problems in non-subject-initial declaratives (verb movement across subjects). However, there are so few cases of subject-initial declaratives with adverbs (and only 12 speakers are responsible for the 26 violations), that it is impossible to draw any conclusions based on these data.

Perhaps more interestingly, this means that the heritage speakers make a distinction between subject-initial declaratives with negation and other adverbs, a distinction that is not found in

Norwegian. This cannot be direct influence from English, as English does not have (lexical) verb movement in either case. However, English does differentiate the two contexts: negation triggers *do*-support, and since this means inserting an auxiliary into the structure, there is verb movement of this finite auxiliary and thus a type of V2 (*do/does/did* Neg + V, e.g., *does not drink*), while verb movement (of the finite lexical verb) does not take place across adverbs (Adv + V, e.g., *always drinks*; see e.g., Rizzi 1990 on English being a residual V2 language). Thus, the two structures are very different in English, and therefore do not exert the same type of crosslinguistic influence on the corresponding Norwegian structure: While Adv-V is simply the opposite word order of what one would normally find in Norwegian (and in fact a grammatical order with certain adverbs; see e.g., Nilsen 2003), *do*-support bears no similarity with any structure of Norwegian syntax. Furthermore, negation is massively more frequent than other adverbs (cf. section 5.3), which in itself may make it less vulnerable to crosslinguistic influence. Thus, while the distinction made in the production of the heritage speakers is not due to direct influence from English, it is nevertheless an indication that the speakers are influenced by their dominant language, introducing a distinction that exists in English (between negation and adverbs) into their heritage language. This means that we have an example of subtle and indirect crosslinguistic influence. This resonates with the argument made in Hopp and Putnam (2015) mentioned in section 2.4 that crosslinguistic influence from English on Moundridge Schweitzer German did not result in direct transfer of a structure, but to a leveling of a distinction in German that does not exist in English. In our case, this indirect influence appears to have resulted in the addition of a distinction.

This finding also supports approaches that argue for speakers making fine-grained distinctions in acquisition and change/attrition situations as well as in contexts of crosslinguistic influence, such as the Micro-cue Model (Westergaard 2009b, c, 2014, 2019a, b). That is, even though these Norwegian heritage speakers have certain problems with V2, they are not

treating V2 as a monolithic concept, but making distinctions between the various linguistic contexts in which this word order appears. Thus, when V2 in heritage Norwegian is affected in one context, e.g., subject-initial declaratives with adverbs, it does not necessarily carry over to other contexts, e.g., subject-initial declaratives with negation.

RQ3: Is the choice of V2 vs. non-V2 dependent on syntactic or information structure factors, similar to what has been found in other languages with variable V2?

Languages with variable V2 systems typically use information structure factors to choose between the two word orders in non-subject-initial declaratives (cf. section 2.2): When the subject is given information, typically a pronoun, the verb does not move across it, yielding non-V2 word order, whereas V2 generally appears when the verb is light and the subject informationally heavy, normally a full DP. This pattern is not found in the heritage speaker data, where V2 violations are more likely to be produced with lexical verbs and full DPs. The non-V2 production found in the heritage speaker data thus looks different from the word order patterns found in variable V2 systems. We therefore cannot conclude from this that the heritage speakers have developed a new V2 grammar for non-subject-initial declaratives where the variation is dependent on information structure.

In variable V2 systems, the properties of the fronted non-subject constituent also affect the likelihood of V2 violations. This is found also in our heritage speaker data: Constituent types that are frequently found in initial position, such as short connective adverbs *nå*, *da* and *så* ‘now, then, so/then’, only rarely give rise to V2 violations. Interestingly, this pattern exactly mirrors the development in the history of English, where non-V2 often appeared after heavy initial elements (possibly as a result of speakers being more likely to insert a small pause and thus a restart in this position), while V2 was substantially more robust after frequent initial

elements such as *pa/þonne* ‘then’ and *nu* ‘now’. The distinction between different initial elements is far from categorical in our data, as V2 violations are overall relatively infrequent. In our view, these findings therefore do not indicate that the grammar of the Norwegian heritage speakers has undergone a representational change. Rather, the high frequency of the short initial elements appears to activate the V2 syntax and protects it from crosslinguistic influence from English in production. This result thus supports the activation-based model by Putnam and Sanchez (2013). It also provides further evidence that language development in an attrition or change context is a stepwise process, affecting different structures at different times (see references in section 2.3).

7. Concluding remarks

In this study we have investigated a corpus of spontaneous speech from 50 Norwegian heritage speakers with respect to V2 word order in declaratives. Although there is considerable variation among the speakers, this word order is generally target-consistent, with only approximately 10% V2 violations. We argue that this is due to lack of activation of the Norwegian grammar, making the syntactic representations vulnerable to simplification and crosslinguistic influence from the speakers’ dominant language (English). Thus, there is no direct replacement of V2 by non-V2, but instead (a) a reduction in the contexts for V2 word order (non-subject-initial declaratives) which correlates with a high number of V2 violations in individual speakers, (b) a new distinction between negation and other adverbs in subject-initial declaratives, reflecting the existence of such a distinction in English, and (c) a new distinction between different types of initial elements in non-subject-initial declaratives, indicating that V2 is more robust after short and frequent initial items.

We interpret the findings in the following way: The syntax of V2 is generally intact in most of the heritage speakers' I-language grammars. However, the reduction in the proportion of non-subject-initial declaratives results in a severe reduction in the activation of the V2 rule in the heritage language, in turn making the representation weaker and thus vulnerable to crosslinguistic influence. Thus, we argue that the non-V2 word order that is attested in Norwegian heritage language is generally the result of cross-linguistic influence from English in production. This argument is strengthened by the fact that frequency seems to play an important role: Cases where V2 is triggered by very frequent initial elements in non-subject-initial declaratives or when negation is involved in subject-initial declaratives seem to be protected from this crosslinguistic influence, possibly because these structures are activated more frequently. Our results thus provide support for the Putnam and Sanchez (2013) model of heritage language grammars as being affected by lack of activation.

We would also like to suggest that our findings lend support to analyses of V2 word order as a combination of many smaller rules, rather than one unified phenomenon. Thus, when V2 word order is affected in an acquisition or attrition situation, we expect to see different developmental trajectories for different V2 contexts. Like other populations that have been studied, reported in e.g., Westergaard et al. (2019), these Norwegian heritage speakers make distinctions between different contexts for V2, indicating that crosslinguistic influence is a fine-grained process.

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