The acceptability of a non-root phenomenon in different types of adverbial clauses in Icelandic

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Abstract

This paper discusses the relatively marked and uncommon subject-initial V3 word order in adverbial clauses in Icelandic and presents results from an online acceptability judgment survey conducted for this study. Following Badan and Haegeman (2022)'s typology, the V3 order was investigated in three types of adverbial clauses: central adverbial clauses (CACs), peripheral adverbial clauses (PACs) and non-integrated adverbial clauses (NON-ICs). Previous work, based on Haegeman (2012)'s typology where adverbial clauses were classified into two binary categories (CAC and PACs), indicates that CACs tend to resist main clause phenomena such as topicalization in V2-languages like Icelandic, while PACs tend to permit such phenomenon. Furthermore, it was observed in the Variation in Icelandic Syntax Project (Þráinsson et al. 2015a) that there seems to be a negative relationship between embedded topicalization and subject-initial V3. Given that subject-initial V3 is generally not an option in main clauses in Icelandic and less acceptable in complement clauses than in relative clauses, for instance, one might expect that it receives different judgments in different types of adverbial clauses, depending on the embedding level of the adverbial clause in question. Thus, it is hypothesized that non-integrated adverbial clauses (NON-ICs) allow such V3 orders less freely than PACs, and that PACs in turn allow it less freely than CACs. Results from the acceptability judgment data suggest that the NON-ICs indeed received lower overall rating than the other two types. However, very little difference was observed between CACs and PACs.

Keywords: adverbial clauses, experimental syntax, Icelandic, acceptability judgments

1 Introduction

Adverbial clauses are more diverse than other subordinate clauses in terms of their different semantic properties and levels of syntactic integration. The main objective of the present research is to see whether certain types of adverbial clauses are more flexible than others in allowing an apparent non-root phenomena, namely the subject-initial V3 word order which is restricted to certain embedded environments in Icelandic. In order to achieve this objective, a pilot study on this type of V3 in adverbial clauses in Icelandic was conducted, using quantitative methods. An online questionnaire was administered in order to obtain an overview of the acceptability

judgments towards these variants in Icelandic. As a pilot study, this research also serves as a baseline of quantitative research in experimental syntax in Icelandic for future studies. [1]

In Icelandic, the finite verb usually holds the second position (V2) in main clauses as it also does in the Germanic languages in general, with the exception of English (Holmberg 2015). Furthermore, Icelandic is a symmetric V2-language as opposed to the Mainland Scandinavian asymmetric V2-languages, meaning that subject-initial V2 is the default word order both in matrix and embedded clauses:

(1) a. Jón **hefur ekki** lesið bókina. (Vfin-Adv / V2)
John has not read book-the

b. * Jón **ekki hefur** lesið bókina. (**Adv-Vfin / V3**)
John not has read book-the

(2) a. Ég held að Jón **hafi ekki** lesið bókina. (Vfin-Adv / V2)
I think that John has not read book-the

b. ?* Ég held að Jón **ekki hafi** lesið bókina. (**Adv-Vfin / V3**)
I think that John not has read book-the

In the general case, the finite verb must precede the sentence adverbials in embedded clauses such as the complement clauses in (2). However, there are quite well documented exceptions in the literature (see for instance Thráinsson 2010; Viðarsson 2019; Angantýsson 2007). Thus, even though the finite verb usually precedes the sentence adverb in Icelandic, the adverb can quite easily precede the verb in certain types of embedded clauses as shown in (3–4):

(3) a. Það er bara ein íslensk kvikmynd sem hann **hefur ekki** séð
there is only one Icelandic movie that he has not seen

b. Það er bara ein íslensk kvikmynd sem hann **ekki hefur** séð
there is only one Icelandic movie that he not has seen

(4) a. Ég veit hvaða kvikmynd hann **hefur ekki** séð
I know which movie he has not seen

b. Ég veit hvaða kvikmynd hann **ekki hefur** séð
I know which movie he not has seen

The word order as illustrated in (3a) and (4a) is definitely the unmarked one, but as seen from the b-examples, the V3 order is also possible.[2]

[1] The raw dataset from the questionnaire as well as two R scripts for importing and formatting of the survey data are published under a CC BY 4.0 license and are available at Open Science Framework repository (Xu 2023).

[2] The relevant adverbs in our discussion on subject-initial embedded V2/V3 (*ekki* 'not', *alltaf* 'always', *aldrei* 'never') are pre-VP sentence adverbs, i.e. adverbs that precede the VP and cannot follow it when there is an auxiliary in the clause. Compare *aftur* 'again', which can follow the auxiliary:

(i) a. María hafði **aftur** séð Jón
Mary had again seen John

b. María hafði **aldrei** séð Jón
Mary had never seen John

c. María hafði séð Jón **aftur**
Mary had seen John again

In traditional grammar, adverbial clauses are usually categorized based on their semantics. The most common categories of adverbial clauses include causal clauses, conditional clauses, temporal clauses, concessive clauses, purpose and result clauses (see a thorough overview and typology in Hetterle 2015). This type of classification is for the most part based on the conjunctions that are used to introduce the adverbial clauses. Conjunctions such as *af því að* ('because') usually introduce causal clauses, while conjunctions such as *ef* ('if') usually introduce conditional clauses. On the other hand, a clause introduced by the same conjunction can have different interpretations. In previous studies, Haegeman (2012) used a binary classification method for adverbial clauses: central adverbial clauses (CAC) and peripheral adverbial clauses (PAC). Following Frey (2018, 2020), Badan and Haegeman (2022) added a third type of adverbial clauses: non-integrated adverbial clauses (NON-IC). See (5) for examples of the three types of adverbial clauses according to Badan and Haegeman (2022).

(5) Adverbial clauses with the conjunction *while* in different syntactic types. (Badan and Haegeman 2022: 698)

a. ***While*** *we were talking about Theresa May*, the BBC announced her resignation.

b. ***While*** *Theresa May may be viewed as a conservative*, some of her proposals are innovative.

c. ***While*** *we are talking about Theresa May*, some of her proposals were innovative.

According to Badan and Haegeman (2022), the subordinate clause in (5a) is a central adverbial clause because the conjunction *while* has a clear temporal meaning and indicates the time of the event in the main clause. In (5b), the subordinate clause is a peripheral adverbial clause because the same conjunction *while* indicates contrast between the subordinate clause and the main clause rather than having a temporal meaning. It provides a background assumption which enhances the relevance of the following host clause. In (5c), the conjunction *while* does have a temporal meaning, but it does not directly modify the state-of-affairs in the main clause, rather it indicates the time of the speech. This is also called a speech-event modifier. Different adverbial clauses exhibit different characteristics in terms of internal and external syntax (see discussion in Haegeman 2010, 2003 and references cited). Central adverbial clauses are assumed to be structurally more integrated with the host clause and hence syntactically subordinated by the features in the host clause, while peripheral adverbial clauses are more independent from the host clauses. This claim is supported by the scope effects of tense, aspect and adverbial adjuncts in the host clauses. Furthermore, it has been observed that central adverbial clauses tend to disallow argument fronting while peripheral adverbial clauses easily accept it. This has also been observed both in judgment data and written sources in Icelandic and Faroese (Angantýsson and Jonas 2016).

Regarding the subject-initial V3 order, it was observed in Angantýsson (2020) (see also Angantýsson and Jonas 2016; Þráinsson et al. 2015a and references cited) that sentence types

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d. * María hafði séð Jón **aldrei**
Mary had seen John never

The examples in (i) show that both the adverbs can precede the non-finite verb but only *aftur* can follow it.

that prohibit embedded topicalization are more likely to accept V3 order in Icelandic. Based on this and Haegeman's observations, one might postulate that there is a difference between CACs and PACs in terms of subject-initial V3 order in Icelandic embedded clauses. More specifically, given that subject-initial V3, with a sentence adverb like the negation intervening between the subject and the finite verb, is generally not an option in main clauses in Icelandic and less acceptable in complement clauses than in relative clauses, one might expect that it receives different judgments in different types of adverbial clauses, depending on the embedding level of the adverbial clause in question. Thus, we hypothesize that such V3 orders are least restricted in the most deeply embedded clause type, i.e. CACs.

The paper is organized as follows. After a brief background discussion (section 2), we describe the design of the acceptability judgment survey (section 3) and methodology (section 4). In section 5 we present the results from the online questionnaire and show, among other things, that the Non-ICs indeed received lower overall rating than the other two types. However, very little difference was observed between CACs and PACs. Finally, we discuss the results and conclude the paper in section 6.

2 Previous research

2.1 The V3 construction in Icelandic subordinate clauses

Previous research (Angantýsson 2007, 2020; Þráinsson et al. 2015a) has shown that judgments towards the subject-initial V3 construction can be different depending on the type of subordinate clauses. Four types of subordinate clauses were investigated in the Variation in Icelandic Syntax Project in terms of V3 construction and topicalization (Þráinsson et al. 2015a): explanatory clauses (1), relative clauses (6a–6c), adverbial clauses (6d–6g) and interrogative clause (6h). Furthermore, two more aspects were taken into account in relation to judgments towards the V3 word order: the subject type in the subordinate clause, i.e. whether the subject is a noun (1) or a personal pronoun (6a), and the type of matrix verb taking an explanatory clause as its complement, i.e. whether it is a propositional attitude verb such as *halda* ('think') or a factive verb such as *leiðast* ('get bored').

(6) List of sentences tested with the V3 construction in other types of subordinate clauses in Icelandic (Þráinsson et al. 2015a):

a. Það var margt fólk sem hann **ekki þekkti**. (relative clause)
It be.PST many people that he **NEG know.PST**.

b. En það sem hann **ekki sagði** skipti meira máli. (relative clause)
But that which he **NEG say.PST** distribute more matter.

c. Ég veit bara um eina mynd sem hann **ekki sá**. (relative clause)
I know just about one.ACC film that he **NEG see.PST**.

d. Það er ómögulegt þegar formaðurinn **ekki mætir**. (temporal clause)
It be.PT impossible when leader.the **NEG turn-up.PT**.

e. Henni líður miklu betur þegar hann **ekki mætir**. (temporal clause)
she.DAT feel much better when he **NEG turn-up.PT**.

f. Vala tók bókina svo að Haraldur **ekki gat** lesið hana. (result clause)
Vala take.PST book-the so that Haraldur **NEG can.PST** read.PP her.

g. Hann lagði prófið fyrir þótt nemendurnir **ekki hefðu** lesið bókina. (concessive clause)
He administer.PST exam-the for although student.M.PL **NEG have.PST.PL** read.PP book-the

h. Kennarinn spurði hverja hann **ekki vildi** leika við. (interrogative clause)
Teacher.the ask.PST who.ACC he **NEG want.PST** play with.

Figure 1 shows the results about judgments towards the V3 word order from the Variation in Icelandic Syntax Project.

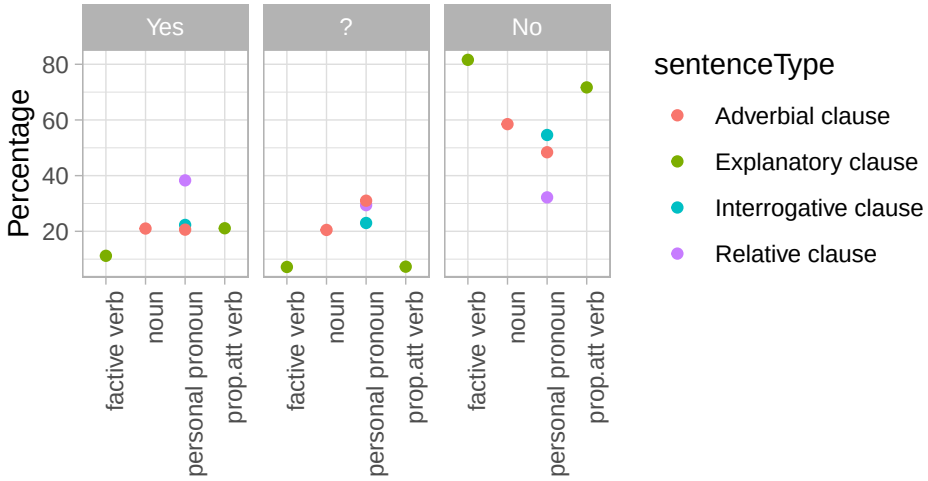

Figure 1: Results on the V3 construction in Icelandic subordinate clauses.

Although negative judgment was common across different types of subordinate clauses that were examined, several things are worth noting. First of all, the V3 word order in relative clauses seems to stand out. It has the highest overall acceptance rate among the subordinate clauses examined (38.3%) and the positive judgment is higher than the negative judgment (32.2%). Second, the V3 word order in explanatory clauses received the worst judgment, especially when the embedded clause follows a factive verb. The positive judgment for the explanatory clauses is only about 11.2%, compared to 81.6% with the negative judgment (see green points in figure 1). However, it must be pointed out that only one sentence with factive verbs with V3 word order was judged by the participants in the survey and two with propositional attitude verbs.

In addition to the V3 word order, topicalization in subordinate clauses in Icelandic was also examined in the Variation in Icelandic Syntax Project (Þráinsson et al. 2015a). It was observed among other things that topicalization received better judgment in explanatory clauses than in relative clauses. V3 word order, on the other hand, received better judgment in relative clauses than in explanatory clauses. Furthermore, participants' age seems to have an effect on their judgment in V3 order in embedded clauses in Icelandic. Younger speakers seem to be more likely to accept V3 word order in explanatory clauses while in other types of embedded clauses, it is the older speakers who are more likely to consider them to be normal. Based on these results, one would expect that there is some negative correlation between topicalization and V3 word order (see also Angantýsson 2011; Þráinsson et al. 2015b; Viðarsson 2019).

2.2 Ternary classification of adverbial clauses

According to Badan and Haegeman (2022)'s typology, adverbial clauses can be divided into three categories based on their internal and external syntax: central adverbial clauses that are fully integrated into the structure of the host clause, peripheral adverbial clauses which remains peripheral and are hence more independent from the host clause and non-integrated adverbial clauses which act as a speech event modifier and are syntactically disintegrated from the host clause. [3]

The difference in syntactic dominance between CACs, PACs and NON-ICs reflects on the scope effects of operators in the host clause. Badan and Haegeman (2022) showed that temporal, aspectual and modal operators in a matrix clause can extend their scope to the CACs but not to the PACs, which in turn shows that CACs are more integrated to the host clause than PACs. Sentences in (7) exemplifies this difference:

(7) Temporal subordination of CACs and PACs: (Badan and Haegeman 2022: 702)

a. *While* the hospital is handling the Corona-crisis, it will not be possible to make appointments for routine consultations. (CAC)

b. *While* young people usually will be/are able to recover at home, elderly people will need to be hospitalized. (PAC)

The finite verb in (7a), *is*, is in the present tense in the central *while* clause, but it refers to a future event which is encoded in the host clause with the future modal *will*; in (7b), the tense in the peripheral *while* clause is encoded independently with the future modal *will*. If the future tense is switched to present tense in the peripheral *while* clause, the interpretation would also switch. This is not the case for the central *while* clause in (7a).

Badan and Haegeman (2022) claim that central adverbial clauses are within the scope of epistemic adverb such as *probably* in the main clause, whereas peripheral adverbial clauses are not. This is exemplified in the following examples:

(8) Badan and Haegeman (2022: 703–704)

[3]Note that Badan and Haegeman (2022) distinguish their non-integrated adverbial clauses from those identified in Frey (2018) and call them "central adverbial clauses recycled as speech event modifiers".

a. The thief **probably** entered the house *while* we were all in the garden. (CAC)
b. The thief entered the house, **probably** *while* we were all in the garden. (CAC)
c. You are **probably** angry with me *while* you should be grateful instead. (PAC)
d. * You are angry with me, **probably** *while* you should be grateful instead. (PAC)

The scope of the epistemic adverb *probably* in (8a) extends to the whole situation, in that "it is probably the case that the thief entered ..." (cf. 8b). In (8c), however, the epistemic adverb only modifies the situation in the host clause and the proposition in the adverbial clause is assumed to be assertive, therefore, the epistemic adverb *probably* does not apply there (cf. 8d).

Badan and Haegeman (2022) describe more distinctive features between these two types of adverbial clauses and explained that such differences between them can be accounted for by constituent-command. Originally Haegeman proposed two alternative analyses for central and peripheral adverbial clauses (see Haegeman 2003, 2012, 2010; Badan and Haegeman 2022):

(9) a. Option 1: Both central and peripheral adverbial clauses are syntactically integrated with the host clause, differing only in the level of adjunction;
b. Option 2: Central adverbial clauses are syntactically integrated with the host clause and belong to sentence-internal syntax while peripheral adverbial clauses are only integrated at the level of discourse-syntax and are thus only sentence-external constituents ("Orphan account").

For CACs, they are assumed to be part of TP-internal syntax and thus have access to the information/field of a sentential adverb in the host clause, while PACs belong to sentence-external syntax and are only integrated at the level of discourse-syntax, therefore, they are independent of operators such as tense, aspect and modal in the host clause.

The non-integration analysis of peripheral adverbial clauses, or as Haegeman calls it "Orphan account", was later challenged by the observation that peripheral adverbial clauses are in fact compatible with embedding in complement clauses which shows their syntactic integration with the host clause.

Regarding non-integrated adverbial clauses, embedding seems impossible and neither can they be first constituent in V2 clauses. According to Frey (2018)'s analysis, strong root phenomena (RP) such as tags, interjection and hanging topics are incompatible with PACs, but a NON-IC may host strong RP. This claim was challenged by Badan and Haegeman (2022) with the observation that argument fronting, a strong RP in English, is incompatible with NON-ICs (cf. 10a and 10b) on the one hand, and is easily compatible with PACs on the other hand (cf. 11a and 11b).

(10) Argument fronting in NON-ICs (Badan and Haegeman 2022: 731)
a. * *While* Robbie we were talking about, his sister called me to say he was in hospital. (speech event related temporal clause)
b. * I can contact you later *if* more details you are interested in. (speech event related conditional clause)

(11) Argument fronting in CACs and PACs (Haegeman 2003: 332)

a. * Mary listened to the radio *while* the dinner she was preparing. (Central *while*-clause)

b. *While* your book they are using in two courses, mine they haven't even ordered for the library. (peripheral *while*-clause)

This observation seems to be borne out in Icelandic examples (cf. 12a and 12b) as well as in judgment data from Faroese (Angantýsson and Jonas 2016: 136–137).

(12) Argument fronting in central and peripheral adverbial clauses in Icelandic (Angantýsson and Jonas 2016: 133)

a. * Ég las aðra bókina hennar *áður en* þá fyrstu kláraði ég. (Central
I read.PST second book-the hers *before* the first finish.PST I.
temporal AC with argument fronting)

b. Stúdentarnir pöntuðu ný einstök *á meðan* þau gömlu hefðu þeir
student-the.PL order.PST new copies *when* those.PL old.PL have.PST they
auðveldlega getað notað. (Peripheral AC with argument fronting)
easily can.PP use.PP.

If there is indeed a negative relationship between argument fronting and subject-initial V3 order in Icelandic, as indicated in Angantýsson (2011), one might expect that subject-initial V3 order behave differently in different types of adverbial clauses. More precisely, since CACs resist argument fronting while PACs tend to permit it, one might expect that a subject-initial V3 construction gets better judgments in central adverbial clauses than peripheral adverbial clauses. However, the results of a study in Icelandic do not indicate that (Angantýsson and Jonas 2016). The peripheral adverbial clauses from the study received 26.3% positive judgment, compared to an average of 16.3% for central adverbial clauses. It should be kept in mind, however, that the number of sentences examined in the study was relatively low. Therefore, we come to the conclusion that a larger study was needed, where more sentences could be tested, with a slightly different methodology in order to capture the differences between different types of adverbial clauses.

3 Acceptability judgment design for the subject-initial V3 construction

Based on the discussions in section 2, an acceptability judgment test was administered for the subject-initial V3 construction on different sentence types of adverbial clauses in Icelandic, in terms of both semantic categories and syntactic categories in Badan and Haegeman (2022)'s typology.

The semantic category consists of 6 levels: causal clause, concessive clause, conditional clause, purpose clause, result clause and temporal clause. The syntactic category consists of 3

levels, central adverbial clause (CAC), peripheral adverbial clause (PAC) and non-integrated adverbial clause (NON-IC).

Table 1: A 6*3*2 factorial design for the subject-initial V3 construction in adverbial clauses in Icelandic.

sent	semantic	syntactic	order
Dóri litli þóttist vera veikur vegna þess að hann vildi ekki koma með í bátsferð.	causal	CAC	V2
Kötturinn okkar er líklega veikur fyrst hann hefur ekki klárað matinn sinn í nokkra daga.	causal	PAC	V2
Ætlarðu einn í bíó, af því að þú spurðir ekki hvort ég vildi koma með.	causal	NON-IC	V2
Hún ætlar að fara með fjölskylduna á flugvöllinn þó að hún verði ekki með í ferðalaginu.	concessive	PAC	V2
Mótmælin munu halda áfram ef ríkisstjórnin kemur ekki með betra boð.	conditional	CAC	V2
Hún hlýtur að vera veik ef hún kemur ekki á æfingu í dag.	conditional	PAC	V2
Hann pantaði pizzu heim þannig að hann þyrfti ekki að fara út í þessu veðri.	purpose	CAC	V2
Hún fékk far hjá manninum sínum þannig að hún kom ekki of seint í vinnuna.	result	PAC	V2
Kötturinn minn mjálmar og mjálmar þegar hann fær ekki nóg að borða á morgnana.	temporal	CAC	V2
Stebbi er búinn að skrifa drög að ritgerðinni sinni meðan ég hef ekki einu sinni byrjað að safna gögnum fyrir mína.	temporal	PAC	V2
Við þurfum að kaupa nýjan mat handa kettinum okkar af því að hann ekki borðar fisk.	causal	CAC	V3
Stefán hlýtur að vera grænmetisæta vegna þess að hann aldrei vill borða kjöt.	causal	PAC	V3
Hvernig ertu fjárhagslega, af því að ég ekki get borgað leigu í þessum mánuði.	causal	NON-IC	V3
Systir mín ætlar að fara í fjallgöngu þótt hún ekki hafi hreyft sig neitt að ráði í langan tíma.	concessive	PAC	V3
Hann kemur bara á morgun ef hann ekki hefur tíma til þess í dag.	conditional	CAC	V3
Hann verður líklega heima með börnunum sínum ef hann ekki kemur í bíó í kvöld.	conditional	PAC	V3
Haraldur ætlar að stilla vekjaraklukkuna svo að hann ekki vakni of seint fyrir atvinnuviðtalið.	purpose	CAC	V3
Ég faldi bókina svo að hann ekki gat lesið hana.	result	PAC	V3
Börnin mín voru ósátt þegar þau ekki fengu öskudagsbúninga í ár.	temporal	CAC	V3
Á meðan þeir aldrei nota mínar bækur í kennslu, nota þeir þínar bækur í tveimur námskeiðum.	temporal	PAC	V3

Furthermore, in order to compare the differences between unmarked V2 order and marked V3 order, the order factor consists of both V2 and V3 levels. Putting all the factors together, we would have a 6*3*2 factorial design with a total of 36 unique conditions. However, result clauses and concessive clauses are only peripheral while purpose clauses are only central, according to the analysis of Haegeman (2012: 163) (See also Angantýsson and Jonas 2016). Non-integrated clauses were only tested in causal clauses in this study. As a result, a total of 20 unique conditions were created for each combination of grammatical factors. Different lexical items were used in different conditions in the study. See table 1 for an example of the 6*3*2 factorial design for the subject-initial V3 construction in adverbial clauses in Icelandic.

For causal clauses, for example, six sentences were created for six conditions: two with central causal clauses (13) of which one for V2 order (13a) and one for V3 order (13b). Similarly, two sentences with peripheral AC (14) and two with non-integrated AC (15). Coding for condition (13a), for example, would be “causal.CAC.V2” and “causal.CAC.V3” for condition (13b).

(13) Central causal clauses

a. V2

Dóri litli þóttist vera veikur *vegna þess að* hann vildi ekki koma með
Dóri little pretend.PST be sick *because* he want.PST NEG come with
í bátsferð.
to boat trip.

b. V3

Við þurfum að kaupa nýjan mat handa kettinum okkar *af því að* hann
We need to buy new food for cat-the.M our *because* he

ekki borðar fisk.
NEG eat.3sg fish.

(14) Peripheral causal clauses

a. V2

Kötturinn okkar er líklega veikur *fyrst* hann hefur ekki klárað matinn
cat-the.M our be.3sg likely sick.M *since* he have.3sg NEG finish.PP food
sinn í nokkra daga.
its in few.PL dag.PL.

b. V3

Stefán hlýtur að vera grænmetisæta *vegna þess að* hann aldrei vill borða kjöt.
Stefán must to be vegetarian *because* he never want eat.INF meat.

(15) Non-integrated causal clauses

a. V2

Ætlarðu einn í bíó, *af því að* þú spurðir ekki hvort ég vildi
go.2sg alone to cinema, *because* you ask.2sg.PST NEG wether I want.PST
koma með.
come with.

b. V3

Hvernig ertu fjárhagslega, *af því að* ég ekki get borgað leigu í þessum
how you.2sg financially, *because* I NEG can pay.PP rent in this.M
mánuði.
month.M

Based on the discussion in section 2, one might expect that sentences with unmarked V2 order would generally get better scores than marked V3 order. Furthermore, for the subject-initial V3 construction, sentences with non-integrated adverbial clauses such as (15b) would get worse overall scores than the other two types and that sentences with central adverbial clauses such as (13b) would get better scores than sentences with peripheral adverbial clauses such as (14b).

In order to increase the robustness of the data, six sentences were created for each of the 20 conditions and a total of 120 sentences therefore were tested in the study. Half of them form minimal pairs with the other half. The only difference is the order of sentences, i.e. whether the sentence has a V2 or V3 construction. Furthermore, to decrease the fatigue and lacking of interests due to long questionnaires, these 120 test sentences were further divided into six versions, each of which contained 20 sentences with the 20 unique conditions as shown in table 1, so that the same participant would not see the same condition twice. See Appendix I for a list of the test sentences, their coding as well as their average scores.

3.1 Filler sentences

Filler sentences, sentences which are not part of the factorial design in the study, were added to each version of the questionnaire for multiple reasons. First of all, all the test sentences are

structurally very similar, in that they all contain a subordinate clause which has a finite verb and a negation as adverb. In cases like this, it is recommended that filler sentences should be added to the questionnaire so that participants won't easily uncover the purpose of the study and thus influence the results in unknown ways (see e.g. Sprouse 2018; Schütze and Sprouse 2013; Goodall 2021 for discussions of acceptability judgment design). Secondly, some of the filler sentences can be used to filter out participants who may have given random scores. This was done by adding sentences that are completely normal so that positive scores are expected to be given to them. If a participant has given negative scores for all of the completely normal sentences, then there is a high chance that results from this particular participant are not reliable and thus need to be removed for final analysis. Furthermore, filler sentences can also add to the diversity of sentence types which would in turn increase interests among participants.

The optimal number of filler sentences for acceptability judgment tests is unclear, though a minimum of 1:1 ratio of fillers to the test sentences is recommended in few studies and a common ratio is a 2:1 design of fillers to test sentences (Sprouse 2018; Schütze and Sprouse 2013; Goodall 2021). In this study, a filler to test sentence ratio of 2:1 was chosen and 40 filler sentences were created. The filler sentences contain a variety of sentences with syntactic variations in modern Icelandic language.

The filler sentences contains 4 sentences which are considered to be completely normal, an example of which is the sentence (16a). Sentence (16b) is an example of new passive (or "new impersonal construction") in Icelandic, in which the expletive *það* takes place as a place holder for the actual subject while the finite verb takes the form of past participle in default the 3rd person singular form. The normal sentence order would be "Mér var sagt ..." (e. *I was told* ...). Apart from sentence order, there also seem to be a variation in case agreement from normal passive construction (see detailed discussion of the new impersonal construction in Icelandic in Maling and Sigurjónsdóttir 1997, 2002; Sigurjónsdóttir and Nowenstein 2016 for example.).

(16) Some of the fillers sentences included in the study:

a. Completely normal sentence

Ég hef aldrei talað við þennan mann.
I have never talk.PP with this man.

b. New passive

Það var sagt mér að skólinn væri lokaður í dag.
it be.3sg.PST say.PP me.DAT that school-the be.3sg.SBJV.PST closed in dag.

c. Nominative/dative substitution

Það var brjálað veður og einn bátur rak upp í fjöru.
it be.3sg.PST crazy.N weather.N and one.NOM boat.NOM drift.3sg.PST up to shore.

Sentence (16c) is an example of nominative substitution, in which a normally oblique subject case (accusative or dative) takes the form of a nominative with an intransitive verb of motion or change of state (see e.g. Jónsson 2003; Jónsson and Eythórsson 2005; Guðmundsdóttir et al. 2019).

4 Method

Based on the results from the Variation in Icelandic Syntax Project (Þráinsson et al. 2015a) and the theory put forward by Badan and Haegeman (2022), it is predicted that a subject-initial V3 construction will receive better judgments in central adverbial clauses than in peripheral adverbial clauses. Moreover, it could be expected that non-integrated adverbial clauses would receive worse judgments than the other two types of adverbial clauses.

The research is based on quantitative methods and data was collected through an online survey where participants evaluate sentences that contain grammatical variables. Statistical analyses were performed to see whether there is any correlation between the variables and whether the differences between them are statistically significant.

The survey was first published as a pre-test on SoSci Survey (Leiner 2019) for one week and formal collection was consequently administered and lasted for two weeks. The participants were chosen at random and the only condition was that the participant had to have Icelandic as their mother tongue. In addition, it was recommended that people with a university education in Icelandic or linguistics not participate. The participation was completely anonymous. In the end, a total of 570 people took part in the survey, of which 407 completed the survey. Therefore, the number of valid participation was a total of 407.

In this section, the design of the survey and data processing will be addressed.

4.1 Survey design

An online survey with acceptability judgment test was designed to obtain an overview over judgment towards the subject-initial V3 construction in different types of adverbial clauses in Icelandic. The main method was to ask the participants to rate sentences according to how natural they think the sentences are, on a 7-point Likert scale from -3 up to $+3$, where 0 is the neutral point (Likert 1932). The scale in the survey was extreme-labeled, meaning that only the lowest and highest points were given a label, i.e. -3 = “Unacceptable (impossible) sentence. I could not say this at all.” and $+3$ = “Completely normal sentence. I can easily say this”.

The survey is divided into three parts: the introduction of the survey, questions about the background of the participants and the judgment test. In the introduction of the survey, it was stated, among other things, that the participation is completely anonymous and the participants have to judge the sentences according to their natural feeling rather than their knowledge of the language. The second section contains six questions regarding age group, gender, mother tongue, place of residence, origin and education. The third part is the main part of the survey and contains 60 sentences to be judged, of which 20 test sentences and 40 filler sentences, in which the test sentences make up 33% of all the sentences. The sentences were randomly ordered and only six sentences were shown on each page. This was done to reduce the likelihood that the participants will be aware of what is being tested.

Each test sentence contains a combination of three grammatical variables, as discussed in the previous section

4.2 Data processing

The data were retrieved in the form of a csv file and processed with the program R (R Core Team 2022). Before starting the analysis, the data were cleaned and the variables were coded.

In Sosci Survey, the script for importing the data into Rstudio was available, where all the questions and answers were already coded except for the type of test sentences. Ratings in the scale are e.g. coded from 1 up to 7. Each of the test sentences was then coded with the grammatical variables mentioned earlier, e.g. "result.PAC.V2" is a coding for result clause, peripheral adverbial clause and V2 construction.

Consequently, an effort was made to filter out answers from participants who might have rated the sentences randomly. This was done by checking whether the participants give a negative rating, i.e. scores lower than 0, for four filler sentences that are completely normal (see previous section for discussions and example of the filler sentences). If a participant has given negative ratings for all four of these sentences, the participant will be eliminated from further analysis. No such responses were found.

4.2.1 Scale bias correction

Individuals may use the 7-point scale in different ways. Some people e.g. never use the extreme points such as -3 or $+3$, while others use points in the middle more often, e.g. -1 or $+1$. Such scale bias can be corrected by calculating a standardized score for each participant. Based on instructions from Sprouse (2018), a standardized score (or *Z-score*) for each participant is calculated using the following formula:

$$Z = (\text{response} - \text{individual mean response})/\text{individual standard deviation}$$

This was done with the average score of individuals on all sentences. After the calculation, the filler sentences were taken out.

4.2.2 Hypothesis testing

Data collected with a judgment test that uses a Likert scale are usually ordered categorical variables and thus not continuous. With such data, a non-parametric significance test is usually used. But it is also possible to use a parametric significance test with such data if the value of the response variable is transformed in some way, e.g. with a standardized Z-score as previously mentioned.

Both parametric and non-parametric tests were tested and it was decided to report the results from non-parametric tests, Kruskal-Wallis rank sum test with Bonferroni correction. The correction was used to prevent false positive results, especially when many variables are checked simultaneously.

5 Results

A total of 407 people participated in the survey and each of them judged 20 test sentences. In total, there were 8,140 measurements of the test sentences. Half of them have sentences with the V2 construction and the other half with the V3 construction. Two grammatical variables besides word order were examined, the semantic classification of adverbial clauses and the syntactic classification of adverbial clauses. Social variables include age group, gender, origin and education. In this section, the results based on these parameters will be reported.

5.1 Overview over the V3 construction in Icelandic adverbial clauses

The results from the survey show that sentences with the V2 construction generally received a more positive judgment from the participants than sentences with the V3 construction (cf. table 2). Sentences with the syntactic categories CAC and PAC with traditional word order (V2) both received a median score of 6 and an average score of around 5. In comparison, non-integrated adverbial clauses (NON-IC) with V2 construction received a negative median score of 3 which corresponds to -1 in the survey. All categories with the V3 construction received negative scores in both mean and median, and the median for all categories is 1, which is the lowest score. Standardized Z-scores tell a similar story, all categories with the V3 construction received negative scores at both mean and median. Non-integrated adverbial clauses, both with traditional word order (V2) and V3 word order, received negative scores.

Table 2: Overview over judgment data on V2 and V3 structures on different syntactic types of Icelandic adverbial clauses.

syntactic	response.mean	response.median	zscore.mean	zscore.median
V2				
CAC	5.24	6	0.462	0.782
PAC	4.98	6	0.361	0.697
NON-IC	3.25	3	-0.327	-0.481
V3				
CAC	2.64	1	-0.566	-0.934
PAC	2.48	1	-0.638	-0.954
NON-IC	2.29	1	-0.735	-0.954

Figure 2 below shows the distribution of participants' judgment of V2 (in red color) and V3 (in blue color) constructions in different syntactic categories. The boxes represent approximately the middle 50% of the values and the horizontal line inside the box represents the median values. The text at the top of the figure shows the significance test used and its results. The text at the bottom stands for a formula for making a comparison between each variable pair (e. *pairwise comparison*) and a method for correcting the p-value. Stars represent significance.

There appears to be a large difference in participants' judgments across the different syntactic categories of adverbial clauses with V2 constructions, as the three boxes do not completely overlap. This difference in the V2 construction is also statistically significant (χ^2 (2, N=8140) = 284, $p < 0.001$). With the V3 construction, however, the difference seems to be very small. This is true both between NON-ICs and PACs and between CACs and PACs, where the boxes appear

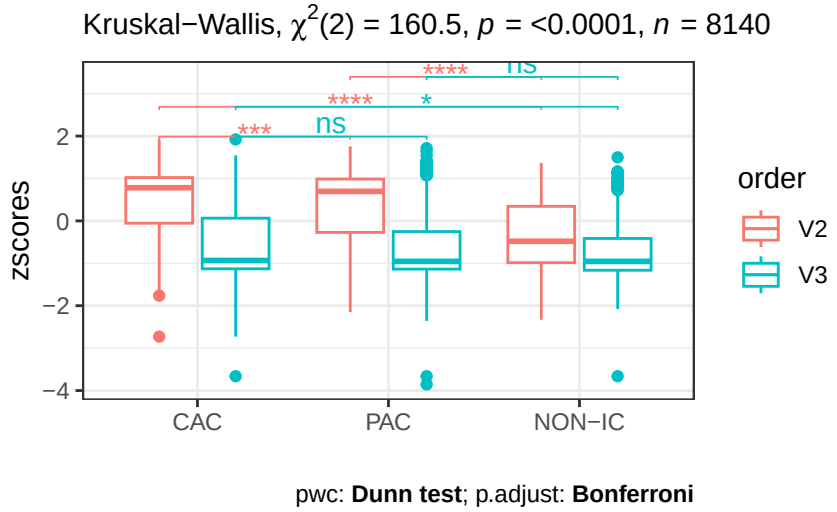

Figure 2: Results from the survey on V2 and V3 structures in Icelandic adverbial clauses according to the syntactic types.

to completely overlap. There seems to be a small difference between CACs and NON-ICs and this difference is statistically significant (p = 0.0217).

Looking at the percentage of participants' judgments which gave positive, neutral and negative answers, most participants seem to have a clear tendency to choose between positive (> 0) and negative (< 0) answers and not neutral (0) (cf. table 3).

Table 3: Proportional results on positive and negative judgments on the V3 structure according to the syntactic types.

	Yes	?	No
CAC	0.234	0.042	0.724
PAC	0.205	0.037	0.757
NON-IC	0.150	0.064	0.786

Table 3 shows that the majority, or over 70% of the participants, gave negative answers to sentences with V3 word order in all three syntactic categories. Slightly more people gave positive answers to central adverbial clauses (23.4%) than to peripheral adverbial sentences (20.5%). Non-integrated adverbial clauses tested received 15% positive responses from the participants. Even though the difference is quite small, this result is consistent with our hypothesis, that central adverbial clauses would get better judgment than peripheral adverbial clauses and that non-integrated clauses would get worse judgment than the other two types of ACs in Icelandic.

When looking at the V3 construction in different semantic categories of adverbial clauses, there seems to be a difference between several semantic categories. Although the difference is not great between them, it is statistically significant (χ^2 (5, N=4070) = 47.47, p < 0.0001). Figure 3 shows the distribution of participants' judgment in different semantic categories in sentences with the V3 construction. The colors represent different semantic categories of the adverbial clause.

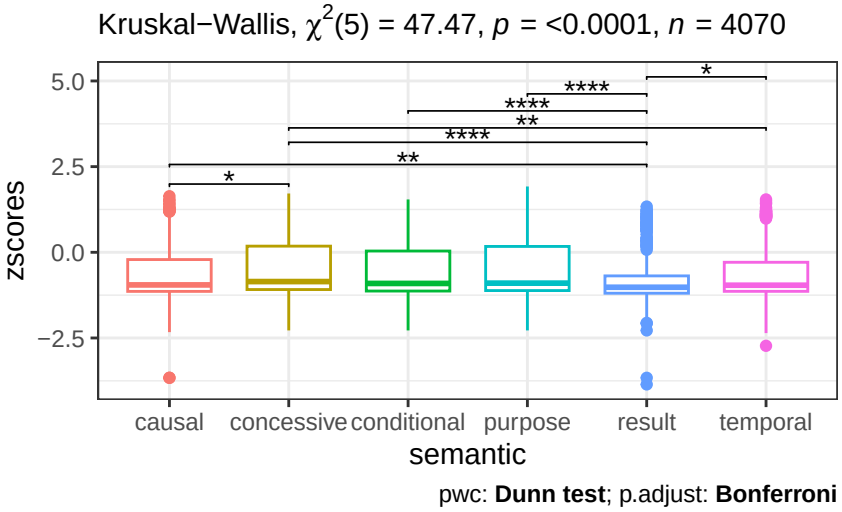

Figure 3: Results from the survey on the V3 structure in Icelandic adverbial clauses according to semantic types.

As can be seen in the figure, the difference between most of the semantic categories is statistically significant according to Dunn's test. Most semantic categories were given negative responses from the participants with V3 word order, with all boxes and medians below Z-score of 0 (cf. figure 3). The median values of the Z-score are all around -0.9 and with the result clauses it is -1.02. Looking at the average Z-scores, the purpose and concessive clauses received better average scores, which are -0.531 and -0.495 respectively. These are sentences shown in table 4.

Table 4: Results for purpose and concessive clauses with the V3 construction.

syntactic	sent	mean.response	mean.zscore
Concessive			
PAC	Hún ætlar að fara með fjölskylduna á flugvöllinn þó að hún ekki verði með í ferðalaginu.	1.91	-0.908
PAC	Snorri náði að klára fiskisúpuna þótt honum ekki líki venjulega fiskur.	2.09	-0.809
PAC	Haraldur keyrði norður þrátt fyrir að bíllinn hans ekki fengi skoðun.	2.88	-0.517
PAC	Mér fannst önnur bókin hennar mjög góð þó að ég ekki næði að klára þá fyrstu.	3.19	-0.237
PAC	Systir mín ætlar að fara í fjallgöngu þótt hún ekki hafi hreyft sig neitt að ráði í langan tíma.	3.20	-0.399
PAC	Anna getur vel lesið skiparnir í kóðun þótt hún ekki kunni að kóða.	3.65	-0.140
Purpose			
CAC	Haraldur ætlar að stilla vekjaraklukkuna svo að hann ekki vakni of seint fyrir atvinnuviðtalið.	1.99	-0.889
CAC	Hann pantaði pizzu heim þannig að hann ekki þyrfti að fara út í þessu veðri.	2.03	-0.830
CAC	Hún keypti eigin gönguskíði þannig að hún ekki þurfi að bíða í röð til að leigja þau.	2.22	-0.740
CAC	Andri ætlar að koma heim fyrir helgina svo að hann ekki missi af afmælisveislu dóttur sinnar.	2.77	-0.487
CAC	Við ætlum að bjóða Haraldi heim til okkar þannig að hann ekki verði einn um jólin.	3.46	-0.174
CAC	Við þurfum að takmarka matarneysluna hjá kettinum okkar svo að hann ekki verði of feitur.	3.85	-0.106

For sentences with concessive clauses, three out of six sentences received higher than 3 points in scale rating and lower than -0.3 in standardized z-scores. For sentences with purpose clauses, two out of six received higher than 3 points in scale rating. Examples in (17) show the two sentences which received the highest rating in these two types of adverbial clauses.

(17) a. Sentence with concessive clauses which received highest rating

Anna getur vel lesið skiparnir í kóðun *þótt* hún ekki
Anna can.3sg well read.PP command.PL in coding *even though* she NEG

kunni að kóða.
know.SBJV to code.

b. Sentence with purpose clauses which received highest rating

Við þurfum að takmarka matarneysluna hjá kettinum okkar *svo að* hann
we need.1pl to limit food-comsumption with cat our.GEN *so that* he
ekki verði of feitur.
NEG become.SBJV too fat.

Overall, sentences with the V2 construction received a more positive evaluation from the participants than sentences with V3, either for sentences in different semantic categories or in different syntactic categories. When looking only at sentences with the subject-initial V3 construction, there seems to be a difference in the participants' evaluations between different semantic categories and syntactic categories, although the difference is not large and is only statistically significant between certain categories. On the other hand, even though the difference between syntactic categories is quite small, the results did show consistency with our hypothesis. Sentences with CACs in V3 order indeed received better judgment than sentences with PACs while sentences with NON-ICs received worse judgment than the other two types.

5.2 Purpose clauses in Icelandic

According to the classification of Haegeman (2012: 163), purpose clauses were classified as central adverbial clauses based on the observation that they disallow argument fronting in English while some permit adjunct fronting. Peripheral adverbial clauses are those that allow both argument and adjunct fronting. While this observation is true based on English, purpose clauses in Icelandic seem to allow argument fronting easily (cf. 18b), therefore, it is possible that they can be classified as peripheral adverbial clauses instead of central adverbial clauses.

(18) Argument fronting in purpose clauses in Icelandic (Angantýsson and Jonas 2016: 134).

a. Ég las aðra bókina hennar vandlega *svo að* ég gæti skilið
I read.PST second book-the hers carefully *so that* I can.PST understand.PP
þá fyrstu almennilega.
the-DEM.PRO first properly.

b. Ég las aðra bókina hennar vandlega *svo að* þá fyrstu
I read.PST second book-the hers carefully *so that* the-DEM.PRO fyrst
gæti ég skilið almennilega.
can.PST I understand.PP properly.

Figure 4 below shows the result from data after re-coding the purpose clauses as peripheral adverbial clauses (PAC).

The results from recoding the purpose clauses as peripheral clauses did not seem to make a big difference for the V3 construction, as the difference between central and peripheral adverbial clauses are still very small and statistically not significant (cf. figure 2). However, it can be seen from the figure that sentences with CACs in V3 order still have better ratings than sentences with PACs, which in turn have higher ratings than sentences with NON-ICs.

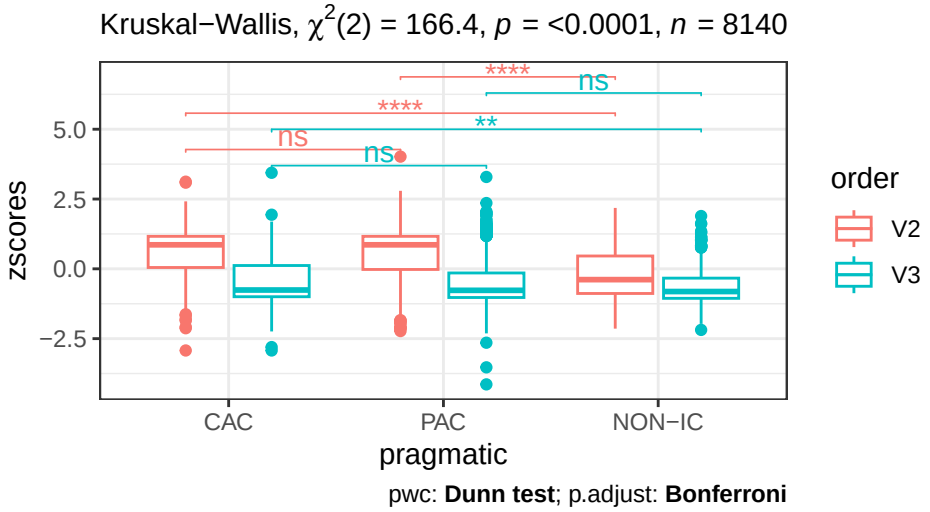

Figure 4: Results from data after re-coding purpose clauses as PAC.

Another perhaps ambiguous aspect related to the purpose clauses in Icelandic is that they are structurally very similar to result clauses. Compare the following examples in (19):

(19) Purpose and result clauses in Icelandic:

a. Hann pantaði pizzu heim *þannig að* hann **þyrfti** ekki að fara út í
he order.PST pizza home *so that* he **need.SBJV.PST** NEG to go out in
þessu veðri. (purpose clause)
this weather.

b. Ég faldi bókina *svo að* hann **gat** ekki lesið hana. (result
I hide.PST book.the *so that* he **can.IND.PST** NEG read.PP her.
clause)

Example in (19a) is a purpose clause and (19b) is a result clause. Apart from different lexical items used, the syntactic structure is almost the same except the mood of the finite verb in the subordinate clauses: the finite verb in the purpose clause (19a) is in subjunctive mood *þyrfti* instead of indicative mood which would be *þurfti*; in (19b), however, the finite verb is in indicative mood *gat* instead of subjunctive *gæti*. This difference is very small and can possibly be overlooked or misinterpreted by participants, which can lead to unexpected scores for these types of sentences.

5.3 Connection with age

Social factors are also examined in relation to the V3 construction in Icelandic adverbial clauses. They are age group, gender, origin and education. The results show that there are no statistically significant differences between social factors except for age group and origin of the participants, although the difference is not very large. Results for the V3 construction in Icelandic adverbial clauses by age groups will be discussed here.

Figure 5 shows the distribution of participants' judgment for sentences with V3 word order by age group. Again, the difference is not great between the different age groups, and negative responses seem to be common in all age groups. The difference is particularly small between the two youngest age groups and also between the next three age groups. A statistical significance test confirms this (no stars between these age groups). But there seems to be a difference between the two youngest groups and the three older groups. Therefore, the p-value in a significance test for the age groups as a whole is very small and the difference is therefore significant (χ^2 (4, N=4070) = 43.26, p < 0.0001).

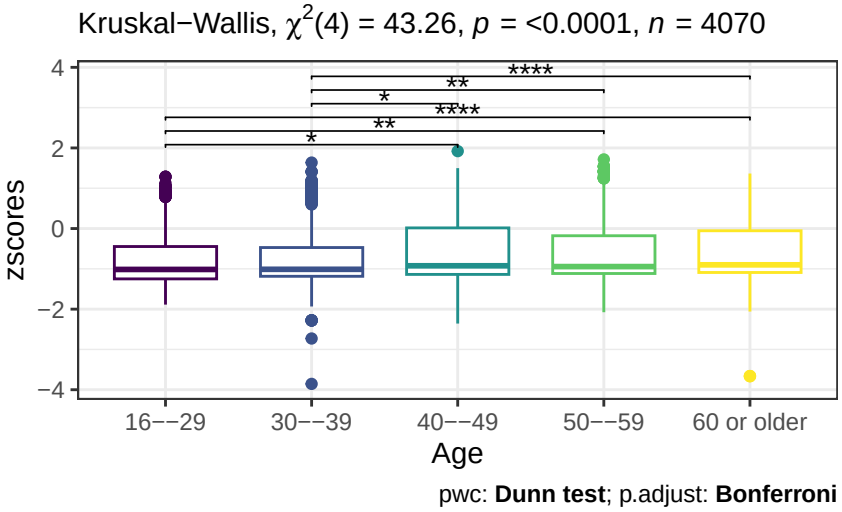

Figure 5: V3 construction in Icelandic adverbial clauses according to age groups

When compared with the results for sentences with the unmarked V2 construction by age group, it can be seen that sentences with V2 were again much better rated by all age groups, with approx. 5 in the average score and 6 in the median score (cf. table 5).

Table 5: Results on sentences with both V2 and V3 constructions according to age groups.

Age	response.mean	response.median	zscore.mean	zscore.median
V2				
16–29	5.39	6	0.459	0.788
30–39	5.11	6	0.365	0.713
40–49	4.90	6	0.307	0.587
50–59	4.77	6	0.281	0.599
60 or older	4.80	6	0.341	0.698
V3				
16–29	2.34	1	-0.750	-1.015
30–39	2.38	1	-0.712	-1.012
40–49	2.63	1	-0.602	-0.925
50–59	2.50	1	-0.602	-0.944
60 or older	2.60	1	-0.562	-0.901

The relationship between the age groups can be again seen in the table, both for sentences with V2 and V3 word order, that the youngest two age groups gave similar scores (just over 5 in average score for sentences with V2 order and around 2.3 for sentences with V3 order). Similarly, the older groups gave similar ratings. The difference is not great, but sentences with

V2 construction seem to have received a higher score in the younger age groups than in the older age groups, and the reverse seems to be the case for sentences with the V3 construction, i.e. the older age groups gave a higher rating than the younger age groups. This difference seems to be consistent with the results from the Variation Project discussed in section 2.1.

6 Discussion and conclusion

The subject of this study is to systematically investigate a relatively uncommon word order phenomena in adverbial clauses in Icelandic, namely the subject-initial V3 (subject – sentence adverb – finite verb). An online survey with a judgment test was given to the participants, containing 20 different sentence types concerning semantic and syntactic classifications of adverbial clauses in Icelandic with both V2 and V3 word orders. Six sentences were created for each sentence type and a total of 120 test sentences were tested. These test sentences were divided into six versions of the survey and each participant took one of them randomly. In this way, a large number of sentences could be tested and at the same time each participant only saw 20 test sentences with unique conditions, as discussed in section 3. In addition to the 20 test sentences, 40 filler sentences were added as well as some questions concerning social factors, such as the age group, gender, origin and education level of the participants. The survey was completely anonymous and was intended for native Icelandic speakers.

First of all, and not surprisingly, the results of the survey show that sentences with the unmarked V2 construction usually received a more positive evaluation from the participants than sentences with the V3 construction, either for sentences in different semantic categories or in different syntactic categories. When looking only at sentences with the V3 construction, there seems to be a difference in the participants' evaluations between different semantic categories and syntactic categories, although the difference is not large and is only statistically significant between certain categories. In the syntactic categories, the difference seems to be only significant between central and non-integrated adverbial clauses. There does not appear to be a significant difference between central and peripheral adverbial clauses, as was expected according to the hypotheses presented in section 2. Non-integrated adverbial clauses were generally given negative scores by participants, even for sentences with the unmarked V2 word order. In different semantic categories, the difference was again not great, but statistically significant between many of them. Purpose and concessive clauses seem to have received better ratings from the participants, while result clauses received worse ratings than other types of adverbial sentences (cf. fig. 3). In terms of social factors, only age group and origin seem to show statistically significant differences between the different groups for adverbial sentences with V3 word order. Participants from the older age groups (40 years and older) gave a slightly higher score than those from the younger age groups (between 16 and 39 years). However, there is again little or no difference between the older age groups and between the younger age groups (cf. figure 5).

Despite these results, a quantitative research method such as the one applied in this study has its limitations, especially in grammatical judgment tests. In these tests, the data only shows the scores each participant gives to a certain sentence, but it is impossible to know how the participants interpret the sentences. A participant could for example give a negative response

to a sentence because of the style or use of specific wordings, i.e. for reasons independent of the grammatical variables that were being tested in the survey design. A further complication is that the purpose clauses and result clauses in Icelandic are very similar in their structure since the only difference is that of the mood of the finite verb in the subordinate clause. In purpose clauses, the finite verbs are in subjunctive mood while in result clauses they are in indicative mood. This difference is very small and can possibly be overlooked or misinterpreted by the participants, which leads to somewhat unexpected scores for these types of sentences. Due to the aforementioned potentially ambiguous judgment, qualitative research such as interviews could possibly resolve these issues.

Last but not least, the survey was designed so that each participant evaluated 20 test sentences, so that the data actually contains repeated measures and the data points are therefore not independent. This could affect the results. It might be useful to use mixed models to analyze the results from the survey data, where more explanatory variables can be taken into account as fixed effects and individual variation can also be accounted for as random effects. But due to the size of the data and number of the variables, this will probably be better looked into in larger projects.

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Appendices

I List of test sentences

TestSent	Coding	Mean response	Mean z-scores
Dóri litli vill vera grænmetisæta vegna þess að hann vill ekki sjá dýr send í sláturshús.	causal.CAC.V2	4.72	0.302
Dóri litli þóttist vera veikur vegna þess að hann vildi ekki koma með í bátsferð.	causal.CAC.V2	6.18	0.760
Hún er þreytt vegna þess að hún gat ekki sofnað alla nóttina.	causal.CAC.V2	3.27	-0.288
Hún þarf að eyða nóttinni í gistiheimili vegna þess að storminn lægir ekki fyrr en eftir morgundaginn.	causal.CAC.V2	3.83	-0.038
Systir mín bað mig um hjálp með verkefnið sitt af því að hún kunni ekki mjög vel stærðfræði.	causal.CAC.V2	3.75	-0.167
Við þurfum að kaupa nýjan mat handa kettinum okkar af því að hann borðar ekki fisk.	causal.CAC.V2	5.34	0.526
Dóri litli vill vera grænmetisæta vegna þess að hann ekki vill sjá dýr send í sláturshús.	causal.CAC.V3	3.18	-0.403
Dóri litli þóttist vera veikur vegna þess að hann ekki vildi koma með í bátsferð.	causal.CAC.V3	3.46	-0.217
Hún er þreytt vegna þess að hún ekki gat sofnað alla nóttina.	causal.CAC.V3	2.69	-0.496
Hún þarf að eyða nóttinni í gistiheimili vegna þess að storminn ekki lægir fyrr en eftir morgundaginn.	causal.CAC.V3	1.52	-0.982
Systir mín bað mig um hjálp með verkefnið sitt af því að hún ekki kunni mjög vel stærðfræði.	causal.CAC.V3	1.78	-0.941
Við þurfum að kaupa nýjan mat handa kettinum okkar af því að hann ekki borðar fisk.	causal.CAC.V3	3.02	-0.485
Af hverju ættum við að fara á fiskveitingastað, af því að hann borðar aldrei fisk.	causal.NON-IC.V2	2.00	-0.793
Hvað ertu að gera í kvöld, af því að ég er ekki með neitt plan.	causal.NON-IC.V2	4.06	0.003
Hvernig er veðrið um helgina, af því að ég vil ekki eyða helgafríinu í að horfa á Netflix.	causal.NON-IC.V2	3.74	-0.032
Hvernig ertu fjárhagslega, af því að ég get ekki borgað leigu í þessum mánuði.	causal.NON-IC.V2	3.31	-0.311
Veist þú hvort það er eitthvað gott í sýningu í leikhúsunum, af því að ég vil ekki keyra til suðurs til einskis.	causal.NON-IC.V2	2.46	-0.701
Ætlarðu einn í bíó, af því að þú spurðir ekki hvort ég vildi koma með.	causal.NON-IC.V2	4.00	-0.102
Af hverju ættum við að fara á fiskveitingastað, af því að hann aldrei borðar fisk.	causal.NON-IC.V3	1.64	-0.942
Hvað ertu að gera í kvöld, af því að ég ekki er með neitt plan.	causal.NON-IC.V3	3.46	-0.299
Hvernig er veðrið um helgina, af því að ég ekki vil eyða helgafríinu í að horfa á Netflix.	causal.NON-IC.V3	2.46	-0.620
Hvernig ertu fjárhagslega, af því að ég ekki get borgað leigu í þessum mánuði.	causal.NON-IC.V3	2.68	-0.624
Veist þú hvort það er eitthvað gott í sýningu í leikhúsunum, af því að ég ekki vil keyra til suðurs til einskis.	causal.NON-IC.V3	1.94	-0.864
Ætlarðu einn í bíó, af því að þú ekki spurðir hvort ég vildi koma með.	causal.NON-IC.V3	1.52	-1.076
Haraldur hefur líklega slitið öllu sambandi við Þóru því hann vill ekki tala við hana.	causal.PAC.V2	5.96	0.745
Hún hefur líklega kynnst nýjum kærasta af því að hún kom aldrei til baka.	causal.PAC.V2	4.30	0.165
Kötturinn okkar er líklega veikur fyrst hann hefur ekki klárað matinn sinn í nokkra daga.	causal.PAC.V2	6.18	0.770
Selma hlýtur að vera í uppnámi fyrst hún svaraði ekki símanum sínum allan daginn.	causal.PAC.V2	5.19	0.463
Stefán hlýtur að vera grænmetisæta vegna þess að hann vill aldrei borða kjöt.	causal.PAC.V2	6.03	0.776
Stefán hlýtur að vera lofthræddur af því að hann hefur aldrei farið í flugvél.	causal.PAC.V2	5.65	0.594
Haraldur hefur líklega slitið öllu sambandi við Þóru því hann ekki vill tala við hana.	causal.PAC.V3	2.93	-0.403
Hún hefur líklega kynnst nýjum kærasta af því að hún aldrei kom til baka.	causal.PAC.V3	2.11	-0.748
Kötturinn okkar er líklega veikur fyrst hann ekki hefur klárað matinn sinn í nokkra daga.	causal.PAC.V3	3.06	-0.389
Selma hlýtur að vera í uppnámi fyrst hún ekki svaraði símanum sínum allan daginn.	causal.PAC.V3	2.84	-0.509
Stefán hlýtur að vera grænmetisæta vegna þess að hann aldrei vill borða kjöt.	causal.PAC.V3	1.86	-0.917
Stefán hlýtur að vera lofthræddur af því að hann aldrei hefur farið í flugvél.	causal.PAC.V3	2.75	-0.540
Anna getur vel lesið skiparnir í kóðun þótt hún kunni ekki að kóða.	concessive.PAC.V2	5.50	0.664
Haraldur keyrði norður þrátt fyrir að bíllinn hans fengi ekki skoðun.	concessive.PAC.V2	6.22	0.888
Hún ætlar að fara með fjölskylduna á flugvöllinn þó að hún verði ekki með í ferðalaginu.	concessive.PAC.V2	5.27	0.395
Mér fannst önnur bókin hennar mjög góð þó að ég næði ekki að klára þá fyrstu.	concessive.PAC.V2	5.97	0.761
Snorri náði að klára fiskisúpuna þótt honum líki venjulega ekki fiskur.	concessive.PAC.V2	5.40	0.490
Systir mín ætlar að fara í fjallgöngu þótt hún hafi ekki hreyft sig neitt að ráði í langan tíma.	concessive.PAC.V2	6.38	0.922
Anna getur vel lesið skiparnir í kóðun þótt hún ekki kunni að kóða.	concessive.PAC.V3	3.65	-0.140
Haraldur keyrði norður þrátt fyrir að bíllinn hans ekki fengi skoðun.	concessive.PAC.V3	2.88	-0.517
Hún ætlar að fara með fjölskylduna á flugvöllinn þó að hún ekki verði með í ferðalaginu.	concessive.PAC.V3	1.91	-0.908
Mér fannst önnur bókin hennar mjög góð þó að ég ekki næði að klára þá fyrstu.	concessive.PAC.V3	3.19	-0.237
Snorri náði að klára fiskisúpuna þótt honum ekki líki venjulega fiskur.	concessive.PAC.V3	2.09	-0.809
Systir mín ætlar að fara í fjallgöngu þótt hún ekki hafi hreyft sig neitt að ráði í langan tíma.	concessive.PAC.V3	3.20	-0.399
Dóttir hennar grætur og grætur ef hún fær ekki að koma með að labba með hundinn.	conditional.CAC.V2	4.49	0.117
Hann kemur bara á morgun ef hann hefur ekki tíma til þess í dag.	conditional.CAC.V2	6.18	0.862
Hún kemur örugglega í bíó í kvöld nema henni takist ekki að ná í miða.	conditional.CAC.V2	5.48	0.549
Hún ætlar í fjallgöngu un helgina nema veðrið verði ekki gott.	conditional.CAC.V2	4.31	0.141
Mótmælin munu halda áfram ef ríkisstjórnin kemur ekki með betra boð.	conditional.CAC.V2	6.59	0.924
Það er ekki hægt að taka ferðamenn í köfunarferð ef þeir kunna ekki að synda.	conditional.CAC.V2	5.78	0.671
Dóttir hennar grætur og grætur ef hún ekki fær að koma með að labba með hundinn.	conditional.CAC.V3	2.85	-0.452
Hann kemur bara á morgun ef hann ekki hefur tíma til þess í dag.	conditional.CAC.V3	3.23	-0.362
Hún kemur örugglega í bíó í kvöld nema henni ekki takist að ná í miða.	conditional.CAC.V3	2.32	-0.734
Hún ætlar í fjallgöngu un helgina nema veðrið ekki verði gott.	conditional.CAC.V3	1.72	-0.915
Mótmælin munu halda áfram ef ríkisstjórnin ekki kemur með betra boð.	conditional.CAC.V3	2.86	-0.463
Það er ekki hægt að taka ferðamenn í köfunarferð ef þeir ekki kunna að synda.	conditional.CAC.V3	2.90	-0.387
Af hverju fer hann í söngvakeppni ef hann kann ekki að syngja?	conditional.PAC.V2	6.03	0.757
Hann fékk líklega nýja vinnu ef hann kemur ekki lengur á kaffihús daglega.	conditional.PAC.V2	2.46	-0.702
Hann kann líklega ekki að synda ef hann fer aldrei í sund.	conditional.PAC.V2	4.51	0.214
Hann verður líklega heima með börnunum sínum ef hann kemur ekki í bíó í kvöld.	conditional.PAC.V2	5.29	0.444
Hann þarf líklega á hjálp að halda ef hann hættir ekki að reykja bráðum.	conditional.PAC.V2	5.71	0.734

(continued)

TestSent	Coding	Mean response	Mean z-scores
Hún hlýtur að vera veik ef hún kemur ekki á æfingu í dag.	conditional.PAC.V2	6.01	0.677
Af hverju fer hann í söngvakeppni ef hann ekki kann að syngja?	conditional.PAC.V3	3.27	-0.229
Hann fékk líklega nýja vinnu ef hann ekki kemur lengur á kaffihús daglega.	conditional.PAC.V3	1.46	-1.059
Hann kann líklega ekki að synda ef hann aldrei fer í sund.	conditional.PAC.V3	3.02	-0.460
Hann verður líklega heima með börnunum sínum ef hann ekki kemur í bíó í kvöld.	conditional.PAC.V3	2.74	-0.590
Hann þarf líklega á hjálp að halda ef hann ekki hættir að reykja bráðum.	conditional.PAC.V3	3.20	-0.346
Hún hlýtur að vera veik ef hún ekki kemur á æfingu í dag.	conditional.PAC.V3	2.66	-0.567
Andri ætlar að koma heim fyrir helgina svo að hann missi ekki af afmælisveislu dóttur sinnar.	purpose.CAC.V2	6.26	0.950
Hann pantaði pizzu heim þannig að hann þyrfti ekki að fara út í þessu veðri.	purpose.CAC.V2	4.89	0.241
Haraldur ætlar að stilla vekjaraklukkuna svo að hann vakni ekki of seint fyrir atvinnuviðtalið.	purpose.CAC.V2	6.28	0.904
Hún keypti eigin gönguskíði þannig að hún þurfi ekki að bíða í röð til að leigja þau.	purpose.CAC.V2	4.47	0.140
Við ætlum að bjóða Haraldi heim til okkar þannig að hann verði ekki einn um jólin.	purpose.CAC.V2	5.97	0.750
Við þurfum að takmarka matarneysluna hjá kettinum okkar svo að hann verði ekki of feitur.	purpose.CAC.V2	5.46	0.585
Andri ætlar að koma heim fyrir helgina svo að hann ekki missi af afmælisveislu dóttur sinnar.	purpose.CAC.V3	2.77	-0.487
Hann pantaði pizzu heim þannig að hann ekki þyrfti að fara út í þessu veðri.	purpose.CAC.V3	2.03	-0.830
Haraldur ætlar að stilla vekjaraklukkuna svo að hann ekki vakni of seint fyrir atvinnuviðtalið.	purpose.CAC.V3	1.99	-0.889
Hún keypti eigin gönguskíði þannig að hún ekki þurfi að bíða í röð til að leigja þau.	purpose.CAC.V3	2.22	-0.740
Við ætlum að bjóða Haraldi heim til okkar þannig að hann ekki verði einn um jólin.	purpose.CAC.V3	3.46	-0.174
Við þurfum að takmarka matarneysluna hjá kettinum okkar svo að hann ekki verði of feitur.	purpose.CAC.V3	3.85	-0.106
Hann gerði bananabrauð með gömlum bönunum þannig að hann þurfti ekki að henda þeim.	result.PAC.V2	4.22	0.029
Hún fékk far hjá manninum sínum þannig að hún kom ekki of seint í vinnuna.	result.PAC.V2	4.94	0.279
Stéfan fékk matareitrun eftir að hafa borðað kjúkling þannig að hann vill aldrei borða svoleiðis mat aftur.	result.PAC.V2	4.99	0.418
Við festum hilluna betur svo að hún datt ekki niður aftur.	result.PAC.V2	2.00	-0.797
Ég faldi bókina svo að hann gat ekki lesið hana.	result.PAC.V2	4.11	0.010
Ég missti samband við menntaskólavini mína svo að ég sá ekki nema suma þeirra aftur.	result.PAC.V2	4.28	0.120
Hann gerði bananabrauð með gömlum bönunum þannig að hann ekki þurfti að henda þeim.	result.PAC.V3	2.27	-0.704
Hún fékk far hjá manninum sínum þannig að hún ekki kom of seint í vinnuna.	result.PAC.V3	2.20	-0.789
Stéfan fékk matareitrun eftir að hafa borðað kjúkling þannig að hann aldrei vill borða svoleiðis mat aftur.	result.PAC.V3	1.93	-0.811
Við festum hilluna betur svo að hún ekki datt niður aftur.	result.PAC.V3	1.43	-1.030
Ég faldi bókina svo að hann ekki gat lesið hana.	result.PAC.V3	2.52	-0.667
Ég missti samband við menntaskólavini mína svo að ég ekki sá nema suma þeirra aftur.	result.PAC.V3	2.18	-0.845
Börnin mín voru ósátt þegar þau fengu ekki öskudagsbúninga í ár.	temporal.CAC.V2	5.74	0.674
Hann gafst upp á að keyra eftir að hann stóðst ekki bílprófið í fimmta skipti.	temporal.CAC.V2	5.48	0.555
Hún tók kökuna úr ofninum þegar hún var ekki fullbökuð ennþá.	temporal.CAC.V2	3.29	-0.260
Kötturinn minn mjálmar og mjálmar þegar hann fær ekki nóg að borða á morgnana.	temporal.CAC.V2	6.32	0.823
Sindri fékk að vinna hjá pabba sínum meðan hann var ekki með fasta vinnu.	temporal.CAC.V2	6.24	0.821
Unga parið átti erfitt með að ná endum saman meðan þau fengu ekki atvinnuleysisbætur.	temporal.CAC.V2	5.70	0.670
Börnin mín voru ósátt þegar þau ekki fengu öskudagsbúninga í ár.	temporal.CAC.V3	2.35	-0.734
Hann gafst upp á að keyra eftir að hann ekki stóðst bílprófið í fimmta skipti.	temporal.CAC.V3	2.21	-0.689
Hún tók kökuna úr ofninum þegar hún ekki var fullbökuð ennþá.	temporal.CAC.V3	2.10	-0.752
Kötturinn minn mjálmar og mjálmar þegar hann ekki fær nóg að borða á morgnana.	temporal.CAC.V3	2.75	-0.466
Sindri fékk að vinna hjá pabba sínum meðan hann ekki var með fasta vinnu.	temporal.CAC.V3	3.39	-0.309
Unga parið átti erfitt með að ná endum saman meðan þau ekki fengu atvinnuleysisbætur.	temporal.CAC.V3	2.82	-0.538
Sindri hefur farið til Spánar þrisvar meðan ég fékk aldrei að fara til útlanda.	temporal.PAC.V2	5.15	0.408
Stebbi er búinn að skrifa drög að ritgerðinni sinni meðan ég hef ekki einu sinni byrjað að safna gögnum fyrir mína.	temporal.PAC.V2	5.80	0.624
Stúdentarnir pöntuðu ný einstök á meðan þeir sýndu ekki neinn áhuga á að nota þau gömlu.	temporal.PAC.V2	2.69	-0.542
Sóley er búin að prjóna margar peysur þegar ég get ekki einu sinni sett lykkjur á prjóna.	temporal.PAC.V2	3.96	0.020
Á meðan þeir nota aldrei mínar bækur í kennslu, nota þeir þínar bækur í tveimur námskeiðum.	temporal.PAC.V2	3.74	-0.177
Þegar ég gat ekki einu sinni keypt bíl voru allir að kaupa íbúð.	temporal.PAC.V2	5.82	0.755
Sindri hefur farið til Spánar þrisvar meðan ég aldrei fékk að fara til útlanda.	temporal.PAC.V3	2.54	-0.649
Stebbi er búinn að skrifa drög að ritgerðinni sinni meðan ég ekki hef einu sinni byrjað að safna gögnum fyrir mína.	temporal.PAC.V3	2.72	-0.555
Stúdentarnir pöntuðu ný einstök á meðan þeir ekki sýndu neinn áhuga á að nota þau gömlu.	temporal.PAC.V3	1.36	-1.041
Sóley er búin að prjóna margar peysur þegar ég ekki get einu sinni sett lykkjur á prjóna.	temporal.PAC.V3	2.01	-0.775
Á meðan þeir aldrei nota mínar bækur í kennslu, nota þeir þínar bækur í tveimur námskeiðum.	temporal.PAC.V3	1.50	-1.105
Þegar ég ekki gat einu sinni keypt bíl voru allir að kaupa íbúð.	temporal.PAC.V3	2.97	-0.459

II Results from statistical hypothesis testing

Syntactic types

order	.y.	group1	group2	n1	n2	statistic	p	p.adj	p.adj.signif
V2	zscores	CAC	PAC	1221	2442	-0.223	0.824	1.000	ns
V2	zscores	CAC	NON-IC	1221	407	-15.525	0.000	0.000	****
V2	zscores	PAC	NON-IC	2442	407	-16.451	0.000	0.000	****
V3	zscores	CAC	PAC	1221	2442	-1.814	0.070	0.209	ns
V3	zscores	CAC	NON-IC	1221	407	-3.347	0.001	0.002	**
V3	zscores	PAC	NON-IC	2442	407	-2.391	0.017	0.050	ns

Semantic types

.y.	group1	group2	n1	n2	statistic	p	p.adj	p.adj.signif
zscores	causal	concessive	1221	407	3.217	0.001	0.019	*
zscores	causal	conditional	1221	814	2.375	0.018	0.263	ns
zscores	causal	purpose	1221	407	2.006	0.045	0.672	ns
zscores	causal	result	1221	407	-3.847	0.000	0.002	**
zscores	causal	temporal	1221	814	-0.823	0.411	1.000	ns
zscores	concessive	conditional	407	814	-1.262	0.207	1.000	ns
zscores	concessive	purpose	407	407	-0.988	0.323	1.000	ns
zscores	concessive	result	407	407	-5.767	0.000	0.000	****
zscores	concessive	temporal	407	814	-3.646	0.000	0.004	**
zscores	conditional	purpose	814	407	0.121	0.903	1.000	ns
zscores	conditional	result	814	407	-5.397	0.000	0.000	****
zscores	conditional	temporal	814	814	-2.919	0.004	0.053	ns
zscores	purpose	result	407	407	-4.779	0.000	0.000	****
zscores	purpose	temporal	407	814	-2.505	0.012	0.184	ns
zscores	result	temporal	407	814	3.014	0.003	0.039	*

Age

.y.	group1	group2	n1	n2	statistic	p	p.adj	p.adj.signif
zscores	16–29	30–39	270	730	1.106	0.269	1.000	ns
zscores	16–29	40–49	270	910	3.252	0.001	0.011	*
zscores	16–29	50–59	270	860	3.589	0.000	0.003	**
zscores	16–29	60 or older	270	1300	4.887	0.000	0.000	****
zscores	30–39	40–49	730	910	2.950	0.003	0.032	*
zscores	30–39	50–59	730	860	3.409	0.001	0.007	**
zscores	30–39	60 or older	730	1300	5.362	0.000	0.000	****
zscores	40–49	50–59	910	860	0.525	0.600	1.000	ns
zscores	40–49	60 or older	910	1300	2.347	0.019	0.189	ns
zscores	50–59	60 or older	860	1300	1.740	0.082	0.819	ns