

## CHAPTER 12

# Understanding Complex Sentences in a Heritage Language

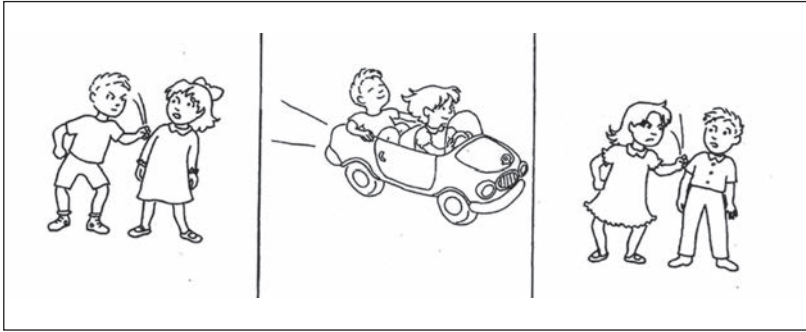
SIGRÍÐUR MAGNÚSDÓTTIR, IRIS EDDA NOWENSTEIN,  
AND HÖSKULDUR THRÁINSSON

IT IS NOT equally easy to understand all the sentences that we hear or read, even if we recognize all the words. Linguists want to understand why this is the case, as this phenomenon can teach us something about the nature of human language and the differences between languages and between groups of speakers.

But what makes some sentences more difficult to understand than others? Consider the set of pictures in Figure 12.1. Now suppose you were presented with one of the following sentences and asked to point to the picture that describes the relevant action:

1. a. The boy hits the girl.  
b. The girl is hit by the boy.  
c. It is the boy who hits the girl.  
d. It is the girl whom the boy hits.

The reader will probably find it easy to see that all the sentences in (1) describe the action depicted by picture *a* in Figure 12.1. Although these sentences may all seem relatively simple to the reader, there is evidence that healthy adult



**FIGURE 12.1.** A set of action pictures from a sentence-picture matching test (Magnúsdóttir and Þórðardóttir 2013).

native speakers of English are more likely to misinterpret sentences like (1b, d) than (1a, c) (see, for example, Ferreira 2003).

Figure 12.1 is taken from a sentence-picture matching test that was designed to compare comprehension of different types of Icelandic sentences by Icelandic-speaking children in Iceland, healthy adults, and aphasic patients (Magnúsdóttir and Þórðardóttir 2013; see also Magnúsdóttir 2000). This test was included in the test package used in the Icelandic Heritage Language Project to elicit data about the nature of North American Icelandic (NAI) and compare the results with those for two age groups of adult speakers of Icelandic in Iceland (IceIce). The results were compared with results that had already been obtained for Icelandic-speaking children and people with aphasia. The goal was to answer the following research questions:

2. a. Are Icelandic sentences that have been shown to be difficult to understand for children acquiring Icelandic and for Icelandic aphasic patients also difficult to understand for speakers of NAI?
- b. Are these sentences also difficult to understand for different age groups of adult speakers of IceIce?
- c. What do the results tell us about the nature of challenges involved in the comprehension of syntactically complex sentences?

## || SUBJECTS AND METHODOLOGY

### Subjects

The new data elicited for this study come from the three groups of speakers described in Table 12.1.<sup>1</sup> The data for speakers of NAI were collected in the field trips to Canada and the United States in 2013–14 described in the introduction to this book. The data for the adult speakers of Icelandic in Iceland were collected in Reykjavík in 2015.

SPEAKER GROUP	MALE	FEMALE	TOTAL	MEAN AGE
Adult NAI	11	22	33	73.2
Older Icelce ( > 70)	10	20	30	76.6
Younger Icelce (30–40)	10	20	30	34.4

TABLE 12.1. Three groups of speakers compared in the present study.

As described in the introduction to this volume, speakers of NAI are descendants of the Icelanders who emigrated to North America between 1870 and 1914. English was the dominant language in the areas of Canada and the U.S. where the immigrants settled, so they had to learn it to some extent. Later generations grew up in an environment where both Icelandic and English were used, and eventually the Icelandic they used developed into a typical heritage language and its use was for the most part limited to interaction with members of the family and friends (see, for example, Arnbjörnsdóttir 2006, especially ch. 2). In circumstances such as these, heritage languages tend to eventually die out, and this presumably will be the fate of NAI, although it has lasted longer than many languages in a similar situation (for possible reasons, see the discussion in the introduction to this volume, and Arnbjörnsdóttir 2006, ch. 2). The subjects interviewed in our Heritage Language Project spoke NAI to different degrees, some of them very fluently, others to a limited extent. As is to be expected, receptive use (understanding) was typically better than productive use (speaking). But even speakers who have good receptive

command of languages may find some syntactic constructions more difficult than others.

### Methodology

As briefly illustrated above, the stimulus material used in this study consisted of line drawings, arranged horizontally in a three-picture choice format. Each set of three consisted of a picture depicting the action described in the relevant sentence (for example, picture *a* in the set in Figure 12.1 above for the sentences in (1)), a reversible of the target sentence (for example, picture *c* in Figure 12.1 for the sentences in (1)), and a lexical foil, a picture showing some totally different action (cf. *b* in Figure 12.1). There was a total of sixty test sentences and sixty sets of pictures. The test sentences were read to the subjects, one at a time, and the subjects were asked to respond by pointing to the picture that best described the content of each sentence. All the sentences were grammatically well-formed (see, however, the comments on sentence (4b) below). Six transitive lexical verbs were used in the stimulus sentences, and all refer to actions that could easily be depicted in a simple drawing. The verbs used are listed in (3) and, as shown there, three of them take an accusative object and three a dative object (see also the example sentences in (4)):

3. a. *lemja* 'hit' (acc.)
- b. *ýta* 'push' (dat., for example, in a swing)
- c. *klappa* 'pat' (dat., for example, on the head)
- d. *kitla* 'tickle' (acc.)
- e. *greiða* 'comb' (dat., as in combing one's hair)
- f. *mála* 'paint' (acc., as in face painting)

Some of the pictures, however, depicted other actions (in the lexical foils), such as driving (cf. picture *b* in Figure 12.1), kissing, catching, chasing, et cetera. At the beginning of the testing session, the examiners made sure that the subjects were familiar with the six main verbs used in the stimulus sentences. The nouns *stelpa* 'the girl' and *strákurinn* 'the boy' were used alternatively as agents and patients (see the example sentences in (4) below), and the order of the stimulus sentences was randomized.

## || THE SENTENCE TYPES TESTED

To be able to point to the appropriate picture in the test described above, the participants had to identify the agent and the patient in the stimulus sentence. What this involves can be explained by using the English examples (1a, b), repeated here for convenience:

1. a. The boy hits the girl.
- b. The girl is hit by the boy.

In a simple active sentence like (1a), the subject *the boy* is the agent and the object *the girl* is the patient and the relevant activity is shown in picture *a* in Figure 12.1 above. In sentence (1a) the subject precedes the object, which is the default word order in English. In the passive variant (1b), the grammatical subject is *the girl*, and it comes in the initial position in the sentence but is still the patient of the action. The agent *the boy* follows it in the prepositional phrase *by the boy*. We see, then, that the agent does not always precede the patient in English sentences, although that is typically the case. A common description of the relationship between active-passive pairs like (1a, b) states that in the passive version, the phrase that would be the object in the active variant has been “moved” to the subject position but its semantic role (here that of a patient) remains unchanged.

The syntax of Icelandic is very similar to that of English in many respects. In both languages the default word order is SVO (subject-verb-object). Since the subject of a simple active sentence is very often the agent of the action, this means that agent-first sentences are very common in Icelandic. With this in mind, the test used was designed in a way that made it possible to investigate, among other things, whether the order of agent versus patient influenced the interpretation of the sentences. An annotated list of the ten stimulus sentence types is given in (4). The examples in (4) all involve the lexical verb *lemja* ‘hit’, but in the actual test all six main verbs listed in (3) were used in every sentence type, giving a total of sixty stimulus sentences:

4. a. **Active.** Agent subject precedes patient object.

Strákurinn      lemur    stelpuna.  
 boy-the (nom.) hits      girl-the (acc.)  
 ‘The boy hits the girl.’

- b. **New impersonal/passive.** Dummy subject *það* ‘there’, patient in object position, no agent mentioned.

Það      er    lamið      strákin.  
 there    is    hit (n.sg.) boy-the (acc.)  
 ‘The boy is hit.’

- c. **Short passive.** Patient subject, no agent mentioned.

Strákurinn      er    laminn.  
 boy-the (nom.) is    hit  
 ‘The boy is hit.’

- d. **Long passive.** Patient subject precedes the agent, which is in a prepositional phrase.

Stelpa              er      lamið    af strákinum.  
 girl-the (nom.) is      hit      by boy-the (dat.)  
 ‘The girl is hit by the boy.’

- e. **Wh-subject question.** Asks about the agent—hence the agent precedes the patient.

Hvaða stelpa      lemur    strákin?  
 which girl (nom.) hits    boy-the (acc.)  
 ‘Which girl hits the boy?’

- f. **Wh-object question.** Asks about the patient—hence the patient precedes the agent.

Hvaða stelpu      lemur    strákurinn?  
 which girl (acc.) hits      boy-the (nom.)  
 ‘Which girl does the boy hit?’

g. **Subject cleft sentence** (that includes a relative clause).

Focuses on the agent—hence the agent precedes the patient.

Það er stelpa sem lemur strákin.  
 it is girl-the (nom.) that hits boy-the (acc.)  
 ‘It is the girl who hits the boy.’

h. **Object cleft sentence** (relative clause). Focuses on the patient—hence the patient precedes the agent.

Það er stelpa sem strákurinn lemur.  
 it is girl-the (nom.) that boy-the hits  
 ‘It is the girl whom the boy hits.’

i. **Topicalization** with an auxiliary verb. The patient precedes the agent.

Stelpuna er strákurinn að lemja.  
 girl-the (acc.) is boy-the (nom.) to hit (inf.)  
 ‘The girl, the boy is hitting.’

j. **Topicalization** with no auxiliary verb. The patient precedes the agent.

Stelpuna lemur strákurinn.  
 girl-the (acc.) hits boy-the (nom.)  
 ‘The girl, the boy hits.’

As the glosses and the idiomatic translations indicate, some of the syntactic structures tested have close parallels in English and should need no particular explanation. Some clarifications are in order, however:

5. a. The **New impersonal/passive** in (4b) has no counterpart in English. It is a relatively new construction in Icelandic (see, for example, Maling and Sigurjónsdóttir 2002), and it has the same auxiliary-main verb combination as a regular passive (the verb *vera* ‘be’ plus a past participle, for example, *er lamið* ‘is hit’). But it is a hybrid construction because despite the passive auxiliary, the object patient stays in situ, following the main verb, as in the active sentence (4a), and keeps the

relevant object case (here, accusative). Because of this hybrid nature (see most extensively Sigurðsson 2012), it goes by two different names in the linguistic literature. This construction is much more readily accepted by younger than older speakers.

- b. Since Icelandic is a V2 (verb-second) language, the finite verb will immediately follow the first constituent in the sentence, even when this constituent is a fronted object as in (4f, i, j). Hence, we get the order OVS (object-verb-subject) in sentences of this type and not the default SVO. This is different from English, as the glosses and idiomatic translations show, because English is not a V2 language.
- c. In Icelandic the arguments (the subject and object noun phrases, NPs) are case marked. This is an important cue for the correct interpretation of some of the structures, especially when the word order may be misleading. Note in particular that in (4f) the order of the arguments is patient-agent, namely the opposite of the usual order, and **the only cue** that tells the listener (reader) that this is so is the case marking of the arguments: the accusative on *hvaða stelpu* ‘which girl’ shows that it must be the object—and hence the patient—although it precedes the nominative subject *strákurinn* ‘the boy’. Similarly, in (4j) **the only cue** for correctly interpreting the arguments is the case marking: the accusative on *stelpuna* and nominative on *strákurinn* show that the former must be the patient-object and the latter the agent-subject. Thus (4j) means the same thing as (4a), although the order of the noun phrases (the arguments) is reversed.

Previous research on Icelandic has shown that (some) Icelandic speakers with aphasia can make use of case marking as a morphological cue for argument interpretation (see Magnúsdóttir 2000), and so can young Icelandic children (four to seven years old) to some extent (see Hreggviðsdóttir 2018). But they still find sentences difficult to interpret when the interpretation solely depends



on the case marking, as in (4f, i) (see Hreggviðsdóttir 2018; Sigurjónsdóttir 2015). In the next section we will see to what extent speakers of NAI can make use of case marking as an interpretation cue.

Picture selection tasks of various kinds are commonly used to assess the linguistic development of children (for an overview and evaluation, see Gerken and Shady 1996). The particular test under discussion here was originally designed for a study of the nature of agrammatism in Icelandic subjects (Magnúsdóttir 2000), and revised versions were later used to evaluate the linguistic development of Icelandic-speaking children (Þórðardóttir 2014; Sigurjónsdóttir 2015; Hreggviðsdóttir 2018). These studies indicated that the order of agent versus patient in the stimulus sentences was one of the characteristics that had an effect on the score of the subjects. That may be a part of the reason why these subjects found passive sentences containing two arguments more difficult to understand than corresponding actives, for instance. There is also some evidence that heritage language speakers tend to have problems understanding passives and sentences where the word order deviates from the default one. Thus Benmamoun, Montrul, and Polinsky (2013, 150) report on a study of Russian heritage speakers (Polinsky 2009) whose dominant language was English (the default word order in Russian is SVO as in English). Their conclusion was that “regardless of voice, heritage speakers have serious problems when the word order departs from SVO; they also have problems with the passive” (Benmamoun, Montrul, and Polinsky 2013, 150). They also report on a number of studies on heritage languages (2013, 151) that suggest that heritage speakers may have problems with *wh*-questions (see (4e–f) above) and object relative clauses (cf. the object cleft in (3h)). Anderssen and Westergaard (2016) also mention problems with non-canonical word order by speakers of heritage Norwegian.

Given this background it will be interesting to compare the results for the heritage speakers of NAI on the test under discussion with results obtained for different groups of speakers of Icelandic.

## || RESULTS AND DISCUSSION

### **The Heritage Language Results in the Light of Previous Research**

In this section we will first answer research question (2a), repeated here for convenience:

2. a. Are Icelandic sentences that have been shown to be difficult to understand for children acquiring Icelandic and for Icelandic aphasic patients also difficult to understand for speakers of NAI?

This question is obviously interesting from a descriptive point of view since its answer will tell us something about the properties of NAI. But it is also important from a theoretical point of view. Recall that many of the syntactically complex sentences exemplified in (4) above include “displaced” arguments, that is, noun phrases (NPs) that refer to patients of the relevant action but precede the agent NP, which is not the “canonical” order of constituents, or occur in a position that is more commonly occupied by the agent. As pointed out above, this is often described in terms of “movement” of these constituents to particular structural positions. Linguists have argued that understanding sentences of this type requires the ability to make use of complex structures and computations in the mental grammar of the speakers. While the accounts of the problems that children and aphasic patients have in understanding certain syntactically complex sentence types vary in detail, they can be divided roughly into two main groups. Their main differences are summarized in a simplified fashion as hypotheses A and B:

6. **Hypothesis A:** The problems can be attributed to underdeveloped internal grammar (in the case of children) or to the loss of critical properties of syntactic knowledge and processes in general (in the case of speakers with aphasia).

**Hypothesis B:** The reason why these sentence types are difficult to understand for children and people with aphasia is the fact that they are difficult to process for structural reasons, not because the relevant grammatical structures have not been acquired (by children) or because they have been lost (in speakers with aphasia).

It is not necessary for our purposes to go into the theoretical details behind these hypotheses.<sup>2</sup> It is enough in this context to realize that the two hypotheses (or two types of hypotheses) make different predictions:

7. a. Under **Hypothesis A** there is no particular reason to expect that healthy adult speakers of heritage languages will have similar problems as children and people with aphasia in understanding these syntactically complex sentences since their general capability to learn a language (their mental grammars) is clearly fully developed and normal, as seen in their linguistic competence in the dominant language.
- b. Under **Hypothesis B** we expect that heritage speakers might have similar problems as children and speakers with aphasia in understanding these syntactically complex sentences since they should be difficult to process for all speakers, albeit to different degrees.

To test these predictions, we will now compare the results for a group of NAI speakers with those previously obtained for two other groups:

8. a. Three Icelandic-speaking agrammatic patients, sixty-two, sixty-three, and sixty-eight years old (see Magnúsdóttir 2000, 56).
- b. One hundred and twenty Icelandic-speaking children between two and a half and six years old (more specifically aged two years and six months to five years and eleven months, see Þórðardóttir 2014, 32).
- c. Thirty-three speakers of NAI around seventy years of age (mean age 73.2 years).

The percentage of target answers (correct answers) by these three groups for the ten different sentence types can be seen in Figure 12.2.<sup>3</sup> As Figure 12.2 shows, the following holds for all three groups:

- Structures where the patient has been “displaced” from its regular position and comes first (and thus precedes the agent where there is

one) are more likely to be wrongly interpreted than structures where the patient is “in situ” (in its default place). Thus, passives are more difficult than actives (see (4c,d) versus (4a)—and also (4b)), object *wh*-questions are more difficult than subject *wh*-questions (see (4f) versus (4e)), object clefts are more difficult than subject clefts (see (4h) versus (4g)), and both topicalization structures are relatively difficult (see (4i,j)).

- Note also that even for the difficult types, all three groups typically score over 50 percent (the exceptions will be discussed below). This is interesting from a theoretical point of view since some of the accounts proposed for the performance of aphasics and children on structures of this kind predict that they should perform at a chance level since they would basically be guessing who is the agent and who is the patient (see the overview in Grodzinsky 2000, for instance).<sup>4</sup>

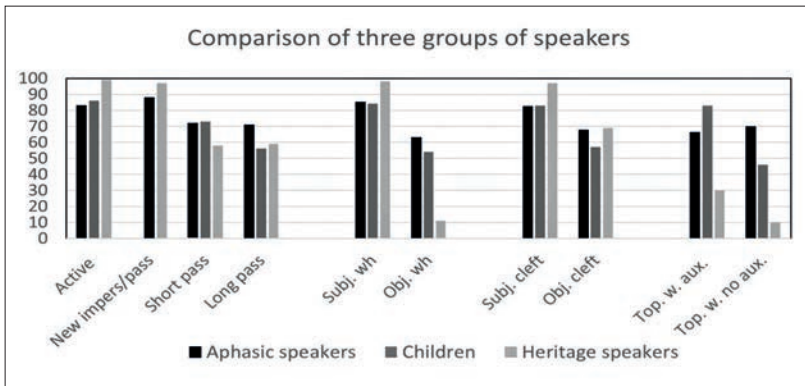


FIGURE 12.2. Scores on the sentence–picture matching test for three groups of speakers.

As Figure 12.2 shows, the New impersonal/passive patterns with the regular active. This is not surprising since the only argument in that construction is the patient in situ and thus it does not involve any “displacement” of arguments. It is also interesting to see that the short passive, where no agent is mentioned (see (4c)), seems slightly easier to interpret for the children than the longer version, where the agent is present in a final prepositional phrase (see (4d)). It is not entirely clear why this is the case.

The similarities just described arguably support Hypothesis B rather than Hypothesis A: the structures that are difficult for Icelandic children and speakers with aphasia are also difficult for the heritage speakers. Not surprisingly, the “easy” constructions are also easy for the heritage speakers. It is interesting to note that the heritage speakers typically perform perfectly on those, whereas the other speakers make a few mistakes.

There is one glaring exception to the similarities: the heritage speakers cannot really make any use of the case-marking cue, whereas the other groups can, to some extent, especially the aphasic patients.<sup>5</sup> As explained above, case marking is the only cue that distinguishes object *wh*-questions from subject *wh*-questions. In the topicalization without an auxiliary verb (see (4j)), case marking is the only cue that indicates that the first NP is actually the patient and the second one the agent, namely that the order is the reverse of the default one. As Figure 12.2 shows, the heritage speakers misinterpreted these structures about 90 percent of the time. This means that their interpretation was based on the expected order of the arguments and not on the case marking. The children perform a little over chance performance (50 percent) on the object *wh*-constructions and topicalization without an auxiliary, showing that they are not completely led astray by the word order in these constructions although they are not as good as the adult speakers with aphasia in making use of the case-marking cue.

Leaving the case-marking issue aside, the results summarized in Figure 12.2 are compatible with Hypothesis B; that is, they could be due to processing difficulties: constructions that involve the “displacement” of arguments are more difficult to process than those that do not, other things being equal. But why are they difficult for heritage speakers? Recall that the mean age of the heritage speakers tested was around seventy years. One possibility is thus that this relatively high age had some influence on their performance in the sentence-picture matching task.

### **Speakers of North American Icelandic and Icelandic Icelandic**

One interesting aspect of heritage language research in small language communities is the speakers’ demographics. As has been mentioned, NAI currently survives in older speakers of the North American Icelandic

communities. This adds an interesting dimension to the research project: namely, whether characteristics of NAI speakers are shared by IceIce speakers of the same age. In the case of the understanding of complex sentences, we therefore wanted to investigate whether the difficulties experienced by NAI speakers were also present in two control groups of adult IceIce speakers. As shown in Table 12.1 above, the average age of the older control group was about the same as that of the heritage speakers (76.6 versus 73.2 years), whereas the other group was much younger (average age 34.4 years). By comparing these three groups of normal adult speakers, we hoped to be able to disentangle the effects of being a heritage speaker and the effects of simply being an older speaker.

It is important for researchers to learn more about possible age effects on language tasks to be better able to interpret results where age makes a difference. But why would we expect there to be an age effect when it comes to understanding complex sentences? While it is widely recognized that language production shows marked age-related decline, particularly word-finding difficulties, increased slips of the tongue, and pauses in speech, language comprehension is typically considered to be well-preserved in older adults (see Burke and Shafto 2008). But, relevant to Hypothesis B in the previous section, studies on the processing of complex sentences have shown that older speakers might make use of compensatory knowledge-based strategies where plausibility evaluation may play a role. In other words older speakers are able to compensate for difficulties in the processing of complex sentences by making use of their experience (Federmeier and Kutas 2005; Wingfield and Grossman 2006). One question is then whether this also holds true for heritage speakers, who by definition have not had the same exposure to the relevant language as the native speakers—their linguistic experience is less extensive.

Recall that in the previous section, it became clear that NAI speakers tended to interpret the sentences based on the argument order and that case cues in particular were not useful. In Figure 12.3 we compare their results to the IceIce control groups.

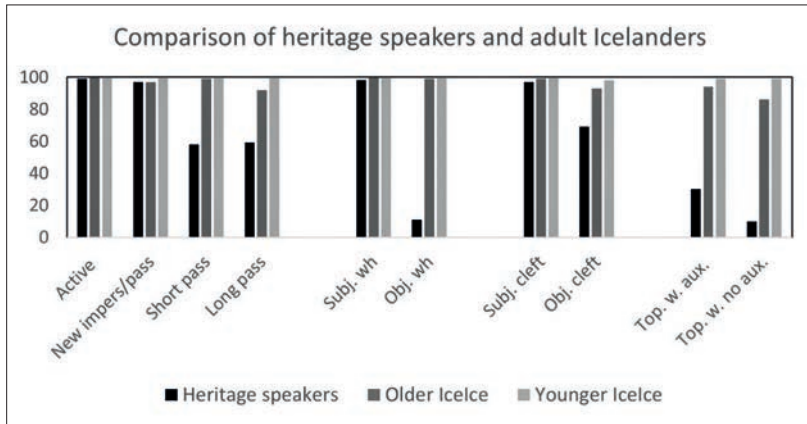


FIGURE 12.3. Scores on the sentence-picture matching test arranged by sentence types.

In Figure 12.3 the results for the different sentence types are presented in the same way as in Figure 12.2. One of the key results emerging in the patterns across sentence types, as has been mentioned already, is that the difficulties heritage speakers encounter are not general sentence comprehension difficulties but are linked to specific constructions. This is also true of the older Icelce speakers, who do have slightly more difficulties than the younger Icelce speakers but fewer than the heritage speakers. The reported effects are present only in certain contexts. As can be seen in Figure 12.3, this pattern (Younger Icelce speakers > Older Icelce speakers > NAI speakers) appears in the results for short and long passives, *wh*-object questions, object clefts, and both topicalization structures. A statistical analysis of the results further confirms the effects of sentence type, age, and heritage speaker status.<sup>6</sup> This leads us to the conclusion that sentences where there has been some “movement” are hard to understand but that argument reversal might prove even more difficult. This is particularly true for the NAI speakers, with their scores differing the most from the Icelce speakers, and in some cases dropping below chance, when the patient appears before the agent. The sentences that cause the most difficulties across groups are those where both movement and argument reversal are present and case is the only cue for the roles of the arguments and therefore the meaning of the sentence.

In Figure 12.4 the scores are arranged by speaker groups to show more clearly that the differences between the groups are both quantitative and

qualitative. Figure 12.4 shows, for instance, together with Figure 12.3, that the heritage speakers find short and long passives equally difficult to interpret while the older Icelce speakers find long passives more difficult than the short ones. Conversely, the NAI results show a large contrast between *wh*-subject and *wh*-object questions while the difference is very small for the older Icelce speakers. However, the contrasts between the two types of clefts and between the two types of topicalization are similar. Therefore, we can say that an agent-patient argument order helps everyone, but heritage speakers depend on it. Additionally, case is a useful cue for the Icelce speakers, but many heritage speakers do not make any use of it. Lastly, we could argue that frequency/naturalness is important for older (but not younger) non-heritage speakers, since the long passives scores are significantly lower than the scores for the short passive (long passives are less common in Icelandic than in English, for instance). It is also interesting to note that the older Icelce speakers are the only group where the scores for the New impersonal/passive are lower than the scores of the active, despite the fact that this construction is not used in North America, to the best of our knowledge. As pointed out above, this is a construction that is hardly ever used by older speakers of Icelce, so familiarity will arguably not play a role for them.<sup>7</sup>

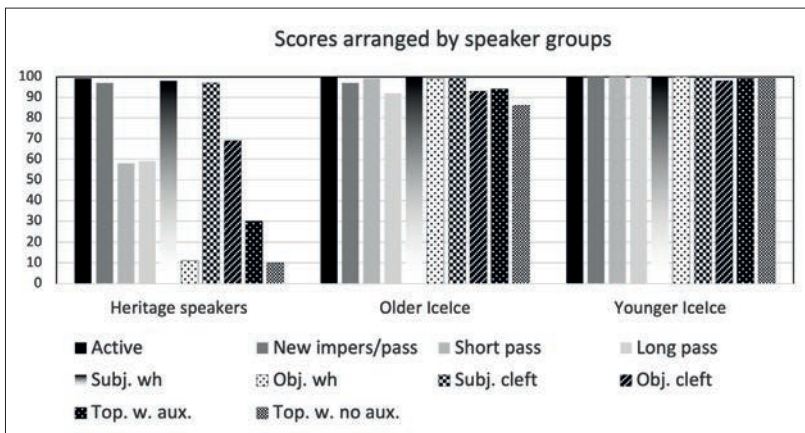


FIGURE 12.4. Scores on the sentence-picture matching test arranged by speaker groups.

Summing up, we can say that aging effects are present in the data but are much less extensive than the effects of being a heritage speaker. The



aging effects are qualitatively different, allowing us to partly disentangle the different components of difficulties in the understanding of complex sentences. In general, the results underline the need for a broader interpretation of age correlations in heritage language studies and point to possible confounds in language comprehension/processing research. More specifically, the fact that the two groups of adult IceIce speakers show (minor) difficulties in the same sentence types that prove the hardest for heritage speakers, children, and people with aphasia provides further evidence for Hypothesis B. Certain sentences are difficult for all groups of speakers.

## || CONCLUSION

Although the sentence-picture matching method has been used to some extent in previous research on heritage languages, our study involves a systematic comparison of more constructions and more groups of speakers than any studies of which we are aware. This allows us to reach the following conclusions.

Although certain sentence types prove to be difficult across all five groups of speakers we tested, more specific patterns are present. The heritage speakers show results similar to those found in language acquisition data: rigid word order interpretation where the first argument is analyzed as the subject (and agent) and case cues are ignored. This is contrary to some of the results for speakers with aphasia but consistent with previous findings from heritage speakers of other languages. One of the factors that might play a role in the NAI speakers' results is their age, since processing abilities are known to decline in healthy aging. Our results show that this factor would play only a minor role. When compared with the heritage speakers, the older IceIce group shows a less consistent and clear pattern, which might be compatible with the hypothesis of knowledge-based compensation strategies.

In general, we find that some sentences seem to be complex and difficult to understand for everyone, or at least for our very diverse set of participants. We hope that such a simple finding provides a useful reminder that the performance of speakers in a given task cannot easily be attributed to a specific aspect of their background, and neither can it justify certain assumptions about the speakers' general linguistic capabilities.

## NOTES

- 1 In a previous article (Magnúsdóttir, Nowenstein, and Thráinsson 2018), we reported on the score by twenty-one of the thirty-three Icelandic heritage speakers included here. Hence, the figures in the present paper are slightly different but the conclusions are the same.
- 2 For a presentation of some of the arguments for Hypothesis A, see the overview paper by Grodzinsky (2000). For a critical discussion, partly supporting Hypothesis B, see the comments accompanying that paper. See also Grodzinsky's replies to these and the papers by Grodzinsky (2006) and Drai (2006) for further discussions along the same lines. Compare also Hirsch and Wexler (2006) on word order and passive, and Kemper and Sumner (2001) on working memory, sentence length, vocabulary, and complex grammar.
- 3 The New impersonal/passive construction was not a part of the test administered to the aphasic subjects.
- 4 For a discussion of how to account for intersubject variation in the performance of aphasics, see Drai (2006).
- 5 The children tested by Hólmfríður Hreggviðsdóttir (2018) were in general older than the ones reported on here and were able to make more use of the case-marking cue.
- 6 Nested comparison of mixed effects logistic regression models—first for the general dataset and then for each sentence type. The fit of the general model (Likelihood Ratio Test) improved significantly for each added fixed effect: age ( $\chi^2(1) = 15.43$ ,  $p < 0.001$ ,  $\pm$ heritage  $\chi^2(1) = 70.43$ ,  $p < 0.001$ , and sentence type  $\chi^2(9) = 887.90$ ,  $p < 0.001$ ). The age and  $\pm$ heritage variables both improved the model fit for long passives and topicalization sentences without an auxiliary but patterned differently otherwise.
- 7 Note also that one of the differences between regular passive and the New impersonal/passive is the case marking of the argument, cf. *Strákurinn er barinn* 'The boy (nom.) is hit' versus *Það er barið strákin lit.* 'There is hit the boy (acc.)' For older speakers of IceIce, who do not use the New impersonal/passive, this may contribute to the strangeness of the construction, whereas case marking seems to be generally ignored by many speakers of NAI.

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