

The Development of Object Shift in Icelandic Child Language

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1. Introduction and background

The Scandinavian languages exhibit object shift (OS), where an object moves leftward across a sentential adverb, as in the examples from Icelandic in (1).

- (1) a. *Ég las {hana} aldrei {*hana}*
I read her never her
'I never read it.'
- b. *Ég las {þessa bók} aldrei {þessa bók}*
I read this book never this book
'I never read this book.'

As can be seen in (1), Icelandic has both pronominal OS, as in (1a), and shifting of lexically headed DPs, as in (1b), which we will here refer to as *full DP OS*. While unstressed pronouns obligatorily shift, shifting lexically headed DPs and stressed pronouns is optional (Thráinsson 2007:32ff, 65ff). Most objects that shift are definite. Indefinite DPs can generally not shift, but it is sometimes possible if they have specific reference, see (2), where OS can take place in (2b) when the intended meaning is that there are three specific books that the speaker did not read.

- (2) a. *Ég les {?*bækur} aldrei {bækur}*
I read.pres books never books
'I never read books.'
- b. *Ég las {þrjár bækur} aldrei {þrjár bækur}*
I read.past three books never three books
'There are three books that I never read.'

(Thráinsson 2007:32–33)

Both pronominal OS and full DP OS are subject to Holmberg's generalization (Holmberg 1986), i.e. objects can only shift if the verb has evacuated the vP, see (3).

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- (3) a. *Ég hef {*hana} aldrei lesið {hana}*
 I have her never read her
 ‘I have never read it.’
- b. *Ég hef {*þessa bók} aldrei lesið {þessa bók}*
 I have this book never read this book
 ‘I have never read this book.’

While Icelandic OS has been a major topic in theoretical syntax (see Collins & Thráinsson 1996; Thráinsson 2001, 2007 and references cited there), the development of OS in Icelandic child language has not been studied systematically, and little is known about how it is acquired.¹ Previous research on the acquisition of OS in Norwegian and Swedish, where only pronominal OS is possible, see (4), shows that it is rare in child language and acquired late.

- (4) a. *Jag läste {den} aldrig {?den}*
 I read it never it
 ‘I never read it.’
- b. *Jag läste {*den boken} aldrig {den boken}*
 I read this book.def never this book.def
 ‘I never read this book.’

Josefsson (1996) analyzed 40 recordings of four Swedish children aged 1;8–3;6 which contained only five instances of OS in total. A follow-up elicitation task with 15 children aged 2;5–7;5 confirmed that the construction was not mastered until the children were 5–7 years old. Similarly, Anderssen et al. (2010) investigated 70 recordings of three Norwegian children aged 1;9–3;0, and found 10 instances of OS. In an elicitation task with four children they found evidence for a delay in the acquisition of the construction, which was not fully mastered at age 5–6. A larger experimental study by Anderssen et al. (2012) confirmed the result. In an elicited production task with 27 Norwegian children aged 4;0–7;0, they found a prolonged delay in the acquisition of OS. Even the oldest children left topical pronominals, which should obligatorily shift, in situ 30% of the time. However, the study also indicates that children have certain knowledge of the operation, since there was no overgeneralization of OS. Objects that cannot shift, like contrastive, possessive, and indefinite pronouns always had target-like placement in the children’s data.

In this paper, we present the first study of the acquisition of Icelandic OS. Based on a study of two longitudinal corpora we sketch an acquisition process in three stages: an object in situ stage, a mixed stage, and an adult-like stage. The longitudinal data suggests that pronominal OS may be acquired earlier than in Mainland Scandinavian, a hypothesis for which we find further support in short

¹ But see Sigurjónsdóttir (2008) for some interesting examples from Icelandic child language.

transcripts from 66 other children. We argue that a key to understanding the earlier acquisition of pronominal OS in Icelandic is the consistent shifting of pronouns, not only with nominal antecedents but also with antecedents which are non-nominal, like *það* ‘that’ and *þetta* ‘that’, in (adult) Icelandic. The data and this finding relate to acquisition in two ways. On the one hand, Icelandic pronominal OS is a more uniform and consistent operation in comparison to Norwegian and Swedish pronominal OS, since all unstressed pronouns, including those with non-nominal antecedents, obligatorily shift. And on the other hand, the high rate of non-nominal pronouns in the relevant contexts for pronominal OS contributes to making the input more uniform in Icelandic than in Norwegian and Swedish.

2. Data

The study is based on longitudinal data and shorter language samples from Icelandic children. The longitudinal data is from two Icelandic girls, Eva (age 1;1–2;4, 25 60-minute tapes, approximately 32,000 words) and Fía (age 0;10–4;3, 17 60–90-minute tapes, approximately 34,000 words), recorded by Sigurjónsdóttir in 1998–2000 and 2004–2007, respectively (Sigurjónsdóttir 2007). For the discussion of caregiver data in section 5, we studied the recordings of Fía’s mother from the tapes in the Fía corpus from age 1;9:15 to 2;10:4.

We also studied pronominal OS in transcripts from 66 other children. 51 of these are from 51 hour-long recordings of different children between the ages of 1–6 (also from Sigurjónsdóttir). The children were each recorded twice, for approximately 30 minutes each time, and the sound files transcribed. Additionally, we studied 15 shorter transcripts (ca 100 lines per recording) from children aged 2–6 collected and made available online by Einarsdóttir (2018).

3. The longitudinal data: Three developmental stages

The longitudinal corpora were read through and all utterances with a sentential adverb and a potential² DP object were excerpted and annotated for object type (lexically headed/pronominal), definiteness (definite/indefinite), and the position of the object (Obj-Adv or Adv-Obj). On the basis of this analysis, we were able to identify three developmental stages: An object-in-situ stage (Stage 1), a stage with some shifting (Stage 2), and a stage with target-like placement (Stage 3). Table 1 shows the placement of objects in relation to sentential adverbs in the speech of Eva and Fía (N=142).³

² In some cases, it is not entirely straightforward to tell whether a DP is an object or not, see the discussion about verbless utterances in section 3.1.

³ Examples with a complex *vP*, where OS is blocked for structural reasons, as we saw in (3), were excluded.

Table 1. The placement of objects in the girls' speech

Age	Eva (N=40)				Fía (N=102)			
	Full DPs		Pronouns		Full DPs		Pronouns	
	O-Adv	Adv-O	O-Adv	Adv-O	O-Adv	Adv-O	O-Adv	Adv-O
< 2;0	1	24	0	3	0	17	0	13
2;0–3;0	1	3	3	5	0	15	4	6
3;0 <	No data		No data		0	17	27	3

In the table we show the distribution at ages < 2;0, 2;0–3;0, and 3;0 <, which correspond roughly to the three stages which will be described in more detail in the following sections. It should be noted, however, that part of the development is only available for Fía, since the recordings of Eva end at age 2;4. The low numbers in the second row of the table (2;0–3;0) for Eva should be interpreted with this in mind.

3.1. Stage 1: Objects in situ

In the earliest recordings, when the girls are < 2;0 years old, a large number of the relevant utterances (36 out of 58) are verbless, as in (5).

- (5) a. ekk' **hala** (Eva 1;7:1)
not tail Adv-O
'Not tail.'
- b. mamma ekki **þessa** (Fía 1;9:20)
mom not these Adv-O
'Mom not these.'
- c. ekki **þetta** (Fía 1;10:1)
not this Adv-O
'Not this.'
- d. nei ekki **það** (Fía 1;10:22)
no not that Adv-O
'No, not that.'
- e. stelpa **gleraugu** ekki (Eva 1;4:3)
girl glasses not O-Adv
'Girl (Eva) doesn't wear glasses.'

The only adverb that the girls use in the relevant utterances at this stage, and that can potentially be used as a sentential modifier, is the negation *ekki* ‘not’. Since *ekki* may also be used to narrowly negate only a constituent, this means that it is not clear that all of these utterances involve sentential modification and an object. The context can sometimes be suggestive, but it is not always possible to be certain of which type of modification was intended. Consider for example (5a), where the utterance consists of negation and the DP *hala* ‘tail’ in oblique form. The girl was pointing at the tail feathers of a bird as she uttered this, and her mother was telling her that a bird’s tail is not called *hali* ‘tail’ in Icelandic, but rather *stél* ‘tail of bird or airplane’. In this context, (5a) could mean, among other things: ‘this is not a tail’, ‘isn’t this a tail?’, or perhaps ‘the bird does not have a tail’.

Out of the 36 DPs that were judged as potential objects in the verbless utterances, only one, (5e), preceded negation. Like in (5a), we cannot be sure whether we are dealing with target-like object shift or some other structure. The target sentence, considering the context which was a conversation about who was wearing glasses and who wasn’t, was probably something like *Eva er ekki með gleraugu* ‘Eva doesn’t wear glasses’. While we can thus say that we mostly see the order negation–DP in these early verbless utterances, they do not tell us anything definitive about object shift.

In addition to the verbless utterances, there are also 22 utterances with a verb, which can tell us more. A few examples are shown in (6).

- (6) a. *ég vil ekki vatn* (Eva 1;6:10)
 I want not water Adv-O
 ‘I don’t want water.’
- b. *Eva á ekki þetta golfsett* (Eva 1;8:11)
 Eva owns not this golf set Adv-O
 ‘Eva doesn’t own this golf set.’
- c. *ekki amma á ekki bananabílnum* (Fía 2;0:10)
 not grandmother owns not banana car.def Adv-O
 ‘Not grandmother owns not the banana car.’
- d. *ég vil ekki hinn* (Eva 1;10:14)
 I want not the other Adv-O
 ‘I don’t want the other one.’
- e. *Eva á ekki mig* (Fía 2;1:18)
 Eva owns not me Adv-O
 ‘I’m not Eva’s.’

The girls use both lexically headed and pronominal DPs as objects, but it is worth noting that the object pronouns at this stage are usually demonstrative rather than personal, even if there are a few exceptions, such as (6e). As can be seen in (6), objects are left in situ across the board, regardless of definiteness/specificity, and

of whether the object is lexically headed or pronominal. We therefore call this stage the object-in-situ stage. The utterances with lexically headed objects, (6a)–(6c), are target-like, since full DP OS is never obligatory. The utterances with pronominal objects (6d)–(6e), however, are not target-like, if the objects are not stressed.

3.2. Stage 2: The mixed stage

Both girls shift their first objects soon after their second birthday and have then entered the second stage in the development of object shift. The first examples of shifting are shown in (7).

- (7) a. hún er () ((HL)) sér **dýrin** ekki ((HL)) (Eva 2;0:16)
 she is LOL sees animals.def not LOL O-Adv
 ‘She doesn’t see the animals.’
- b. ég held **það** nú ekki (Eva 2;2:16)
 I think that now not O-Adv
 ‘I don’t think so.’
- c. veit **það** ekki (Fía 2;1:29)
 know that not O-Adv
 ‘Don’t know.’

As can be seen in (7), we have found target-like examples from Eva shifting both a lexically headed DP and a pronoun at around two years old, whereas we found no full DP OS in the data from Fía at this age. She does, however, shift her first pronominal object at age 2;1:29. We call this stage the mixed stage, since target-like and non-target-like placement of objects co-occur. In (8) we see one non-target-like utterance from each of the girls, where they leave pronouns in situ which obligatorily shift in adult Icelandic.

- (8) a. Lubba finnst ekki **það** best (Eva 2;3:23)
 Lubbi finds not it best Adv-O
 ‘Lubbi doesn’t find it best.’
- b. Guð hjálpar nefnilega ekki **mér** (Fía 2;11:12)
 God helps in fact not me Adv-O
 ‘In fact, God doesn’t help me.’

Fía does not produce any examples of full DP OS, and Eva only shifts one full DP at this stage. However, we do not consider this to be non-target-like. The reason for this is that in addition to being optional, full DP OS has also been shown to be quite rare in adult Icelandic (Thráinsson 2013:162).⁴ We can there-

⁴ Thráinsson searched for full DP OS in a tagged corpus of approximately 500,000 words of written modern Icelandic and found only five instances.

fore not conclude that the girls' production or lack of production of full DP OS, or the frequencies of these structures, are out of the ordinary.

3.3. Stage 3: Target-like placement

For Fía, who was recorded until age 4;3, we see entirely target-like object placement from around age 3;0 (Stage 3). A few examples of pronominal object shift are given in (9).

- (9) a. *Ég veit þetta ekki* (Fía 3;0:9)
 I know this not O-Adv
 'I don't know this.'
- b. *Eva ég næ henni ekki úr þessum bíl* (Fía 3;0:21)
 Eva I get her not from this car O-Adv
 'Eva, I can't get her out of this car.'

From age 3;0, Fía produces 30 potential contexts for pronominal OS, and she shifts 27 out of the pronouns. The three examples of unshifted pronominals are in fact target-like, since they occur in identificational copular constructions, like (10), where the pronoun cannot shift in the target language.

- (10) *þetta er ekki hún* (Fía 4;1:2)
 this is not her Adv-O
 'This is not her.'

All lexically headed DPs are left in situ in our data from this stage, as in (11).

- (11) *já ég kann ekki þetta lag* (Fía 3;5:23)
 yes I know not this song Adv-O
 'Yes, I don't know this song.'

As mentioned in the previous section, full DP OS is rare in adult Icelandic, which means that we cannot conclude anything about the acquisition of full DP OS in Icelandic based on these data. The object placement facts from stage 3 thus point towards Fía having acquired pronominal object shift around age 3;0, but are inconclusive with respect to full DP OS.

Additional evidence that suggests that Fía has acquired pronominal OS at this stage and is using it productively is that there is variation both in which objects are shifted (*það* 'that/it', *því* 'that/it', *þetta* 'that', *henni* 'her', *hann* 'him'), and which verbs occur in the OS clauses (*vita* 'know', *geta* 'be able to', *nenna* 'feel like, bother', *ná* 'get', *vilja* 'want', *sækja* 'get/fetch', *vinna* 'wave'). If this is the case, she has acquired pronominal OS significantly earlier than the children in the previous Mainland Scandinavian studies (Josefsson 1996; Anderssen et al. 2010;

Anderssen et al. 2012), where the experimental studies indicate a delay until a few years later.

4. Earlier acquisition of pronominal OS in Icelandic than in Mainland Scandinavian

Since we only have data for stage 3 for Fía, the early acquisition of pronominal OS may not be typical of Icelandic children. To see if Fía is particularly early compared to other Icelandic children, we analyzed the placement of object pronouns in shorter transcripts from 66 children. Since we were only interested in pronominal OS here and not placement of potential object DPs more generally, we only included utterances with both a verb and a pronominal object. This excludes examples with constituent negation, and rules out that the DP is in fact not an object. The results are given in Table 2.

Table 2. The placement of pronominal objects in the short transcripts

Age (N of kids)	Word order		
	O-Adv	Adv-O	Total
< 2;0 (N=3)	0	0	0
2;0–3;0 (N=12)	1	1	2
3;0–4;0 (N=20)	22	3	25
4;0–5;0 (N=20)	38	3	41
5;0 < (N=11)	25	3	28
Total	86	10	96

In total, there are 86 shifted pronouns in this data set. A few examples are given in (12), where the letters A, B, C etc. represent different children.

- (12) a. veit það ekki (A 3;4:9)
 know that not O-Adv
 ‘Don’t know.’
- b. nei Bryndís sagði það ekki (B 3;6:9)
 no Bryndís said that not O-Adv
 ‘No, Bryndís didn’t say that.’

- c. *ég kann hana ekki* (C 4;1:12)
 I know her not O-Adv
 ‘I don’t know it (a story).’
- d. *já af því ég man það ekki* (D 5;0:28)
 yes because I remember it not O-Adv
 ‘Yes, because I don’t remember it.’

The data set also contains 10 unshifted pronouns. We do not have access to the sound files for the transcripts, but in some cases it appears from the context that the example may in fact be target-like. This is the case, for example, with the first clause in (13), *þú sérð ekki mig* ‘you don’t see me’, where the pronoun is likely to be contrastively stressed given the context, and the child at the end of the utterance adds *en ég sé þig* ‘but I see you’. As described in section 1, shifting stressed pronouns is optional in adult Icelandic.⁵

- (13) *þú sérð ekki mig þú sérð mig ekki en ég sé þig* (E 5;2:8)
 you see not me you see me not but I see you Adv-O
 ‘You don’t see me, you don’t see me, but I see you.’

Other examples are non-target-like, see (14), and indicate that some children may still be in the mixed stage at older ages.

- (14) a. *nei hann get ekki það* (F 3;8:17)
 no he can not that Adv-O
 ‘No, he can’t do that.’
- b. *uhm ég man ekki það alveg* (G 4;1:22)
 uh I remember not it entirely Adv-O
 ‘I don’t remember it entirely.’
- c. *hann þarf ekki okkur* (H 4;2:19)
 he needs not us Adv-O
 ‘He doesn’t need us.’
- d. *við geymum alltaf þetta svona* (I 5;5:5)
 we keep always this such Adv-O
 ‘We always keep this in this way.’

These non-target-like utterances are rare, however, and two of the children produced two unshifted pronouns each, which means that there were actually only six children out of 66 who produced unshifted pronouns. This includes the 5-year-

⁵ It should be noted that the child E uses the alternative, shifted word order in the second clause, *þú sérð mig ekki* ‘you don’t see me’.

old E whose unshifted example in (13) may be target-like. The other children were two 3-year-olds, two 4-year-olds, and one additional 5-year-old.

Taking a closer look at the age distribution, Table 2 indicates a change in the data around age 3–4. The table shows that the frequency of potential contexts for pronominal OS is higher in the transcripts from the children who are over 3;0 years old. Together the 3–4-year-olds produce 25 potential contexts for OS with 22 shifted pronominal objects, compared to only two potential contexts, and just one single shifted object in the two younger age groups. Normalized to the number of children in each age group, this amounts to 1.1 shifted object/child among the 3–4-year-olds but only to 0.1 among the younger children. The amount of shifting rises somewhat in the older age groups, since in the transcripts from the 4–5-year-olds we find 1.9 shifted objects/child, and 2.3/child in children over 5 years old. In reality, there is significant variation between the children in how many relevant utterances each of them provided. Some did not produce any potential context for OS at all.⁶ The total numbers for the 4–5-year-old age group and children older than five years old are each inflated by a single child of whom the first produced 8 and the second 9 examples of OS. This means that in general the amount of shifting may not differ as much between these two older age groups and the 3–4-year-olds as it may first seem. Both the absolute numbers and rates of non-target-like examples are low in all of the age groups from age 3–4 and up.

While we cannot draw conclusions about individual children since we have limited data from each child, collating the data for each age group, we can discern a development for pronominal OS that roughly parallels the one we saw in the longitudinal data: At first, the children produce few (or no) examples with both a pronominal object and a verb.⁷ Then there is a stage, from age 2;0–3;0, where there is a fairly low amount of relevant examples, and about half of the objects are shifted and the other half unshifted. After age three, there are a lot more relevant examples produced, and almost all pronouns are shifted. The amount of shifting is fairly similar across the age groups after age three, if we take into account that there is quite a bit of individual variation in how many examples each child produces. The fact that we see a low number of non-target-like examples even among the older children, suggests that individual Icelandic children can linger in the intermediate, mixed stage of acquisition for a longer period. But on a group level, the data from the shorter transcripts are in line with the longitudinal data; Icelandic pronominal OS appears to be acquired earlier than pronominal OS in Norwegian and Swedish.

⁶ Among the 3-year-olds there were 8 children who produced no relevant contexts, among the 4-year-olds there were 8 children, and among the 5-year olds there were 3 children.

⁷ For Fía and Eva, these were almost all object in situ-examples. For the shorter transcripts, we only have data from three children younger than two years old, and in total only three hours of recordings, which is probably why there are no relevant examples here.

5. Analysis and discussion: Why would Icelandic pronominal OS be easier?

Both the longitudinal data from Fía and the shorter transcripts indicate that pronominal OS may be acquired earlier in Icelandic than in the Mainland Scandinavian languages. The question arises why this would be the case. While experimental work with Icelandic children would be required to have data entirely comparable to the Norwegian and Swedish data from Josefsson (1996), Anderssen et al. (2010), Anderssen et al. (2012), we will here suggest a line of explanation for potential differences in the acquisition of pronominal OS.

With respect to the delayed acquisition of OS in Norwegian and Swedish, the two earlier studies, Josefsson (1996) and Anderssen et al. (2010), propose that low input frequency is an important factor. We may thus wonder if the input frequency in Icelandic would somehow be different.

The later experimental study by Anderssen et al. (2012) focuses instead on the role of various types of complexity in the acquisition of pronominal OS in Norwegian, and the authors argue that the delay is mainly related to referential and distributional complexity, while derivational complexity may also play a role. Firstly, the operation is distributionally complex in Norwegian. Only some pronouns (personal, definite) shift, whereas demonstrative, indefinite, and contrastive pronouns cannot shift. Secondly, and relatedly, there is added complexity when it comes to the referentiality of the pronouns, which affects their distribution. Whether a pronoun will shift or not in the Mainland Scandinavian languages depends on its antecedent (DP, VP, or CP) and information structural status (Andréasson 2008, 2010, 2013; Anderssen et al. 2010; Anderssen & Bentzen 2012; Anderssen et al. 2012; Bentzen & Anderssen 2019). Pronouns with DP antecedents with individuated reference, and which function as continuing topics, will shift, as for example in (4a) in section 1. If the antecedent is a CP or VP, on the other hand, the pronoun will usually not shift. In (15), which is from Swedish, we can see a typical example where the object pronoun, which refers to a CP in this case, stays in situ.

(15) A: Hur gammal var hon?

How old was she

‘How old was she?’

B: Jag vet { ***det**_{CLAUSE} } inte { **det**_{CLAUSE} }

I know that not that

‘I don’t know.’

Shifting this pronoun is not felicitous in Swedish, and the situation is the same in Norwegian. This means that the task for children who are acquiring OS in these languages involves resolving the reference of the pronoun to know whether to shift it or not.

The picture in Icelandic is quite different. Pronominal OS applies to unstressed pronouns generally (personal and demonstrative), regardless of antec-

ent type. Only stressed pronouns can be left in situ. An Icelandic example parallel to (15) is given in (16).

- (16) A: Hvað var hún gömul?
 What was she old
 ‘How old was she?’
- B: Ég veit {það_{CLAUSE}} ekki {*það_{CLAUSE}}
 I know that not that
 ‘I don’t know.’

As can be seen, the object needs to shift, unlike in Swedish and Norwegian. Icelandic children thus do not need to resolve the anaphoric reference to be able to know whether the pronoun should be shifted. In this sense Icelandic pronominal OS is a less complex operation than pronominal OS in Norwegian and Swedish.

An analysis of Fía’s input from age 1;9:15 to age 2;10:4 revealed that the pronominal object is shifted in 25/26 potential contexts for OS, or 96%. Out of the 26 examples, 13 involved a pronoun with a non-nominal antecedent, showing that this type of pronominal object is important to the overall distribution of OS. As only some of the tapes were analyzed, the results should be seen as preliminary, but can be compared to those found by Bentzen et al. (2013:133) for Mainland Scandinavian child directed speech, which are given in Table 3.

Table 3. Shifting of pronominal objects with nominal and non-nominal antecedents, from Bentzen et al. (2013:133)

	Nominal antecedents		Non-nominal antecedents	
	+OS	-OS	+OS	-OS
Danish	95% (21/22)	5% (1/22)	15% (14/93)	85% (79/93)
Norwegian	87% (41/47)	13% (6/47)	5% (12/237)	95% (225/237)
Swedish	64% (30/47)	36% (17/47)	1% (2/258)	99% (256/258)

As the table reveals, the rate of shifting is high for pronouns with nominal antecedents, but very low for pronouns with non-nominal antecedents. Since the non-nominal antecedents are significantly more common, this results in a low overall rate of shifting for object shift in Mainland Scandinavian. The overall rate is not given in the table, but amounts to around 10–20% for these languages, which could be compared to the 96% we found in Fía’s input. This means that not only is the Icelandic system less complex in the first place, but the input is also more uniform.

With respect to absolute frequency of pronominal OS in the input, this is also low in Mainland Scandinavian. The corpora investigated by Bentzen et al. (2013) contained 210,000 adult utterances in total, and only 120 shifted objects. For Icelandic, a larger and more detailed study of child directed speech is needed.

6. Concluding remarks

To summarize, we identified three stages in the acquisition of Icelandic object shift based on longitudinal data from two girls, and we could make a preliminary sketch of the development of OS. Our investigation indicates that pronominal OS is acquired earlier in Icelandic than in Norwegian and Swedish, where this type of OS has been studied in greater detail, and has been shown to be acquired late by children. A study of shorter transcripts from 66 children supports this result.

We suggest that uniformity is one crucial part in understanding the potential difference between these Mainland Scandinavian languages and Icelandic when it comes to the placement of pronominal objects. Icelandic pronominal object shift is a less complex operation than pronominal object shift in Norwegian and Swedish, both distributionally and when it comes to the reference of pronouns. The fact that pronouns with non-nominal antecedents shift in Icelandic, but do so to a very low extent in Mainland Scandinavian (see Table 3) makes the Icelandic system much more uniform. The fact that these pronouns are so frequent in all of these languages means that this seemingly small difference has a large impact on the input. However, more detailed studies of the absolute frequency of pronominal OS in Icelandic are needed to tease apart the contribution of frequency and complexity for the early acquisition.

There is not enough data to determine when full DP object shift is acquired in Icelandic. Since shifting lexically headed DPs and stressed pronouns is optional and is also quite rare, an experimental study is most likely necessary.

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