Cues and Expressions

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1. Introduction

Morphological triggers, or the absence thereof, have been related to clustering of syntactic properties in both diachronic change and acquisition. The correlation between overt verb movement and 'rich' agreement paradigm has, for instance, been proposed by several people in recent years (see Kosmeijer 1986, Roberts 1993, Rohrbacher 1994, 1999, Holmberg & Platzack 1995, Vikner 1997, Koeneman 2000). Hence "the loss of morphological case distinctions due to phonological weakening at the end of words is generally thought to lead to rigidity of word order to compensate for the increase in ambiguity induced by the loss of case" (Kroch 2001: 4). See Lightfoot (1999) and Longobardi (1999) for claims about the link between abstract, syntactic Case and morphological case distinction, together with the various papers in Lightfoot (2002) presenting case-studies of syntactic changes as morphological endings are lost.

In this paper, we draw our conclusions from the comparison of Old and Middle English and Old Icelandic, focusing on the unity of the OV-to-VO change. Roberts (1997) argues that English lost overt object movement due to the loss of morphological case in Middle English. As seen from the English viewpoint, low-level facts of inflectional morphology may express the relevant cue for parameters, and so the loss of inflection may (but does not have to) lead to a grammar change. This analysis does not carry over to Icelandic, as the loss of OV in Icelandic took place despite rich case morphology.

Our goal is to show how this can be explained within a cue-style approach. In particular we address the question of whether there is a universal set of cues that the child is scanning the input for (like there is a universal set of categories), or whether cues are relational properties of input data, so that what counts as a cue in one language is not a cue for the same phenomena in another language. We will argue for the former option here, claiming that learners must watch out for the configuration [DP V], which is the *universal cue* for the positive value of the OV/VO parameter. However, this cue may be expressed differently among languages: While it may have been expressed through morphology in Old English (cf. Roberts 1997), it was expressed through focus in Old(er) Icelandic. In both cases, external effects led to fewer expressions of the relevant [DP V] cue and a grammar change took place. Hence, various sentence types may express a given cue in different languages.

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2. Language acquisition and language change

In our view, children are internally endowed with certain information, Universal Grammar (UG), and they develop a grammar, a mature linguistic capacity, on exposure to primary linguistic data. Grammars are formal characterizations of an individual's linguistic capacity, conforming to and exploiting the tools provided by a universal initial state, UG, and developing as a person is exposed to her childhood linguistic experience. A grammar, in this terminology, is a mental organ. The grammar characterizes not only the primary but also the secondary data. One can think of the primary linguistic data (PLD) as the triggering experience that makes the linguistic genotype (UG) develop into the linguistic phenotype, a mature grammar (cf. Lightfoot 1999).

A new grammar may only emerge in a population if the PLD, the expressions that people hear, have shifted in some significant way. Hence, there are two kinds of interrelated changes: new grammars and new PLD. Grammars are by definition internal phenomena (I-languages) and the PLD reflect what children are exposed to and are external sets of expressions that children hear. We need to make a distinction between the two notions grammar and language. We take GRAMMAR to be an internal, individual system represented in people's mind/brain (I-language), but we take LANGUAGE to be a group product of those systems and their use (E-language) (cf. Chomsky 1986). Likewise, we must distinguish between I-language changes and E-language changes; we treat E-language changes as changes in the triggering experience (PLD), paving the way for a possible I-language change, a formal change in the grammar that takes place with a new generation acquiring the language. Changes in the E-language cause changes in the I-language and changes in the I-language cause changes in the E-language. Put differently, if children are exposed to new/different PLD, they may attain a new grammar; if they attain a new grammar, they will also produce different PLD for the next generation.

A grammar change may only take place when the child is exposed to significantly different primary data. In that case, we need to investigate how grammars changed and how the relevant childhood experience might have changed just prior to the change in grammars, in such a way that the new grammar was the only possible outcome. In this perspective, the study of grammar change is fused with work on variation and the acquisition of grammars. We explain the emergence of the new grammar and this explanation illuminates the nature of the child's triggering experience and the way in which children acquire their linguistic capacities; the study of grammar change has implications for grammatical theory and for theories of language acquisition.

Although UG is conceived of as universal, the PLD are clearly specific to every human, which entails that the fully developed grammar will also be individual and specific. In another words, probably no two children are ever exposed to exactly the same utterances and external influence, whatever uniform pre-requisites they might possess. Whereas the grammar is constant and invariable, once acquisition process has come to its end, the E-language is in constant flux. Hence, languages, the output of people's grammar, are inherently fluid, unstable, always changing. While the PLD are infinitely variable, grammars are not; under parameter theory, there is a finite number of grammars, resulting from different settings of a finite number of parameters. If we re-cast parameters in terms of cues, there is a finite number of cues for which a child scans her linguistic environment.

Language change as a whole is a group phenomenon. E-languages reflect the output of grammars, the varying use of those grammars in discourse. Hence, a change at the level of E-language often seems to take place gradually, spreading through the population socially and geographically.

Grammars, seen as mental organs, may change between two generations. A change is initiated when (a population of) learners converge on a grammatical system that differs in at least one parameter value from the system internalized by the speakers of the previous generation. Learnability issues then connect to both language acquisition and language change, and understanding language changes depends on understanding how children acquire their native language. Acquisition is the process in which Universal Grammar (UG) interacts with a context-specific set of PLD. The child uses these PLD as the source for cues, and the innate (pre-experience) system grows to a mature grammar.

An approach to language which focuses on I-language and postulates universal principles of grammar formation to the species entails approaching language changes very differently from more traditional approaches, which focus fairly exclusively on what we are calling E-language. However, the explanatory success of a diachronic change includes a three step process, with a) innovation of variation (E-language change), leading to b) acquisition-based grammar change (I-language change), and c) presumably two very different kinds of diffusion, beginning with gradual diffusion in language use. We take the first process to involve *historical* (or *genetic*) explanations, typical for evolutionary phenomena and often exemplified by the results of the historical-comparative method in linguistics, and the second process to involve a *theoretical* explanation, typical of current generative grammatical research.

Children only have access to the grammar (I-language) of their parents through their language use (E-language). Therefore it is natural to expect grammar changes to take place where there is no obvious connection between interpretation of the PLD and the underlying grammar. Grammatical phenomena cannot be acquired unless clearly reflected in the output. Hence, a grammar change may take place when there has been a change in the language use of the previous generation, paving the way for a new interpretation. We argue here that it is possible that gradual changes in the PLD play a central role in the explanation. Lightfoot (1999) has argued at length, that there cannot be gradual evolution in an acquisition-based theory of change. What we are arguing, instead, is for a gradual evolution within the E-language, leading to an (acquisition-based) I-language change.

We assume that the E-language can develop gradually between generations, without this causing a major grammar change. In this way, language use can go through a gradual development/changes from generation 1 to generation 2, and so on. This is a natural process of development from one generation to another. At one point in the development, the language use (PLD) may reach a certain threshold where it no longer reflects the underlying grammar (I-language) completely and a grammar change (parameter change) may take place. But why would this happen? We assume the answer to this question to be concealed in (innovation of) variation in PLD. We take the PLD to be influenced by external factors. Hence, we need to assume (at least) two important steps in order to have an explanatory success of a diachronic change: That is, we must account for both the initiation of the change, the variation and innovations, on the one hand, and the integration of these E-language innovations into a stable I-language, on the other hand. However, many generative approaches in the recent literature do not offer a complete explanation of a syntactic change, as they only focus on the precise nature of the parameter change in question, ignoring the prior (external) change in the triggering experience (PLD).

Note that our view here differs from Kroch's (1989a, b) hypothesis regarding change through competition: This hypothesis entails that linguistic change may involve a synchronic competition of two or more syntactic phenomena during a certain period of time. It is assumed that it is possible to observe variation within the language of individual speakers. Kroch (1989a: 349) claims that "speakers learning a language in the course of a gradual change learn two sets of well-formedness principles for certain grammatical subsystems" and that "over historic time pressures associated with usage (presumably processing or discourse function based) drive out one of the alternatives." Thus, when the language learner is confronted with

competing analyses, she generates two different grammars, which in turn compete for dominance in the linguistic community. Kroch further claims that, at least in some instances, a language change occurs by a synchronic competition between two linguistic forms. He mentions that quantitative studies in diachronic linguistics have shown that a language change often not only takes place gradually rather than abruptly, but also that "one generation is more likely to differ from its predecessor in the frequency with which its speakers use certain forms than in whether those forms are possible at all" (Kroch 1989a: 348). Although we find these assumptions very important, we take them to be instances of E-language change (a change in a population of speakers), rather than grammar change. Sprouse & Vance (1999) follow Kroch's hypothesis, claiming that:

> Parametric change involves a change in the underlying grammar, which may or may not result in a striking change in the linguistic environment. Change through competition results in no change in the underlying grammar, and it results in a subtle change in the linguistic environment, measured in the relative frequencies of the forms involved. Parametric change is relatively sudden.
>
> (Sprouse & Vance 1999: 277)

Instead, we claim that there are two different types of changes involved here. The first occurs with an innovation of variation, which we take to be an E-language change. Then, there is a period of diffusion of the innovation (competing forms as Sprouse & Vance describe), and finally we have a grammar change when one of these forms disappears (usually the old form). In our view, the diffusion of the two various forms is really what Sprouse & Vance (1999) are focusing on, and this diffusion/competition can in turn explain the latter change, the grammar change; that is, how or why the PLD became different, leading to the grammar change.

3. The Icelandic story

3.1. Introduction

While Modern Icelandic exhibits a virtually uniform VO word order in the VP, Older Icelandic had both VO and OV order, as well as many "mixed" word order patterns. Several generative accounts for the parameter change in the history of Icelandic have been put forward; that is, the abrupt loss of the OV word order patterns at the beginning of the nineteenth century (Hróarsdóttir 1996, 2000, Rögnvaldsson 1996). We are not going to discuss these proposals here, only point out that these proposals might be correct. However, they are all insufficient, as they all have in common that they are

unable to explain *why* the parameter change took place. Here, we argue that the parameter change in question was due to a change elsewhere in the system, that is, in information structure. We claim that word order in Older Icelandic was subject to prosodic variation, giving rise to the different word order patterns. The basic claim is that the loss of OV word order reflects a gradual increase of a rule to have focused elements in postverbal position. As mentioned, previous studies on the loss of OV word order in the history of Icelandic have focused on the abrupt disappearance of the OV orders, that is, the grammar change. As argued in the previous section, the immediate cause of the grammar change must lie in some alternation to the PLD. In this section, we will try to address the variation in the PLD, which led to the frequently discussed parameter change. We want to study the gradual loss of the OV word order patterns that took place in the centuries prior to the parameter change, focusing on the E-language changes in the PLD that must have paved the way for the parameter change when OV word order was lost. We propose that the word order patterns in Older Icelandic were derived by a peripheral rule that applied optionally according to prosodic output conditions at PF, thus accounting for the relatively free word order at that stage of the language.

3.2. Older Icelandic

Modern Icelandic has pure VO-order within the VP, as shown in (1). The word order in (1) with [$_{VP}$ [auxiliary verb – main verb – object]] is the only possible order of these elements in Modern Icelandic (abstracting away from topicalization and stylistic fronting).

(1) eir munu aldrei **hafa lesið bókina**.
they will never have read book-the
'They will never have read the book.'

Old Icelandic mainly differs from Modern Icelandic in that the older stage of the language has the (surface) patterns in (2), where the object can either occur to the left of both of the non-finite verbs (2b), or occur between the two non-finite verbs (2b), and where the non-finite main verb may occur to the left of the non-finite auxiliary verb (2c), with the object then either preceeding or following both of these verbs. We will refer to all three types as OV word order.

(2) a. Vfin … Object – Vaux – Vmain
b. Vfin … Vaux – Object – Vmain
c. Vfin … (object) - Vmain – Vaux - (object)

The attested OV word order patterns were all lost at the beginning of the nineteenth century. Two examples of simple OV word order in Older Icelandic are shown in (3).

(3) *Pure OV word order*

a. að hann hafi **hana** drepið (Álf)
that he had her killed
'that he had killed her'

b. að þú ... hafir **að bréf** fengið (3rd age group)
that you ... have that letter received
'that you have received that letter'

Icelandic has had a rich subject-verb agreement morphology and case morphology throughout its history. It is also generally assumed that both Old and Modern Icelandic have obligatory overt movement of the finite verb to AgrS (Infl), in both main and subordinate clauses.

The frequency of the different word order patterns was studied in 16 texts dating from the fourteenth to the nineteenth century, in addition to personal letters dating from the nineteenth century. This gives a corpus of approximately 5,000 sentences containing at least one non-finite verb, exhibiting either OV or VO word order (Hróarsdóttir 2000). Letters by 75 individuals were studied, and they were divided into seven groups, with approximately 10 writers in each. Only letters when the year of the author's birth is known were used. The first group has letters from speakers born 1730-50 and the last group has letters from speakers born 1850-70.

All sentences that display OV order were counted as OV, either "pure" or "mixed" order. Mixed word order sentences contain both pre- and postverbal complements. A few examples of this classification are in (4) through (6). (4) illustrates pure OV order, and (5) and (6) show examples of the possible mixed OV orders.

(4) Pure OV word order

a. [V_{fin} … IO DO … V_{main}]
að eg skal **ér að** allvel **launa** (Árm)
that I shall you it well reward
'that I shall reward you well for it'

b. [V_{fin} … DO Particle V_{main}]
at ek skylldi eigi **fleiri born upp ala** (Finn)
that I should not more children up bring
'that I should not bring up any more children'

c. [V_{fin} … DO V_{main} V_{aux}]
að eg mundi **hann sigrað geta** (Árm)
that I would him defeat could
'that I would be able to defeat him'

(5) Mixed word order: one non-finite verb plus two or more objects

a. [V_{fin} … DO V_{main} IO]
hafer u **inu lidi jatat eim** (Vikt)
have you your assistance promised them
'if you have promised them your assistance'

b. [V_{fin} … DO V_{main} IO]
a uilldi hann nu giarna **hialp weita leoninum** (Sig)
then wanted he now readily help give lion-the
'Then, he readily wanted to help the lion.'

c. [V_{fin} … DO V_{main} PP]
Hafdi a huorgi **sari komit a annann** (Vikt)
had then neither wound got on other
'Neither had been able to wound the other.'

(6) Mixed word order: two non-finite verbs and an object

a. [V_{fin} … V_{aux} DO V_{main}]
að hann skyldi aldrei **mega sól sjá** (Árm)
that he should never be-allowed sun to-see
'that he should never be allowed to see the sun'

b. [V_{fin} … V_{aux} DO V_{main}]
og ekki skal faðir minn **geta ér hjálpað** (Álf)
and not shall father mine can you helped
'And my father will not be able to help you.'

c. [V_{fin} … DO V_{aux} V_{main}]
og hvör mundi **at hafa gjört** (Álf)
and who would it have done
'And who would have done it.'

d. [V_{fin} … DO V_{aux} V_{main}]
eir quaðuz eigi **at mundu gera** (Finn)
they said not it would do
'They claimed they would not do it.'

e. [V_{fin} … V_{main} V_{aux} DO]
at hann mun **raða vilia ferðum sínum** (Finn)
that he will decide want journeys his
'that he want's to decide his own journeys'

f. [V_{fin} … V_{main} V_{aux} DO]
hann kuaz **fundit hafa barn nyfætt** (Finn)
he sai found have baby newborn
'He claimed to have found a newborn baby.'

The main results for the frequency of OV order are shown in Table 1. OV word order patterns occurred most frequently in texts dating from the fourteenth through the seventeenth centuries and decreased in texts from the eighteenth century. OV word order then suddenly disappeared in texts and letters dating from the nineteenth century. The OV word order therefore showed a remarkable stability for at least five or six centuries with the first important decline in the language of writers in the eighteenth century.

Table 1: Number of clauses with OV- and VO-orders

Texts	All clauses			
	OV	VO	Total	% OV
14th century	230	165	395	58.2%
15th century	140	112	252	55.6%
16th century	129	103	232	55.6%
17th century	298	298	596	50.0%
18th century	88	150	238	37.0%
19th century	493	2669	3162	15.6%
	1378	3497	4875	

3.3. Morphology

According to the Minimalist Program (Chomsky 1995), movement is driven by morphological necessity; certain features must be checked in the checking domain of a head, or the derivation will crash. Roberts (1997) tries to link the cause of word order changes in the history of Old English to inflection, more precisely, the loss of morphological case marking.

> … the loss of OV orders was caused by the loss of a strong N-feature on AgrO, a development which is related to the loss of morphological case on DPs … In this way, the word-order change in English can be viewed as an instance of a typical kind of change: the loss of an overt movement rule caused by the loss of the morphological trigger for a strong feature of a functional head.
>
> (Roberts 1997: 423)

Hence, once Spec, AgrOP lost its case features, the morphological trigger for the object-movement was lost, and there was no reason to move the object overtly. Roberts' (1997) approach to Old English implies that some

morphological changes might have occurred in the eighteenth or nineteenth century Icelandic, causing the word order changes observed. There is however no clear evidence for any such changes in Icelandic.

We conclude that the possibility that the morphological system has been lost or weakened in the history of Icelandic must be rejected, simply because of the fact that Icelandic has the richest *overt* inflectional system of any modern Germanic language. The Case system in Modern Icelandic is as rich as it was in Old Icelandic. Moreover, many modern languages have rigid word order despite their case morphology, and vice versa. Although there are languages like German and Old English that have inflection and OV word order, and languages like Modern English and the Modern Scandinavian languages that lack inflection and have VO word order, there are also languages like Dutch and Frisian that have OV word order despite their lack of inflection, and Yiddish and Early Middle English that have VO word order and inflection (see Kiparsky 1997).

Finally, there is no reason to expect elements which are not marked for morphological case such as preverbal PPs and small clause predicates to correlate with the change in word order. However, these also had the possibility of occurring preverbally in Older Icelandic, and they were lost at the same time as the preverbal nominal objects.[1]

3.4. Information structure and OV order in Older Icelandic

In this section, we will argue that the parameter change from OV to VO in Icelandic was due to a change elsewhere in the system, that is, in the information structure. The basic claim is that the loss of OV word order in the grammar was caused by a prior *language* change that gradually took to the *use* of focused complements: Focused objects gradually gained in frequency in postverbal position. We propose that the word order patterns in Older Icelandic were derived by a peripheral rule that applied optionally according to prosodic output conditions at PF, thus accounting for the relatively free word order at that stage of the language.

If we now focus only on the *nominal* objects in pre- and postverbal positions in the attested Older Icelandic texts, then we see a gradual increase of VO word order with nominal objects from the seventeenth century, and especially the eighteenth century. Examples (7) through (10) show some simple examples of pre- and postverbal nominal objects in Older Icelandic.

[1] These also decrease in frequency in the period prior to the parameter change.

(7) Full NPs: OV word order

a. efftir ad eir høffdu **eplid** eted (Dín)
after that they had apple-the eaten
'after they had eaten the apple'

b. ä skilldu eir **lijffed** missa (Dín)
then should they live-the lose
'Then they should die.'

(8) Full NPs: VO word order

a. að hann hefði etið **kjötið** (Munn)
that he had eaten meat-the
'that he had eaten the meat'

b. hvört hann vilji ei kaupa **ræla** (Árm)
whether he wanted not buy slaves
'whether he didn't want to buy slaves'

(9) Pronouns: OV word order

a. að eg hafi **hana** beðið (4th age group)
that I have her asked
'that I have asked her'

b. at hann mundi **at** eigi gera (Finn)
that he would it not do
'that he would not do that'

(10) Pronouns: VO word order

a. að ég hafi aldrei borgað **ér** (6th age group)
that I have never paid you
'that I have never paid you'

b. að guð vilji brúka **ig** lengi (2nd age group)
that God wants use you long
'that God wants to use you for a long time'

Consider Table 2, which illustrates the total frequency for the texts from each century. Pronouns seem to be preferred in a preverbal position more often than full NPs in Older Icelandic. The overall difference is not great: The difference is very clear in the earliest texts, dating from the fourteenth century, while it has almost disappeared in texts dating from the eighteenth and nineteenth centuries.

Table 2: Full NPs versus pronouns

Texts	Full NPs			Pronouns		
	OV	VO	% OV	OV	VO	% OV
14th century	50	98	33.8%	48	22	68.6%
15th century	44	58	43.1%	23	19	54.8%
16th century	46	59	43.8%	18	5	78.3%
17th century	63	129	32.8%	85	80	51.5%
18th century	17	66	20.5%	14	39	26.4%
19th century	66	844	7.3%	136	700	16.3%
	286	1254	18.6%	324	865	27.2%

There is also a grammatical ordering with respect to old information preceding new information in the Older Icelandic texts, as shown in Table 3. This means that objects previously mentioned within the five preceding sentences have a tendency to occur in a preverbal position, more than objects introduced for the first time in the context.[2]

Table 3: Old vs. new information

Texts	New information			Old information		
	OV	VO	% OV	OV	VO	% OV
14th century	63	93	40.4%	71	30	70.3%
15th century	40	62	39.2%	50	20	71.4%
16th century	42	60	41.2%	35	14	71.4%
17th century	66	143	31.6%	116	87	57.1%
18th century	17	70	19.5%	24	36	40.0%
19th century	70	937	6.6%	159	894	15.1%
	298	1365	17.9%	455	1081	29.6%

The reason for why we do not see a clear rule here, with OV structures always involving old information and VO structures always involving new information, is that the information structure is related to a stylistic ordering in terms of weight. This means that light NPs (including pronouns) are preferred in preverbal position and heavy NPs are preferred in postverbal position. Hence, a relatively heavy NP with old information would normally occur in postverbal position. The heaviness factor on the word order is illustrated in Table 4.

[2] Objects with old information here mean personal pronouns, and full DPs already mentioned in the preceding sentences.

Table 4: Number of words within full NPs

Texts	NPs with one word			NPs with two words			NPs with three or more words		
	OV	VO	% OV	OV	VO	% OV	OV	VO	% OV
14th century	29	26	52.7%	8	39	17.0%	5	33	13.2%
15th century	24	16	60.0%	9	29	23.7%	1	13	7.1%
16th century	13	15	46.4%	15	19	44.1%	5	25	16.7%
17th century	27	56	32.5%	14	40	25.9%	5	33	13.2%
18th century	7	15	31.8%	6	23	20.7%	1	28	3.4%
19th century	30	330	8.3%	16	314	4.8%	6	200	2.9%
	130	458	22.1%	68	464	12.8%	23	332	6.5%

Some examples of the division of full NPs according to their heaviness are shown in (11) through (13). Only sentences with OV word order are exemplified.

(11) NPs with one word

a. ar er kaleikur sem álfafólk hefur **kirkjunni** gefið (Álf)
there is chalice that elves have church-the given
'There is a chalice there, that some elves have given to the church.'

b. at ek mun **sæmd** af ier hliota (Vikt)
that I will honor of you get
'that I will get honor from you'

(12) NPs with two words

a. hafer u **inu lidi** jatat eim (Vikt)
have you your assistance promised them
'if you have promised them your assistance'

b. at hann muni **eitthvert ráð** til leggja (Guðm)
that he would some advice to put
'that he would offer some advice'

(13) NPs with three words

a. að prestur essi hefði **sína fyrri konu** misst (Álf)
that priest this had his first wife lost
'that this priest had lost his first wife'

b. ví hann vildi **ann saklausa mann** til dauða dæma (Morð)
because he wanted this innocent man to death sentence
'because he wanted to sentence this innocent man to death'

Only four preverbal NPs contained more than three words. In these four examples, the preverbal heavy NP is complex; it contains a conjunction (see 14).

(14) Preverbal NPs of more than three words

a. einginn duøl edur bidlund, mä oss **näder edur nockra rö** vinna (Dín)
no stay nor patience can us rest or any peace do
'Neither a stay or a patience can give us any rest or peace.'

b. etta bann hefur **mörgum keisurum og kongum** steypt úr ríki og sæti (Morð)
this ban has many emperors and kings toppled out-of state and chair
'This ban has dethroned many emperors and kings.'

c. mun að **einhvör vís og hygginn maður** vera (Árm)
will it some wise and sensible man be
'This is probably a wise and sensible man.'

On the other hand, 127 examples with a postverbal NP contained more than three words. Some of these examples are shown in (15).

(15) NPs with more than three words: VO word order

a. Ungbarna veiki hefur sópað burt **miklum orra essa ungviðis** (3. age group)
baby sickness have swept away big majority these children
'Diphtheria has taken most of these children.'

b. eg heffe feinged **eina fräbæra edur faheyrda sött** (Dín)
I have got one distinguished or outrageous sickness
'I have got a distinguished or outrageous sickness.'

c. Vil eg nú upphéðan heita yður **minni fullri og fastri vináttu** (Munn)
want I now from-now-on promise you my complete and solid friendship
'From now on I will promise you my complete and constant friendship.'

Single NPs (NPs containing only one word) occurred as frequently in preverbal position as postverbally in the earliest texts (dating from the fourteenth through the sixteenth centuries), approximately 40% OV. In texts dating from the next two centuries (the seventeenth and the eighteenth centuries), single NPs started to occur in postverbal position more often, or approximately 30% OV in the seventeenth century and 19.5% OV in the eighteenth century, as illustrated in Table 4 above. We take this to reflect a *language* change; that is a change in usage during the seventeenth and eighteenth centuries. Finally, in the nineteenth century texts and letters, preverbal single NPs have become very rare (6.6% OV), as a consequence of an abrupt grammar change in the beginning of the nineteenth century. Single NPs thus lost their tendency to occur to the left of the main verb. NPs containing two words clearly are preferred in postverbal position, throughout the period studied. However, these NPs could also occur preverbally. NPs consisting of three or more words were very rare in preverbal position in all the texts and letters studied. It is therefore clear

that light NPs more often occurred in a preverbal position than heavy NPs in Older Icelandic. The heaviness factor seems to have been stronger than the information factor: Light objects with old information (focused) are always preverbal and heavy objects with new information (unfocused) are always postverbal. Light objects with new information (unfocused) are also usually preverbal, while heavy objects with old information (focused) are usually postverbal. NPs with two words seem to have been more or less neutral with regard to the heaviness factor; hence, unfocused NPs with two words are usually preverbal, while focused NPs with two words are usually postverbal.

As mentioned, the reason for the unclear distinction here is due to competing rules existing in Older Icelandic: On the one hand, pronouns and other light categories are preferred in preverbal position, while referential categories are preferred in postverbal position. Since pronouns are referential, these two rules are in conflict. In other words, there is a grammatical ordering with respect to:

- full NPs are more likely to occur in VO structures than pronouns
- new information is more likely to occur in VO structures than old information
- quantified and negated objects occur in preverbal (OV) position[3]

However, this grammatical ordering is (partly) overlaid by a stylistic ordering in terms of light objects preceding heavy; that is, heavy NPs are more likely to occur in VO structures than light NPs. When we take all these grammatical orderings into consideration, we can account for the OV/VO word order pattern in the Older Icelandic corpus. In other words, it is more or less predictable which objects are going to occur preverbally and which occur postverbally. However, we still have not answered the question of what was the change in the E-language, such that only VO was triggered.

3.5. Language change

As indicated in the tables in the preceeding section, the OV/VO word order patterns are stable until the seventeenth or eighteenth century, where there is a gradual loss of the OV word order patterns for two centuries, or, in other words, a gradual increase in language use (E-language change) to have focused elements in a postverbal (VO) position (a shift in discourse

[3] Quantified and negated objects always occurred preverbally in Old Icelandic, and they still do in the modern language. These are the remaining OV orders in Modern Icelandic.

property). Learners of Old Icelandic had to watch out for the configuration [DP V], which is the cue for the positive value of the OV/VO parameter. We have seen how this can be related to focus: During the seventeenth and eighteenth centuries, a gradual E-language change took place in the history of Icelandic, paving the way for the parameter change in the beginning of the nineteenth century, when we have a change from a grammar allowing the variation of both OV and VO word order patterns, to a grammar allowing only (pure) VO word order. We can assume that at a certain stage in the E-language development, where focused elements were more often put in a postverbal position, with the consequences that there was a gradual drop in the frequency of OV word order patterns, the frequency of OV had dropped below a certain threshold to be useful as cues (cf. Lightfoot 1999). In other words, the increased frequency of focused elements in a postverbal position gradually led to fewer expressions of the relevant cue. Hence, there is a(n abrupt) parameter change within the next generation acquiring the language (in the beginning of the nineteenth century), where this new generation has a new parameter setting that does not allow the variation of both OV and VO word order patterns, and instead only has the pure VO word order setting.

Very briefly, this means that a shift in discourse property, or simply a change in language use, can lead to a grammar change; a change in the basic word order in the I-language. During the seventeenth and eighteenth centuries there was a gradual change in language use where focused elements were more frequently put in postverbal position. It is often claimed that this is connected with the placement of *heavy* (old information is light, new information is heavier) and stressed material (an element that is *stressed* is part of the focus of the clause) (cf. e.g. Hinterhölzl 2001).

4. Summary

A cue-based approach to diachrony is meant to *explain* changes at two levels (Lightfoot 1999). First, the cues postulated as part of UG which embody the points of parametric variation explain the unity of the changes, why superficially unrelated properties cluster in the way that they do. Second, the cues permit an appropriately contingent account of why the change took place, why children at a certain point converged on a different grammar: The expression of the cues changed in such a way that a threshold was crossed and a new grammar was acquired.

In sum, we have argued here that learners must watch out for the configuration [DP V], which is the *universal cue* for the positive value of the OV/VO parameter. However, this cue may be expressed differently among languages: while it may have been expressed through morphology

in Old English, it was expressed through focus in Older Icelandic. In both cases, external effects led to fewer expressions of the relevant cue and a grammar change took place.

5. Aftermath: View to a sociolinguistic change

In this section we will argue that the language change (and thereby eventually the grammar change) might be the result of social/historical changes in Icelandic at the time of the diachronic change. We will discuss what might happen if the population changed rapidly, for example by epidemics.

The first people known to have inhabited Iceland were Irish monks who settled there in the eight century, but left with the arrival of the Norsemen who systematically settled Iceland in the period 870-930 AD. They brought some Celtic people with them and spread their homesteads over the habitable areas. The main source of information about the settlement period in Iceland is the *Landnámabók* (Book of Settlements), written in the twelfth century, which gives a detailed account of the first settlers. In 1262-1264 internal feuds, amounting to a civil war, led to submission to the king of Norway and a new monarchical code in 1271. When Norway and Denmark formed the Kalmar Union in 1397, Iceland fell under the sovereignty of the King of Denmark. The Danish kings brought about the Reformation of the Church in 1551, which resulted in Danish control over the Church, and confiscation of its great wealth. The Danish replaced the Hansa and English trade with an oppressive Danish trade monopoly, and established absolute monarchy in 1662.

The eighteenth century marked the most tragic age in Iceland's history. In 1703, when the first complete census was taken, the population was approximately 50,000. From 1707-1709 the population sank to about 35,000 because of a devastating smallpox epidemic. Twice again the population declined catastropically, both during the years 1752-1757 and 1783-1785, owing to a series of famines and natural disasters. The summer of 1782 marked the beginning of the presumably most tragic period ever, the so-called *Móðuharðindi*, where a tremendous natural catastrophe took place with a great volcanic eruption that led to increased cold weather and hard times, including starvation and different diseases. It is usually assumed that 1/5 of the population, or 10,000 people, died because of the *Móðuharðindi*.

When the population was severely decimated by these epidemics, this placed the surviving population in a new situation. First, the age distribution changed, and the average life expectancy decreased. Second, the language would be more sensitive to other sources of noise, for

instance, language contact. Historical/social changes in the form of increased intervention, administration, and the power of the Danish led to an increase in foreign influence in Iceland at a time when the stability of the language was less secure, due to the fact that quite a lot of the older bearers of the language had perished. Note that we expect the child-learner to be sensitive to changes in the surrounding language environment, since that language environment is what she uses as a model. The language environment providing the PLD had changed so that there was more insecurity about the correct word order patterns, due to an increased influence from Danish and a loss of older individuals, followed by an increase in the proportion of children. It is obvious that we can expect the *language* to change when the transmission of the tradition is disturbed. When a severe plague hits a population causing a sudden death of older speakers, much of the conservatism of the language (use) may be lost. If we take VO word order to be the more innovative structure, it is not surprising that the frequency of the use of the old OV structure drops when the language environment is affected in this way.

We can assume that the devastating smallpox epidemics in 1707-1709 and other natural disasters in Iceland throughout the eighteenth century are a plausible example of the kind of population changes that can cause a language change, which may then lead to a parameter change; the loss of OV word order patterns. Hence, the case we are studying here is a language that had a variation (OV and VO word order) before the epidemic, and lost it after the epidemical years during the eighteenth century. Let us repeat Table 1 from section 3.2.

Table 1: Number of clauses with OV- and VO-orders

Texts	All clauses			
	OV	VO	Total	% OV
14th century	230	165	395	58.2%
15th century	140	112	252	55.6%
16th century	129	103	232	55.6%
17th century	298	298	596	50.0%
18th century	88	150	238	37.0%
19th century	493	2669	3162	15.6%
	1378	3497	4875	

As illustrated in the table, the proportion of OV word order had remained surprisingly stable from the fourteenth to the seventeenth century. The first notable drop in frequency takes place during the eighteenth century, during the epidemical period. This reflects a *language change*, where constructions with OV word order came to be used less and less, until the frequency of OV had dropped below a certain threshold to be useful as cues

(Lightfoot 1999). This in turn lead to a *parameter change* in the beginning of the nineteenth century where OV orders suddenly disappeared.

To summarize, after the smallpox epidemics in the very beginning of the eighteenth century and the natural catastrophe *Móðuharðindin* in the middle of the century, the age distribution became different due to a loss of older individuals, followed by an increase in the proportion of children. Hence, the language environment had changed and we assume this to have led to more insecurity about the correct word order patterns. At the same time, there was an increase of foreign influence from Danish, a language that already had pure VO word order at the time.

Finally, another social/historical change in Icelandic at the time of the language change supports our findings. Note that the frequency of OV/VO word order patterns showed a remarkable stability from the earliest texts until the eighteenth century. More interestingly, so did the Icelandic society: From the time of the settlement until the eighteenth century, it was a rather stable (old-fashioned) country of farmers, without any important formation of cities or towns. It was a society of big families living together. The elderly were not sent away to old people's homes and the children were not sent away to nursery schools or kindergartens. The big family stayed together, and worked together, on the farm. Older children took care of their younger siblings, and most noticeable perhaps, the children grew up with their parents and their grandparents and their language (including language use and tradition). It was not until the eighteenth century that we have the formation of big towns. During 1760-1770, a great disease hit the Icelandic livestock and as much as half of the sheep were killed. As a consequence, people had to flee the country-side and move to the sea-side to survive. The fishing industry increased and fishing towns thrived. Reykjavík gradually became the capital of Iceland. This also meant that the big families were split up and children went to school with other children and hence their language acquisition was now, to a much greater extent than before, affected by the language of other children. This is another example of a change in language environment that has had consequences for language use, leading to a parameter change.

Together these historical/social changes during the eighteenth century in Iceland explain why the language change took place – there was a change in the language environment, affecting the *use* of the language – paving the way for the grammar change.

There is also some direct evidence that OV and VO word order might have correlated with style; the frequency of OV word order can sometimes be associated with a more elevated or formal style (and formal style is typically more conservative). For instance, not only *personal* letters were

studied dating from the nineteenth century, but also letters of a more formal style, written by Icelandic priests at a request from a special committee for archaeology in Copenhagen. When the proportions of OV orders in these two types of letters are compared, it appears that on average, the rate of OV word order is somewhat higher in the more formal letters than in the personal letters.

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