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# An LFG approach to Icelandic reciprocal constructions

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## 1 Introduction

In this paper we discuss reciprocal constructions in Icelandic, which involve complex interactions of gender, number and case.<sup>1</sup> Icelandic grammars describe a single construction type – the standard reciprocal construction (see §2) – but in fact actual Icelandic usage reveals there to be a number of variations on this construction. We present these variant construction types in section 3, discuss their morphosyntactic properties, and show how they can be given a straightforward account in LFG. These constructions differ in their case agreement and word order properties, suggesting related yet distinct structural analyses of the different construction types (see §4). We argue that our LFG account not only provides a natural analysis of the different individual constructions, but also of the relationship between them, potentially reflecting stages of historical development in the Icelandic reciprocal construction over time.

## 2 Reciprocals in Icelandic: standard construction

The standard Icelandic reciprocal construction is formed from two words: *hvor* (or *hver* for antecedents with more than two participants, see §3 below) and *annar*, which in its masculine singular dative form is realised as *öðrum* in (1a). This construction is similar in many respects to ‘each other’ in English: *hvor/hver* functions as a quantifier akin to ‘each’ and *annar* is an indefinite pronoun meaning ‘other’. Together, the two words function as a single NP, sharing the same distribution as regular NPs (such as in 1b), and participating in nominal constructions such as possession (2).<sup>2</sup>

- (1) a. *Ég kynnti mennina tvo fyrir hvorn öðrum.*  
I introduced men.M.PL.ACC two to each.M.SG.ACC other.M.SG.DAT  
'I introduced (the) two men to each other.'

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<sup>1</sup>This paper draws on foundational and insightful work by Mary Dalrymple on LFG approaches to anaphoric binding, reciprocal constructions, coordinated structures, agreement and feature resolution, and many other aspects of the syntax-semantics interface. In fact, there are few topics in LFG syntax that can be properly discussed without reference to Mary’s work, and we thank her for all the insight and guidance she has provided over the years, both in print and in person. Thank you also to the editors and an anonymous reviewer for helpful suggestions and improvements to this paper. We are also grateful to the ARC Centre of Excellence for the Dynamics of Language (Project ID: CE140100041) for financial support.

<sup>2</sup>The empirical facts presented here are drawn from Hurst (2012), however the analysis has been further developed in this paper. Cited Icelandic examples come from a variety of sources including online newspapers and other Icelandic literature, an extensive survey of the construction conducted by Hurst, and elicitation with Icelandic speakers (such as (1), (2)). In particular, the authors would like to thank Ms Sigríður Ólafsdóttir for her assistance in responding to questions and providing data. Any errors in transcription are ours.

b. *Ég kynnti mennina tvo fyrir drottningu-nni.*  
 I introduced men.M.PL.ACC two to queen.F.SG.DAT-DEF  
 ‘I introduced (the) two men to the queen.’

(2) *Jón og Lilja. heimsóttu hvort annars*  
 John.M.SG.NOM and Lilja.F.SG.NOM visit.3PL.PST each.N.SG.NOM other.N.SG.GEN  
*foreldra.*  
 parent.M.PL.ACC  
 ‘John and Lilja visited each other’s parents.’

However, while it seems clear that the reciprocal phrase behaves as a single NP in the standard construction, case assignment to each element shows some unexpected behaviour. In the examples above we see that *hvort* is inflected with the case of the antecedent (ACC in (1a), NOM in (2)), whereas *annar* is inflected with the case appropriate to the reciprocal NP itself (DAT in (1a), governed by the ditransitive verb, and GEN in (2) as a possessive modifier). This construction has had very little discussion in the Icelandic literature, despite this being the prescriptive account of the Icelandic reciprocal construction (for example, see Svavarsdóttir & Jónsdóttir 1998:178), and is often relegated to just a footnote or brief example (e.g., Thráinsson 2007; Glendening 1986:48; Einarsson 1949:131,147).

The case pattern in this reciprocal construction is theoretically unexpected. We would standardly assume that each NP receives a single relational case from a single controller, whereas in this construction we find two elements of a single NP being assigned different relational case features, each by a different controller. In this paper we show how these unusual empirical facts can be given a natural account within LFG. Furthermore, we show that Icelandic reciprocal constructions are in fact far more variable and complex than suggested in Icelandic grammatical descriptions (see the references above, but also Everaert 1991), especially with regard to number marking (§2.2), word order and case (§3). In §4 we show how all of this variation can be accounted for within LFG, in a way that provides an intuitive account of the relationship between the various construction types.

## 2.1 Gender in the reciprocal construction

Before turning to a discussion of the different Icelandic reciprocal constructions, we first provide a brief description of gender agreement in the standard construction. Icelandic has three genders; masculine, feminine and neuter. The reciprocal construction must match the gender of its antecedent, however there are additional conventions regarding gender assignment for mixed gender antecedents. We follow Dalrymple & Kaplan’s (2000) analysis of gender in Icelandic, where the three genders are understood as sets which are formed from various combinations of features (Dalrymple & Kaplan 2000:790):

(3) MASC {M} where:  $\{M\} \cup \{M\} = \{M\}$   
 FEM {F} where:  $\{F\} \cup \{F\} = \{F\}$   
 NEUT {M,F} where:  $\{M,F\} \cup \{M\}$  or  $\{F\} = \{M,F\}$  (i.e., NEUT)

When two NPs are coordinated, the resulting gender of the superordinate NP is understood as the set union of the gender value of each of the constituent NPs. The reciprocal construction in turn



- (9) *Mennir-nir þrír sáú aldrei hver annan eða*  
 man.M.PL.NOM-the three.M.NOM see.3PL.PST never each.M.SG.NOM other.M.SG.ACC or  
*aðra.*  
 other.M.PL.ACC

‘At no time did the three men see each other or any others.’<sup>4</sup>

It is tempting to analyse *hver* as having dual number. However, this distinction appears to be lexicalised rather than syntactic (cf. English ‘both’) as dual number doesn’t appear in any other parts of Icelandic grammar, such as verbal conjugations or personal pronouns. Additionally, as Thráinsson (2007):472 notes, the use of *hver* appears to be generalising as many speakers can use it in place of *hver* to refer to an antecedent of just two:

- (10) *Hjón geta elskað hvert annað*  
 married-couple.N.PL.NOM be-able-to.3PL.PRES love.PPL each.N.SG.NOM other.N.SG.ACC  
*meira en systkini ...*  
 more than sibling.N.PL.NOM ...

‘(A) married couple are able to love each other more than siblings (can) ...’<sup>5</sup>

Beyond the distinction between *hver* and *hver* there is another distinction involving number that some Icelanders make use of in their reciprocal constructions, and that is reflected in number agreement morphology on *hver/hver* and *annar*. In the reciprocal examples above, these words are inflected for singular number, and this is the usual number agreement found in these constructions. However, some Icelanders use this number inflection to refer to details of the antecedent of the reciprocal construction. In particular, singular forms of *hver/hver* and *annar* are used to indicate singular entities in a symmetric reciprocal situation, whereas the plural forms are used for groups in a symmetric situation. This is illustrated in (11) where the antecedent consists of two entities (hence the use of *hver*), but one (mankind) is plural and consequently the plural forms of *hver* and *annar* are used:

- (11) *Jól-in eru sá tími þegar Guð og*  
 Xmas.N.PL.NOM-the be.3PL.PRES one time.M.SG.NOM when GodM.SG.NOM and  
*mennir-nir skilja hvorir aðra.*  
 man.M.PL.NOM-the understand.3PL.PRES each.M.PL.NOM other.M.PL.ACC

‘Christmas is the one time when God and mankind understand each other.’<sup>6</sup>

Plural reciprocal constructions as in (11) appear to be used mainly in very formal writing (for example, in government documents). In most contexts, the singular forms of *hver/hver* and *annar* are used regardless of the nature of the entities participating in the symmetric event. For the purposes of this paper, in the interests of space, we will set aside this second order distinction in plurality and not include it in our syntactic account. A potential line of analysis would be to consider it in terms of the distinction between CONCORD NUMBER and INDEX NUMBER (King & Dalrymple 2004, Wechsler 2011), but we leave this for future research.

<sup>4</sup>[http://www.amnesty.is/media/Frettabrefid/Amnesty\\_juni\\_200642.pdf](http://www.amnesty.is/media/Frettabrefid/Amnesty_juni_200642.pdf)

<sup>5</sup><http://www.malefnin.com/ib/index.php?showtopic=11670&mode=threaded&pid=313832>

<sup>6</sup><http://tru.is/postilla/2005/12/jolin-eru-komin/>

### 3 Case and Word Order

In examples such as (1a) and (2) above we saw the standard Icelandic reciprocal construction in which *hvor/hver* and *annar* apparently belong to a single NP, but with case assigned independently. This difference in case assignment within a single NP is unexpected; theoretical models of case will generally assume that all members of an NP receive the same relational case. Furthermore, the results of a usage survey with approximately 500 Icelanders conducted by Peter Hurst in 2012 reveals a degree of variation in word order and case marking, adding further complexity to the description of Icelandic reciprocal constructions.<sup>7</sup> For example, participants were asked to select the different forms of the reciprocal construction they would use and that they hear others use in the following context:

- (12) *Ég kynnti mennina tvo [??? ??? ???]*  
 I introduced men two [... ... ...]  
 ‘I introduced the two men [to each other].’

The prescriptive account would expect *fyrir hvorn öðrum* (to each.M.SG.ACC other.M.SG.DAT) with the two elements of the reciprocal construction together functioning as the NP complement of the preposition *fyrir*, and with *hvor* agreeing in case with the antecedent (here *mennina* (ACC)) and *annar* appearing in dative case as assigned by *fyrir*. However, the results of the survey were striking in their variability, as shown below.<sup>8</sup>

- |         |                     |                    |          |
|---------|---------------------|--------------------|----------|
| (13) a. | <i>fyrir hvor</i>   | <i>öðrum</i>       | (38.50%) |
|         | to each.M.SG.NOM    | other.M.SG.DAT     |          |
| b.      | <i>hvorn</i>        | <i>fyrir öðrum</i> | (23.52%) |
|         | each.M.SG.ACC to    | other.M.SG.DAT     |          |
| c.      | <i>fyrir hvorum</i> | <i>öðrum</i>       | (19.16%) |
|         | to each.M.SG.DAT    | other.M.SG.DAT     |          |
| d.      | <i>hvor</i>         | <i>fyrir öðrum</i> | (7.49%)  |
|         | each.M.SG.NOM to    | other.M.SG.DAT     |          |
| e.      | <i>fyrir hvorn</i>  | <i>öðrum</i>       | (6.97%)  |
|         | to each.M.SG.ACC    | other.M.SG.DAT     |          |
| f.      | <i>hvorum</i>       | <i>fyrir öðrum</i> | (1.91%)  |
|         | each.M.SG.DAT to    | other.M.SG.DAT     |          |

Immediately we see that the prescriptive account of the reciprocal construction (13e) was only selected by about 7% of respondents. Furthermore, there is variation in word order as well, with

<sup>7</sup>This study was conducted as part of Peter Hurst’s PhD research and discussed in detail in Hurst (2012). Given the limitations of space in the present paper, we will not provide all details and results of the survey (which included 30 questions and 504 respondents) but refer interested readers to Hurst (2012).

<sup>8</sup>A follow up review of Icelandic texts showed all of these word orders in (13) are attested outside of the survey responses. Another 2.45% percent of respondents selected non-dative forms of *annar* and were discounted.

*hvor* being able to appear inside (13a, c, e) or outside (13b, d, f) the PP. Variation in word order has been previously documented by Everaert (1991) who noted that only two possible word order / case combinations were grammatical, corresponding to (13b) and (13c) above:<sup>9</sup>

- (14) a. *hvor*.NOM PREP *annan*.ACC      b. \*PREP *hvor*.NOM *annan*.ACC  
 c. \**hvor*.NOM PREP *annan*.ACC      d. PREP *hvorn*.ACC *annan*.ACC

As the survey data in (13) shows, there is more variation possible in modern Icelandic than that reported by Everaert (1991). For example, *hvor* can also appear within the PP with the case of its antecedent (as in (13e)), or with nominative case (as in (13a)). Additionally, we see that the most commonly selected construction (13a), where nominative *hvor* appears inside the PP, is one that Everaert (1991) considers ungrammatical ((14)b). Among the responses in (13) we can identify three distinct reciprocal constructions, each with two possible word orders depending on the relative positioning of *hver/hvor* and the preposition. The three reciprocal constructions are: (i) the standard reciprocal construction (13b, 13e) which we will refer to as the ANAPHORIC reciprocal since *hver/hvor* is inflected with the case of the antecedent; (ii) the PHRASAL reciprocal (13c, f) in which both parts of the reciprocal construction are inflected with the same case; and (iii) the FIXED CASE reciprocal which has *hver/hvor* in fixed nominative form irrespective of the case of *annar* or the antecedent (13a, d). In §4 we provide an LFG analysis of these three construction types that can account for both the range of case marking patterns and their interaction with prepositional phrases, as reflected in the possible word orders.

## 4 Analysis

We first present our analysis of *hver/hvor* and *annar* independent of their use in reciprocal constructions. We then show how our analysis of each reciprocal construction type follows straightforwardly as a variation from their non-reciprocal use.

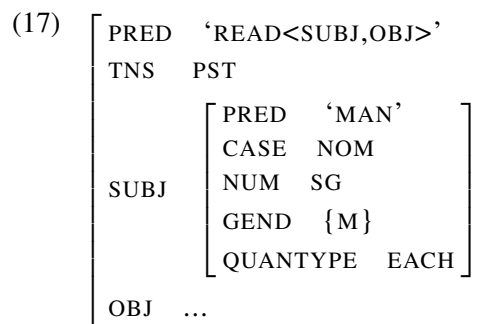
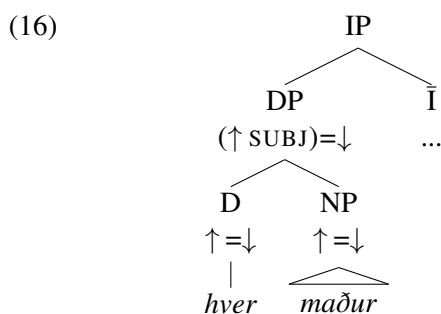
### 4.1 *Hver* as a determiner

As mentioned previously, *hvor* (each of two) and *hver* (each of more than two) are used as regular quantifying determiners in expressions such as (15) below:

- (15) *Hver*                    *maður*                    *las*                    *bók*.  
 each.M.SG.NOM man.M.SG.NOM read.3SG.PST book.F.SG.ACC  
 ‘Each man read (a) book.’

We analyse phrases such as *hver maður* ‘each man’ as co-headed nominal constructions, as shown in (16), assuming the lexical entries in (18):

<sup>9</sup>Everaert’s example uses a nominative antecedent with the preposition assigning accusative case to *annar*.



- (18)
- |                     |                  |
|---------------------|------------------|
| <i>hver</i> , D     | <i>maður</i> , N |
| (↑ GEND) = {M}      | (↑ PRED) = 'MAN' |
| (↑ CASE) = NOM      | (↑ GEND) = {M}   |
| (↑ NUM) = SG        | (↑ CASE) = NOM   |
| (↑ QUANTYPE) = EACH | (↑ NUM) = SG     |

## 4.2 Annar

*Annar* is also a nominal in its own right that exists independently of the reciprocal construction. For example, in (19) below, *annar* (realised as *aðrar*) refers to a plural entity with feminine gender:

- (19) *Hver maður sá sumar aðrar.*  
 each.M.SG.NOM man.M.SG.NOM saw.3PL.PST some.F.PL.ACC other.F.PL.ACC  
 'Each man saw some others (women).'

For symmetric semantics to be entailed, *annar* must agree with its antecedent in gender and have singular number (although see §2.2 for further discussion on number). Thus in (20) below *annar* (realised as *öðrum*) agrees with its antecedent in gender and so the clause has an (extended) symmetric sense – that men told each other these stories:

- (20) ...*sagði hver maður öðrum þessa*  
 tell.3SG.PST each.M.SG.NOM man.M.SG.NOM other.M.SG.DAT these.F.PL.ACC  
*sögur.*  
 story.F.PL.ACC  
 '(and after him) each man told the other these stories.'

To capture that fact that *annar* must agree with its antecedent in gender, its lexical entry must make reference to its antecedent's f-structure. For present purposes, we will assume that the antecedent must fall within the Minimal Finite Domain. Following Dalrymple et al., (2019):508, this is defined as follows where  $GF_{pro}$  is the grammatical function born by the pronoun and  $p$  is the pronoun's f-structure. Consequently, the antecedent's f-structure is defined using the local name %ANTE as in (22) below.<sup>10</sup>

<sup>10</sup>All relevant aspects of our analysis could be easily adapted to accommodate a different binding domain for *annar* should it be required.

(21) Minimal Finite Domain: ( GF\* GF<sub>pro p</sub> )  
 ¬(→TNS)

(22) %ANTE: (( GF\* GF<sub>pro ↑</sub> ) GF<sub>ante</sub> )  
 ¬(→TNS)

Thus, the f-structure for the antecedent is defined by a path from the anaphor's f-structure (↑) through an unspecified number of GFs without crossing an f-structure with a TNS attribute. The antecedent's f-structure may be any GF within that domain. The analysis of (20) is thus provided in (23). The lexical entry for *öðrum* in (23) constrains the f-structure of the antecedent to include QUANTYPE EACH and have the same GEND value as itself:

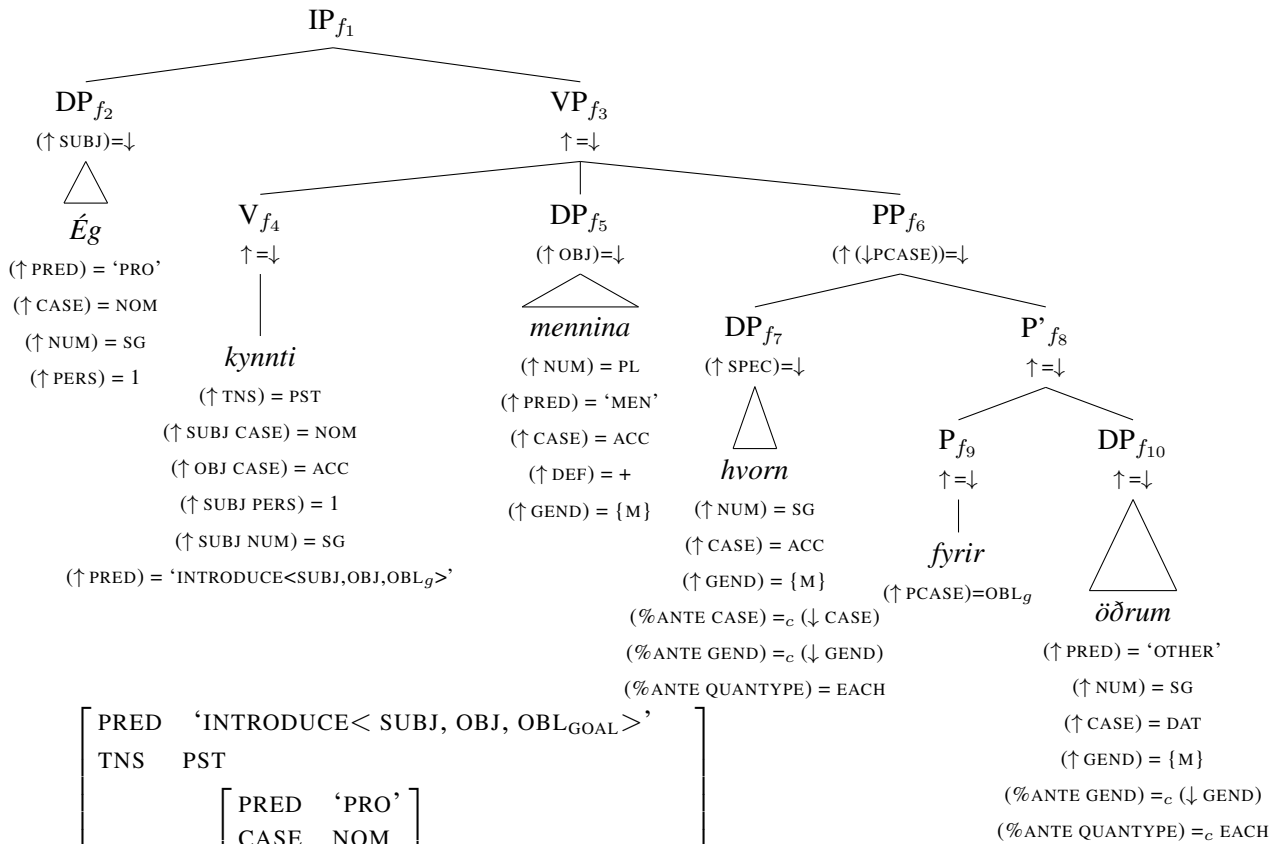
<p>(23)</p> <p><i>hver</i>, D        (↑ GEND) = {M}        (↑ CASE) = NOM        (↑ NUM) = SG        (↑ QUANTYPE)        = EACH</p> <p><i>maður</i>, N        (↑ PRED) = 'MAN'        (↑ GEND) = {M}        (↑ CASE) = NOM        (↑ NUM) = SG</p> <p><i>öðrum</i>, N        (↑ PRED) = 'OTHER'        (↑ NUM) = SG        (↑ CASE) = DAT        (↑ GEND) = {M}        (%ANTE QUANTYPE)        =<sub>c</sub> EACH        (%ANTE GEND)        =<sub>c</sub> (↓GEND)</p> <p><i>þessa</i>, D        (↑ NUM) = PL        (↑ CASE) = ACC        (↑ GEND) = {F}        (↑ DEF) = +</p> <p><i>sögur</i>, N        (↑ PRED) = 'STORY'        (↑ NUM) = PL        (↑ CASE) = ACC        (↑ GEND) = {F}</p> <p><i>sagði</i>, V        (↑ PRED) =        'TELL&lt;SUBJ,OBJ,OBL<sub>g</sub>&gt;'        (↑ TNS) = PST</p>	<p>(24)</p> <table style="border-collapse: collapse; width: 100%;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td>'TELL&lt;SUBJ,OBJ,OBL<sub>goal</sub>&gt;'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">TNS</td> <td>PST</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">SUBJ</td> <td> <table style="border-collapse: collapse; width: 100%;"> <tr><td style="border-right: 1px solid black; padding-right: 5px;">PRED</td><td>'MAN'</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">CASE</td><td>NOM</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">NUM</td><td>SG</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">GEND</td><td>{M}</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">QUANTYPE</td><td>EACH</td></tr> </table> </td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">OBJ</td> <td> <table style="border-collapse: collapse; width: 100%;"> <tr><td style="border-right: 1px solid black; padding-right: 5px;">PRED</td><td>'STORY'</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">CASE</td><td>ACC</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">NUM</td><td>PL</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">DEF</td><td>+</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">GEND</td><td>{F}</td></tr> </table> </td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">OBL<sub>goal</sub></td> <td> <table style="border-collapse: collapse; width: 100%;"> <tr><td style="border-right: 1px solid black; padding-right: 5px;">PRED</td><td>'OTHER'</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">CASE</td><td>DAT</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">NUM</td><td>SG</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">GEND</td><td>{M}</td></tr> </table> </td> </tr> </table>	PRED	'TELL<SUBJ,OBJ,OBL <sub>goal</sub> >'	TNS	PST	SUBJ	<table style="border-collapse: collapse; width: 100%;"> <tr><td style="border-right: 1px solid black; padding-right: 5px;">PRED</td><td>'MAN'</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">CASE</td><td>NOM</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">NUM</td><td>SG</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">GEND</td><td>{M}</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">QUANTYPE</td><td>EACH</td></tr> </table>	PRED	'MAN'	CASE	NOM	NUM	SG	GEND	{M}	QUANTYPE	EACH	OBJ	<table style="border-collapse: collapse; width: 100%;"> <tr><td style="border-right: 1px solid black; padding-right: 5px;">PRED</td><td>'STORY'</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">CASE</td><td>ACC</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">NUM</td><td>PL</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">DEF</td><td>+</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">GEND</td><td>{F}</td></tr> </table>	PRED	'STORY'	CASE	ACC	NUM	PL	DEF	+	GEND	{F}	OBL <sub>goal</sub>	<table style="border-collapse: collapse; width: 100%;"> <tr><td style="border-right: 1px solid black; padding-right: 5px;">PRED</td><td>'OTHER'</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">CASE</td><td>DAT</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">NUM</td><td>SG</td></tr> <tr><td style="border-right: 1px solid black; padding-right: 5px;">GEND</td><td>{M}</td></tr> </table>	PRED	'OTHER'	CASE	DAT	NUM	SG	GEND	{M}
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%ANTE is a local name (following Dalrymple et al., (2019)), which ensures that all constraints in a lexical entry that contain %ANTE refer to the same f-structure. In other words, it avoids a situation where the constraints (%ANTE QUANTYPE) =<sub>c</sub> EACH and (%ANTE GEND) =<sub>c</sub> (↓GEND) in the lexical entry for *öðrum* are satisfied by different f-structures: we need to ensure that both constraints are satisfied by the same f-structure. Note also that the constraint (%ANTE QUANTYPE) =<sub>c</sub> EACH in the lexical entry for *öðrum* requires that the antecedent be quantified by *hver/hver*. Thus, we ensure that the semantics associated with the construction will be symmetric - *i.e.*, that *hver* and *annar* are both referring to the same entities which participate in a symmetric situation.<sup>11</sup>

<sup>11</sup>A reviewer asks whether it is possible to get a coordinate structure as the antecedent in this construction type (as in 'Each man and each woman told the other these stories') and therefore whether QUANTYPE is a distributive or non-distributive feature. According to our Icelandic consultant such constructions are not grammatical.



and f-structure for (25b) are given below. We have labelled c-structure nodes and f-structures here to illustrate clearly the analysis.



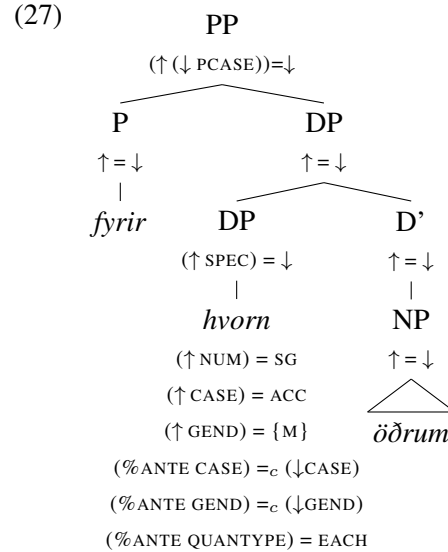
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Resolution of %ANTE

Only if %ANTE is the f-structure associated with the OBJ (i.e.,  $f_5$ ) are the constraints of *hvorn* and *öðrum* met:

- $(f_5 \text{ QUANTYPE}) =_c \text{EACH}$
- $(f_5 \text{ GEND}) =_c (f_{10} \text{ GEND})$
- $(f_5 \text{ GEND}) =_c (f_7 \text{ GEND})$
- $(f_5 \text{ CASE}) =_c (f_7 \text{ CASE})$

Features to note in the f-structure are that the antecedent GF (in this case the OBJ) is assigned the value EACH for the QUANTYPE attribute from the anaphoric determiner in the oblique PP. By functioning as a specifier to the PP, *hvorn* contributes information to the SPEC f-structure within  $OBL_{GOAL}$ . The flexibility afforded by LFG's parallel structures makes the analysis of the different positions of the floated determiner *hvorn* straight forward. To illustrate this, consider (25a) where anaphoric *hvorn* sits inside the PP. In (27) we give the updated c-structure where *hvorn* is specifier to *annar*. Note that the resulting f-structure is identical to that for (25b) above - *hvorn* still must agree with its antecedent in case and gender, and still contributes the QUANTYPE feature to its antecedent.



#### 4.4 The phrasal reciprocal construction

In the phrasal reciprocal construction *hver/hvor* appears in the same case as *annar*. In the survey this type of construction was very commonly selected, despite not being discussed as a standard construction type in Icelandic grammatical descriptions. For example, the phrasal reciprocal construction was selected by 75% of respondents in (28) below and by 19% in (29).<sup>14</sup>

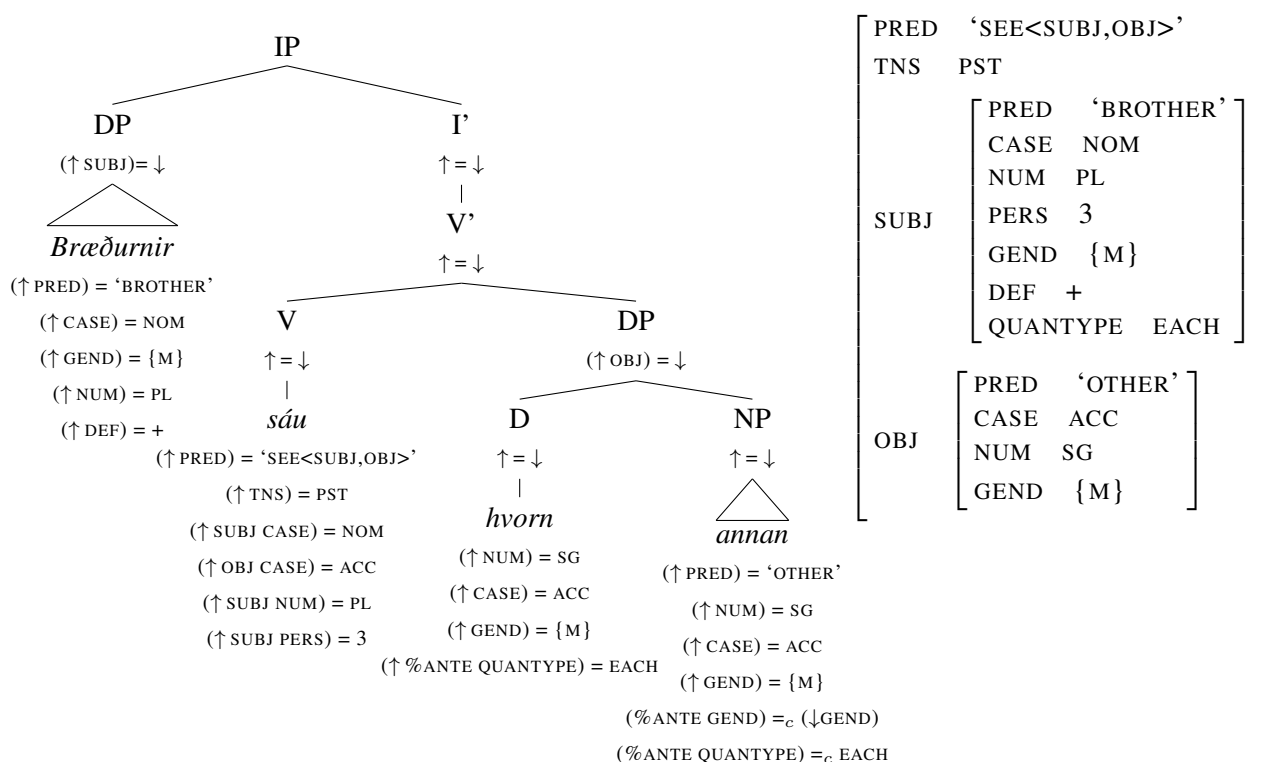
- (28) *Bræður-nir sáu hvorn annan.*  
 brother.M.PL.NOM-the see.3PL.PST each.M.SG.ACC other.M.SG.ACC  
 ‘The (two) brothers saw each other.’

- (29) *Ég kynnti mennina tvo fyrir hvorum öðrum*  
 I introduced men two to each.M.SG.DAT other.M.SG.DAT  
 ‘I introduced the two men to each other.’

In this construction we argue that *hver/hvor* has been reanalysed as a determiner within the same phrase as *annar*. The c-structure and f-structure for (28) are provided below. Thus, this construction is similar to that discussed in §4.1, where *hver/hvor* and *annar* co-head the nominal phrase. This accounts for their case agreement, and also predicts that the two elements will appear contiguously, in a single phrase. This is consistent with the survey results since it was overwhelmingly preferred that the two elements be contiguous in the phrasal reciprocal construction; less than 2% of respondents thought that it was possible in (29) for *hvorum* to be separated from *öðrum* by the preposition, which is a level we consider to be ungrammatical for the purposes of this paper.

<sup>14</sup>Our objective in this paper is to provide a syntactic analysis of the commonly accepted reciprocal construction types, but not to account for why some of these are more preferred than others.

(30)



Note that although *hvorn* is in a phrase with *annan* in this construction, it still retains one of its anaphoric properties – assigning the QUANTYPE = EACH information to its antecedent. The relevant lexical entries for (28) above are given in the above c-structure. Note that the requirement that *hvorn* must match its antecedent in both gender and case is not present in this lexical entry. For speakers that have this reanalysed form of *hvor/hver*, the case and gender agreement is with *annan* (by virtue of them being co-heads of a single DP) rather than with the antecedent directly; gender agreement with the antecedent is via *annan*.

#### 4.5 The fixed case reciprocal construction

The fixed case reciprocal construction is only distinct from the other constructions when the antecedent is non-nominative. An example of the fixed case construction is provided in (31). This construction was commonly chosen by survey respondents:<sup>15</sup>

<sup>15</sup>Interestingly a further 7.5% of respondents also allowed *hvor fyrir öðrum*, with the determiner to the left of the preposition. This is not expected if *hvor* and *öðrum* are a fixed phrase. Overall the survey results show that the more complex the sentence, and the more difficult it is to determine the case of *hvor*, the more likely a speaker is to simply use the unmarked (*i.e.*, nominative) form (see Hurst (2012) for discussion). We argue below that *hvor* in this fixed case construction is best treated as caseless, rather than marked with nominative case, and therefore presume that some Icelandic speakers allow a quantifier DP to appear without case in contexts such as *hvor fyrir öðrum*.

- (31) *Ég kynnti mennina tvo fyrir hvor öðrum.*  
 I introduced men.M.PL.NOM two to each.M.SG.NOM other.M.SG.DAT  
 ‘I introduced the two men to each other’ (38.5% of 500 respondents)

In this construction, *hvor/hver* appears to be in an invariable nominative case form: it doesn’t agree in case with either the antecedent or *annar*. It is not a morphologically frozen form however, since it continues to inflect for gender – should a neuter gender be required, *hvort* (the neuter singular form of *hvor*) is preferred. The fixed case reciprocal construction in (31) is unexpected as it is not immediately clear why *hvor/hver* should be inflected with nominative case in this context. However, when we examine the paradigm of *hvor* (and *hver* declines very similarly) we see that the word form *hvor* is the most unmarked morph in the paradigm:

	<b>Masculine</b>	<b>Feminine</b>	<b>Neuter</b>
<b>Sg. nom.</b>	<i>hvor</i>	<i>hver</i>	<i>hvort</i>
<b>Sg. acc.</b>	<i>hvor-n</i>	<i>hver-a</i>	<i>hvort-t</i>
<b>Sg. dat.</b>	<i>hvor-um</i>	<i>hver-ri</i>	<i>hvort-u</i>
<b>Sg. gen.</b>	<i>hvor-s</i>	<i>hver-rar</i>	<i>hvort-s</i>

Table 1: Singular forms of *hvor*

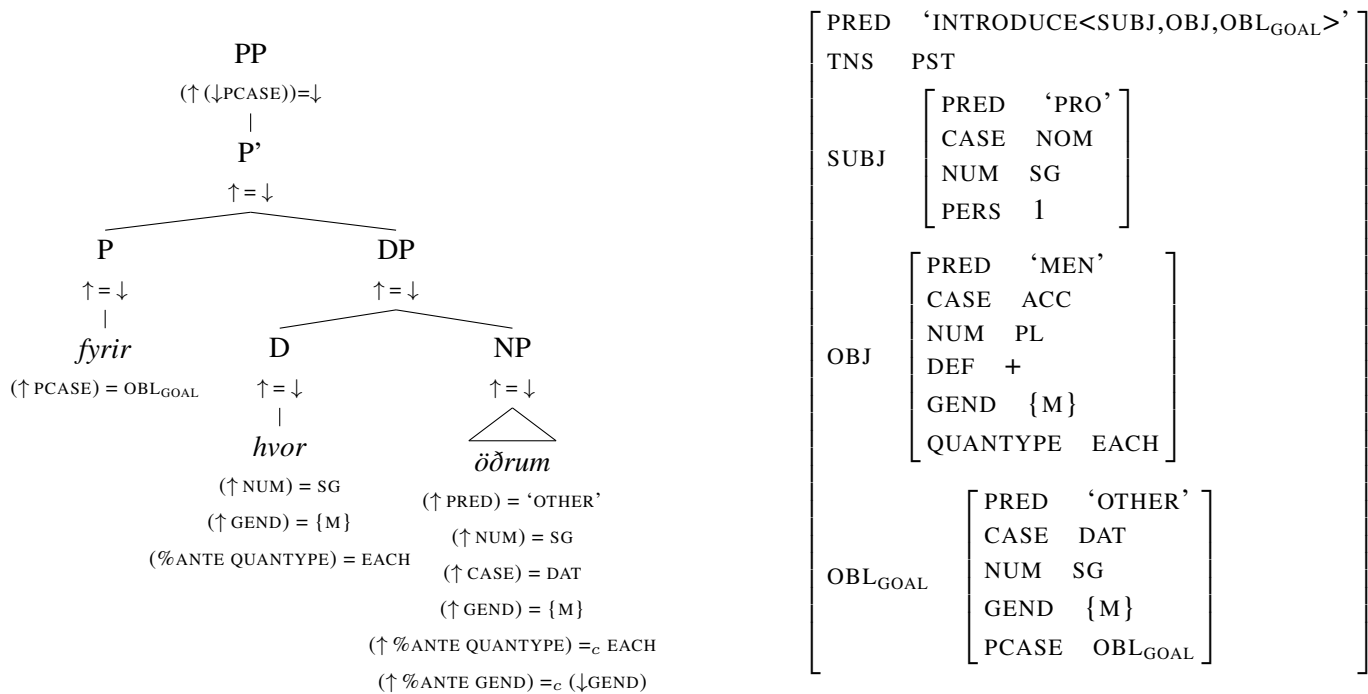
Consequently, our view is that *hvor/hver* is not inflected with nominative case in examples like (31) above but has been reanalysed as having no case feature at all in this context. Thus, it remains a determiner and continues to inflect for gender, but carries no case information. This allows for it to appear as a determiner in any reciprocal construction irrespective of the case of the antecedent. It also accounts for the strong preference for *hvor* to belong to the same DP as *annar* in this construction type, as opposed to appearing as a separate DP to the left of the preposition, since DPs must generally have case in Icelandic, and so the caseless determiner needs to be in a phrase with *annar* in order for the DP to have a case value.

To reflect the loss of the case feature *hvor* (fixed form) has an almost identical lexical entry to *hvor* (phrasal), the only difference being that it longer specifies a case feature:

- |      |                          |                          |
|------|--------------------------|--------------------------|
| (32) | <i>hvor</i> (phrasal)    | <i>hvor</i> (fixed form) |
|      | (↑ NUM) = SG             | (↑ NUM) = SG             |
|      | (↑ CASE) = NOM           | (↑ GEND) = {M}           |
|      | (↑ GEND) = {M}           | (% ANTE QUANTYPE) = EACH |
|      | (% ANTE QUANTYPE) = EACH |                          |

As the difference in *hvor* in this construction is relatively minor, we only show the PP of (31):

(33)



#### 4.6 A short note on reciprocal semantics

In the examples we've used above *annar* requires its antecedent to have the attribute-value pair [QUANTYPE EACH], information that is contributed to the antecedent via the lexical entry for *hvor/hver*. At this point, reciprocal semantics fall out as natural consequence of the interplay of the quantification of EACH with *annar* (what Plank (2008) calls the "alterity word"). For more details, particularly with an example of the truth conditions associated with these words in English see Langendoen (1978). What comes of this though is a very specific type of reciprocity called "Strong Reciprocity". This means that every entity in the symmetric situation must be both an initiator and endpoint of the reciprocal relation. However, in Icelandic, these constructions are used in contexts which are not (or cannot be) strongly symmetric. For example, in (34) below, an example which works equally well in English, both cucumber slices can't actually be on top of each other:

- (34) *Leggið tvær langar gúrkusneiðar ofan á hvor aðra...*  
 'Place two long cucumber slices on top of each other...'

One explanation for this is offered by Dalrymple et al. (1998) whereby the truth conditions of the construction could be pragmatically weakened by varying the saturation of the quantification over the individuals within the set described by the relationship *ofan* 'on top of'. An alternative explanation is that the combination of *hvor/hver* and *annar* should be considered a construction associated with reciprocal semantics via the application of a reciprocal operator (see Dalrymple et al. (1998) for details). Certainly, at some point speakers will interpret the semantics of this construction in this way (if they haven't already) rather than as being derived through the interplay

of two separate words, particularly those speakers for whom *hvor/hver* has lost its case feature as it has in the fixed case construction discussed in §4.5.

## 5 Conclusion

We have shown that Icelandic reciprocal expressions form a number of construction types, and that each of these constructions can be given a natural account within LFG. Interestingly these different constructions appear to be aligned along a historical axis, as discussed in detail in Hurst (2012). Thus, in the Sagas (Old Icelandic stories mostly written in the thirteenth and fourteenth centuries) the most dominant reciprocal construction is the ‘each saw the other’ construction (§4.2), followed by a small number of anaphoric reciprocal constructions (§4.3). By the nineteenth century, the anaphoric reciprocal construction (§4.3) appears to be taking over, and then leading into the modern era, we have the anaphoric reciprocal construction as the standard construction, but we see in the survey results that speakers are increasingly more likely to treat *hver annar* as a phrase, in either the phrasal construction (§4.4) or the fixed case construction (§4.5). Indeed, these changes are ongoing, as Hurst (2012) found that younger speakers are considerably more likely to employ the fixed case reciprocal construction over the anaphoric reciprocal construction when compared with older speakers. This progression is typical of the reciprocal construction in Germanic languages and is discussed in detail by Plank (2008) who notes that the quantifier (*hvor/hver* in our case), once it leaves the antecedent NP, “[s]ooner or later gets inside prepositional phrases” (Plank 2008:347).

In this paper we have shown that the parallel structures of LFG enable us to capture these developments in a natural way. Initially, *hver/hvor* develops anaphoric properties (§4.3) as it moves closer in *c*-structure to *annar*. The construction then becomes ever more grammaticalized as *hvor/hver* and *annar* draw together (§4.4, then §4.5) and *hvor/hver* loses grammatical features: first losing case and gender agreement with the antecedent in the phrasal construction (§4.4), and then losing case altogether in the fixed case construction (§4.5). Note, however, that this grammaticalization of the reciprocal construction occurs on more than one dimension. Just as the syntactic construction is slowly grammaticalized, there is also a conventionalization of the reciprocal semantics (§4.6) where the symmetric sense of the constructions changes from arising from the interplay of the semantics of *hvor/hver* with *annar*, to a conventionalised sense, possibly utilizing a reciprocal operator as described in Dalrymple et al. (1998).

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