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The development of English *each other*: grammaticalization, lexicalization, or both?

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The historical development of the English reciprocal expression *each other* exemplifies different aspects of language change, both morphosyntactic and semantic. This article examines the formation of the reciprocal marker from the perspective of grammaticalization theory, with a special focus on the relationship between grammaticalization and lexicalization. It will be argued that an adequate distinction between lexicalization and grammaticalization can only be achieved if we define the two concepts with reference not to an expression's grammatical status before and after the change, but rather to the diachronic processes involved, namely context expansion in the case of grammaticalization, and univerbation combined with fossilization in the case of lexicalization. The development of *each other* provides evidence for this view. It has its origin in syntactic structures of the type *Each of the kings hates the others* and has undergone univerbation and fossilization as well as context expansion. It will also be shown that definitions of lexicalization and grammaticalization that are too closely linked to the opposition between lexicon and grammar are problematic for an analysis of the changes undergone by the reciprocal marker. Furthermore, our analysis regards the development of *each other* as a case of simultaneous lexicalization and grammaticalization.

1 Introduction[1]

Several recent publications within the framework of grammaticalization theory have dealt with the question of how best to distinguish between the concepts of grammaticalization and lexicalization. As Lindström (in prep.) has shown, there is often disagreement between linguists as to whether a given instance of language change should be conceived of as grammaticalization or as lexicalization (see also Wischer, 2000; Brinton, 2002; Himmelmann, 2004; Brinton & Traugott, 2005).

In this article I will try to contribute to this debate by examining one recent proposal for drawing a clear distinction between the two concepts and applying it to the case of the English reciprocal marker *each other*.[2] The historical development of the English

[1] I wish to thank the following participants of the FITIGRA conference (Leuven 2005) for helpful comments and suggestions: David Denison, Teresa Fanego, Olga Fischer, Günter Rohdenburg, and Scott Schwenter. Moreover, I am indebted to Volker Gast, Ekkehard König, Ferdinand von Mengden, and an anonymous reviewer for many detailed comments and suggestions on earlier versions of this paper. All remaining errors are of course my own. Financial support from the DFG-Sonderforschungsbereich 447 ('Kulturen des Performativen') is gratefully acknowledged.

[2] *Each other* and its near-synonym *one another* are often called 'reciprocal pronouns' or 'reciprocal anaphors' in descriptive grammars as well as in the theoretical literature. I will not use the term for the following reasons: firstly, although they seem to be part of the pronominal paradigm of English, these expressions differ from ordinary English pronouns (including reflexive ones) in not showing any inflectional variability whatsoever. Secondly, within a typology of reciprocal constructions such as the ones worked out by Evans (to appear) and

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reciprocal is interesting insofar as it exhibits properties of what has been described as grammaticalization, on the one hand, and of lexicalization, on the other. In fact, it will be shown that both grammaticalization and lexicalization, even if the two notions are kept apart carefully, have been involved in the development of the reciprocal. Moreover, the two processes have not occurred one after the other, but simultaneously, or at least with a temporal overlap. In section 2, I will give a brief introduction to the theoretical debate revolving around the grammaticalization–lexicalization dichotomy. Section 3 outlines the process-based approach which I will use. Then, in section 4, the notions 'reciprocity' and 'reciprocal construction' will be defined, followed by an outline of the historical development of reciprocal constructions in English. The focus will be on the expression *each other*, always bearing in mind that the grammar of reciprocity in English is much more complex and comprises other expressions and constructions.[3] In section 6 the question will be raised of how the development of *each other* should be analysed in the light of Himmelmann's (2004) account of the grammaticalization–lexicalization dichotomy. A concluding section will sum up the main results of the study.

2 Theoretical questions

Surprisingly little work has been devoted to the phenomenon of lexicalization, if we compare this to the number of studies concerned with grammaticalization, especially in the last two decades (see Brinton & Traugott, 2005). The insight that new lexemes arise by way of univerbation is of course not a new one. The problem, however, is that since grammaticalization as a theoretical linguistic concept became popular, linguists have not paid too much attention to the question of what exactly distinguishes the newly discovered concept of grammaticalization from lexicalization. To put it differently, the notion of grammaticalization was often not defined in a way that made a clear differentiation from lexicalization possible. In the vast majority of cases this lack of a clear demarcation is not crucial, since the assignment to one of the two processes seems unproblematic. In some cases, however, such an assignment does turn out to be controversial.

Himmelmann (2004) argues that much of the confusion goes back to what he calls the 'box metaphor' view of grammaticalization. If one follows the box metaphor, one presupposes a division of the language system into a lexicon and a grammar.

König & Kokutani (2006) *each other* and *one another* belong to the type of 'bipartite quantifier NP', whereas 'reciprocal pronouns' (König & Kokutani's 'pronominal strategy') are of a different type. I will therefore avoid the term 'reciprocal pronoun' and speak of the 'reciprocal' instead.

[3] The reciprocal marker *one another* started to occur in early ModE (not before the sixteenth century, according to Visser, 1963: 447 and Sheen, 1988: 172), and has probably developed in a way very similar to the development described here for *each other* (cf. Raumolin-Brunberg, 1997; Sheen, 1988). Yet some of the arguments that will be made concerning the lexicalization and grammaticalization of *each other* can obviously not be applied to the genesis of *one another* as a reciprocal marker. The second element in *one another* does not lack an article, for instance. For reasons of space, these and also the semantic differences between *each other* and *one another* in PDE cannot be discussed here (see Visser, 1963: 447–8, Kjellmer, 1982, and especially Bolinger, 1987).

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Grammaticalization can then be defined with reference to these two boxes. It is simply the change from the lexicon into the grammar. Similarly, lexicalization can roughly be defined as a change of grammatically complex phrases into the lexicon. A definition based on the box metaphor of course captures the basic intuition behind what we take grammaticalization to be. Yet, it crucially depends on an uncontroversial assignment of linguistic items to either the lexicon or the grammar. As Wischer (2000), Brinton (2002), Himmelmann (2004), Brinton & Traugott (2005), and Lindström (in prep.) have shown, there are many cases where linguists working in the grammaticalization framework do not agree on whether a given item is lexical or grammatical. This concerns, for example, derivational affixes and function words.[4]

Now, if one defines grammaticalization by making reference to the box metaphor, the actual processes involved are normally mentioned but not taken to be necessary or sufficient conditions. The other component involved in definitions of grammaticalization is the 'process metaphor', which makes reference to diachronic phenomena such as phonological erosion and semantic extension. As will be shown in the next section, Himmelmann (2004) is an attempt to come to terms with the lexicalization–grammaticalization distinction by employing only the process metaphor.[5] In my discussion of the development of *each other* (section 6) I will use his framework. But before we come to the process-based approach, let me point out another potential problem for definitions of the type exemplified above. Defining grammaticalization in terms of lexical expressions becoming grammatical, or grammatical items becoming more grammatical for that matter, excludes cases in which already grammatical items (if we assume, for the sake of the argument, that the state of being grammatical can be ascertained in the majority of cases) become part of a new grammatical expression or construction which is not necessarily 'more grammatical' than the source expression. In fact, I will argue that English *each other* is exactly such a case. If the development of the reciprocal counts as grammaticalization, this would present additional evidence against the box-metaphor view of grammaticalization and lexicalization.

[4] Recent developments in construction grammar and related approaches have likewise called into question the neat division between lexicon and grammar from a synchronic point of view.

[5] Lehmann's (2002) explication of the grammaticalization–lexicalization dichotomy, in which he argues at length that the two phenomena are not simply mirror images of each other, is very similar to Himmelmann's approach. I leave open which of the two is more appropriate in general, but for reasons that will become clearer in the remainder of this article I take the latter to be more suitable for the development of English *each other*. This concerns mainly the issue of what has happened to the reciprocal after it came into existence by way of lexicalization. According to Lehmann (2002: 17), we should expect grammaticalization to '[reduce] the autonomy of a unit, shifting it to a lower, more strictly regulated grammatical level', but this might not correctly characterize the development of *each other*, which first of all appears to have been one of context expansion (see section 6.2). Brinton & Traugott's (2005) approach to the lexicalization–grammaticalization dichotomy is likewise not very different from the one adopted here. The crucial difference between Brinton & Traugott (2005) and Himmelmann (2004) is that the former include degrees of linguistic items being 'lexical' or 'grammatical' in their definitions of the two processes. As I will argue below, this seems difficult to apply in the case of *each other*.

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3 A process-based approach

Having pointed out the shortcomings of the box-metaphor approach, Himmelmann (2004) proposes a view that makes crucial reference to the processes involved in grammaticalization and lexicalization. More specifically, he identifies semantic/pragmatic and syntactic context expansion as the criterial features of grammaticalization, on the one hand, and univerbation combined with fossilization as necessary properties of lexicalization, on the other. A similar view of grammaticalization has been expressed by Bybee (1988) and Bybee & Dahl (1989). What is crucial about this view is that it gives us criteria which do not overlap with respect to the dichotomy at issue. In other words, if we discarded the box metaphor and said that grammaticalization is, *inter alia*, characterized by phonetic reduction, this would still not help us distinguish the two processes. After all, phonetic reduction characterizes what we intuitively think of as lexicalization, as well (see Brinton & Traugott, 2005). A better approach will therefore be to use only criteria that do not overlap, hence semantic, pragmatic, and syntactic context expansion, on the one hand, and univerbation combined with fossilization on the other.

This conception is not at odds with the intuition that grammaticalization affects the grammatical system. If a given expression or construction comes to be used in more contexts, this normally implies that it becomes more schematic (i.e. less idiosyncratic and to a greater extent bound to general rules and thus 'more grammatical').

4 Reciprocity and reciprocal constructions

The theoretical question as to what counts as a reciprocal construction is not settled and this is not the place to review the debate in any detail (for different approaches see Dalrymple, Kanasawa, Kim, Mchombo & Peters, 1998; König & Kokutani, 2006; Evans, to appear; Plank, to appear among others.). Since we are primarily concerned with the development of the form *each other*, however, the generalizations to be drawn in this article will not hinge on what exactly counts as a reciprocal marker or construction, a question which is more important when it comes to a typological investigation of reciprocal constructions. I will adopt the approach of König & Kokutani (2006). They take the notion of symmetric predicate as a starting point. Symmetric relations are standardly defined as relations that necessarily hold in two directions. The predicate *shake hands with* is an example. An important point here is that we are dealing with properties of the predicate itself. A reciprocal construction is then defined as a grammatical structure expressing a relation which holds symmetrically for any transitive predicate.[6] Thus, whereas in a sentence like (1a) the reciprocity comes from the symmetric meaning of the predicate and obviously needs no special marking, a verb like *tease* in (1b) is not symmetric and takes the reciprocal *each other* in its object position.

[6] The exact meaning of reciprocal sentences with more than two participants is more complex (see Dalrymple et al., 1998) and depends on many factors, including the actionality of the relevant verbs; see Fiengo & Lasnik (1973) and Bruening (2004).

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(1) (a) Kate and Willie shook hands.
(b) Kate and Willie teased each other.

5 The early development of *each other*

Old English (henceforth OE) did not have a specialized reciprocal construction. There were a variety of more or less productive ways of expressing reciprocity. First of all, OE resembles Present-day English (henceforth PDE) in that a limited number of naturally reciprocal predicates could be used intransitively with plural subjects. Consider (2a) and (2b):

(2) (a) ðær hie[7] æt gefeohtum gemette [wrongly for *gemetton*].
'There they met at the battle.' (Ælfred, Oros. 127, 26)
(b) Se bið gefeana fægrast þonne hy æt frymðe gemetað, . . .
'That shall be the fairest of joys, when they at first shall meet . . .' (GuthA 83, 1)

For ordinary transitive predicates one way of marking reciprocity was to use the set of nonspecialized plural object pronouns, as illustrated in (3):

(3) ne ðurfe we us spillan.
'We need not kill each other.' (Battle of Maldon, 34)

Object pronouns could be bound locally in OE, i.e. they were not barred from denoting a reflexive relation. Having said that, it should not be surprising that they could also express reciprocity, given that in many languages reflexive anaphors may fulfil this additional function. The new reflexive *self*-forms showed the same behaviour (see König & Siemund, 2000, van Gelderen, 2000, and Keenan, 2002 for the development of reflexive pronouns). Even as late as Shakespearean times reflexive anaphors were able to fulfil this double function.

Collective adverbs like *gemænelice* 'together' and *togedere* were a further frequent means of expressing reciprocity. Either they were added to the structures discussed above – transitive clauses with the bare object pronoun in object position – or they occurred without an object pronoun:

(4) (a) þæt ge lufion eow gemænelice swa ic eow lufode.
'That you love one another as I have loved you.' (O.E. Gosp. John XV, 12)
(b) Hi fengon togeðere fæstlice mid wæpnum.
'They seized each other vigorously with their weapons.' (Ælfric, Hom. ii, 25, 631)

The most important group of structures in the context of the present article, however, is exemplified in (5). All the constructions in (5) involve the 'alterity word'[8] 'other' in combination with an existential or universal quantifier. The following list exemplifies some of the possible combinations of quantifiers and the alterity word. Obviously,

[7] MS C has *hi hi* instead of *hie*, according to Bateley (1980: 127). The verb would thus not be used intransitively but rather take a reflexive object. Bosworth (1859: 111), by contrast, gives *hi*.
[8] A term borrowed from Plank (to appear).

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OE – and Middle English (henceforth ME), for that matter – not only exhibited a larger variety of reciprocal strategies altogether, but also manifested more variation with respect to this quantificational strategy, as illustrated in (5).

(5) (a) ælc 'each' . . . oðer
(b) æghwylc 'each'. . . oðer
(c) ægðer/æghwæðer 'either'. . . oðer
(d) an 'one'. . . oðer
(e) ænig 'any'. . . oðer
(f) oðer. . . oðer

There was not only variation as to which quantifiers combined with the alterity word, but also as to which syntactic function the quantifier fulfilled. The quantifiers functioned either as determiner, as the head of an NP or as an adverbial modifier, as illustrated by (6a), (6b) and (6c) respectively.

(6) (a) Her is æghwylc eorl oðrum getrywe.
'Here every earl is true to the other.' (Beowulf, line 1228)
(b) ðæt incer ægðer fylste oðrum to rihte.
'That either of you two help the others to his right.' (Ælfric, Letter to Wulfgeat)
(c) Hi cwædon ælc to oðrum.
'They each spoke to the other.' (O.E. Gosp., Mk IV, 41)

Example (6c) illustrates the structure that will turn out to be relevant for the further development of the reciprocal construction. The quantifier *ælc* 'each' here follows the verb, a configuration in which *ælc* seems to correspond to the 'floating quantifiers' of PDE. Note that in PDE a floating quantifier such as *each*, *all*, or *both* may either precede the verb (*Her relatives all came to the wedding*) or follow the auxiliary (*Her relatives have all come to the wedding*). What is clearly excluded is a floating quantifier after the main verb (**Her relatives came all to the wedding*). Since OE and ME allowed quantifiers to follow the verb in this way, a crucial ME change became possible: the quantifier and the alterity word *other* became adjacent and could be reanalysed as a unit. This univerbation must have happened at some point between late ME and EModE. When the reanalysis took place exactly is impossible to tell because the surface structure of the clause does not change if two adjacent items are reanalysed as one unit.[9] Therefore we have to look for syntactic configurations where the two items could not appear adjacent to each other unless analysed by speakers as a single NP. Prepositional phrases (PPs) constitute a clear case in this respect (see section 6.1).

[9] This was already recognized by Visser (1963: 445) in his classification of reciprocal strategies throughout the history of English. A general objection to the linear development from OE to PDE assumed here might be that by excluding dialectal variation it only gives a simplified picture of the history of the reciprocal. However, since there were no fundamental changes with respect to our parameters between OE and ME and since ME dialects do not vary significantly with respect to the expression of reciprocity (see Sheen, 1988), the development from ME to PDE outlined here will not distort the full picture too much.

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6 Lexicalization and grammaticalization in the development of *each other*

This brings us to the question of which aspects of the historical development of *each other* instantiate grammaticalization processes, and which of them should rather be assigned to lexicalization. Above, grammaticalization was defined as semantic/pragmatic and syntactic context expansion of a grammatical construction.[10] Lexicalization, by contrast, is defined as univerbation and fossilization.

6.1 Lexicalization

As already mentioned in section 5, an important step in the development of *each other* was the point when the formerly independent elements of the expression were reanalysed as a single NP. Interestingly, there are no perceptible changes that point to the fusion of *each* and *other*, not only at the stage of univerbation but even today. Nevertheless, there are some clear indicators of reanalysis as one word, such as mobility as a unit. The first context which provides evidence of that property is the distribution of the reciprocal in PPs. We saw in section 5 that the modern reciprocal originates in structures involving a quantifier and the alterity word, the two expressions still syntactically independent of each other. In clauses where the alterity word followed a preposition, the quantifier necessarily had to precede the preposition. This order is schematized on the left side of (7). At the point where the two expressions were reanalysed as a single constituent, the new expression was able to follow the preposition as a whole. Here are examples both of the original situation ((8a)-(8b)) and the state following reanalysis (8c):

(7) Quant PREP *other* > PREP [Quant *other*]

(8) (a) And there vppon they cast eche to other their gloves [. . .] (Helsinki Corpus, ME IV [1420–1500])
(b) They foynen ech at other. (Chaucer, C.T., *Knight's Tale*)
(c) I praie God send them comfort of eche other. (1546, John Johnson 481)

At no stage of English, or any other Germanic language for that matter, was it possible for a floating quantifier to 'float' behind a preposition (cf. also Plank, to appear). Sentences like (8c) can therefore only be accounted for if we assume univerbation of quantifier and alterity word.

Now, in order to qualify as lexicalization in the sense defined above, the newly formed reciprocal should also exhibit fossilization. In other words, apart from behaving as a unit syntactically, the reciprocal is expected to show a meaning that is not exclusively derivable from the meanings of its parts, on the one hand, and to preserve formal properties that the expression exhibited at the point when it became a unit, on the other.

[10] Himmelmann does not view syntactic context expansion as a necessary condition for grammaticalization. He does not really explain why semantic/pragmatic context expansion should actually be more important than syntactic context expansion. I am grateful to Teresa Fanego for pointing this out to me. In the following, I will treat the two types as equally important.

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It appears that both of these aspects of fossilization surface in the development of *each other*. Considering sentences like (8a), it is quite obvious that reciprocal relations lend themselves to being expressed via quantification. Thus a sentence like *Each of the girls likes the others* designates a reciprocal relationship, such that each girl in the set denoted by the subject stands in a liking relation to the other individuals in the group. If we now ask whether in the course of lexicalization certain meaning components were lost in the new reciprocal, one candidate could be the quantifying force of the universal quantifier *each*. And indeed, we can observe a weakening in this respect. Consider the meaning of *each*. Like *all*, it quantifies maximally, i.e. it does not allow exceptions in the set it quantifies over (cf. Dowty, 1987; Brisson, 1998, 2003):[11]

(9) (a) The tourists visited the castle.
    (b) The tourists each visited the castle.
(10) (a) Each of the tourists was taking pictures of the others.
    (b) The tourists were taking pictures of each other.

There are two aspects of the meaning of *each* in sentences like (9b) that are in some way relevant to the lexicalization of the reciprocal. Firstly, *each* has the function of disambiguating between a collective and a distributive reading of (9a). (9a) is ambiguous in the following way: it can either mean that the tourists visited the castle together (as a group), or that they visited the castle individually. The former reading is normally referred to as 'collective', the latter as 'distributive'. Sentence (9b) with *each* can only have the distributive reading. Secondly, (9a) is 'nonmaximal' in the sense that exceptions to the predication are allowed, i.e. (9a) is acceptable if one or two tourists stayed at the hotel. Example (9b), by contrast, does not allow exceptions – each and every tourist must have visited the castle.[12] Both oppositions – collective vs distributive and maximal vs nonmaximal – thus seem to play a role also in reciprocal sentences such as (10a) and (10b). We will concentrate on maximality.

The contrast between (9a) and (9b) in terms of maximality finds its parallel in the pair (10a) and (10b). While (10a) requires each and every tourist to be involved in the reciprocal relation of taking pictures, (10b) allows nonmaximality. How are these facts related to the lexicalization of *each other* as a reciprocal marker? Fossilization, one of the necessary components of lexicalization in the theory advocated here, implies loss of semantic compositionality. In the case at hand, a loss of compositionality could be demonstrated if *each* as part of the reciprocal *each other* had lost its maximally distributive force. This is exactly what we observe in (10b). Whereas the quantifier *each* in (10a) distributes maximally over the set of tourists, the element *each* in (10b) does not induce maximal distributive quantification (cf. Fiengo & Lasnik, 1973: 452; Williams,

[11] Floated *all* can also have a nonquantificational function in colloquial American English. In a sentence like *They were all hitting each other*, the word *all* – if unstressed – would then not maximize the set of hitters but rather have a discourse-related function comparable to *like* (compare *They were like hitting each other*). I am grateful to Scott Schwenter (personal communication) for pointing this out to me. See also now Buchstaller & Traugott (2006) [editor's note].

[12] Note that this contrast is in principle independent of the collective–distributive distinction. Both readings, the collective one and the distributive one, allow for exceptions.

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1991: 162; Brisson, 1998: 37–43; Beck, 2000: 3–5). We can therefore conclude that the element *each* which constitutes the first part of the reciprocal does not function as a quantifier in the way we can see in (9b) and (10a). In terms of lexicalization this exemplifies fossilization of the new unit *each other*.

There are other properties of the reciprocal which point to lexicalization. One concerns its combinatorial behaviour. If we assumed that the meaning of *each other* directly reflected the meanings of its two elements, sentences like the following would show the strange situation of two identical quantifiers with the same meaning in one clause:

(11) (a) I know where you stand, and you know where I stand. We each know each other a little better. I don't think we could ask for a much better result.[13]
(b) . . .Nothing negative against anyone, but Jett members are constantly playing everyday with one another and we each know each other very well.[14]
(c) She wishes that he and she may each know each other's true selves as they both exist; alive and in the present.[15]
(d) At last I convinced the children that they'd each see each other in the morning, and we led them off to bed.[16]
(e) The houses were each slightly different from each other. (BNC H9D 449)

The preferable analysis of examples like the ones in (11) is probably to say that the second instance of *each*, being part of a fossilized reciprocal, is not analysed as an ordinary quantifier any more. As a consequence, it becomes possible to add a quantifier *each* to the sentence, in order to indicate maximal distributive quantification. Admittedly, such examples are not particularly frequent in PDE corpora.[17] Nonetheless, the fact that they exist seems to prove the point I am making.

An immediate objection to the claim that the sequence *each other* has undergone lexicalization could be that there is no clearly discernible phonetic reduction or fusion. This argument relates to the internal cohesion of the string *each other* or, to be more precise, to phonetic or phonological consequences thereof. Yet there are at least three formal properties of the expression that seem to prove its status as a fossilized unit. The first is the fact that the alterity word lacks an article, the second is the lack of number marking on *other*, and the third is the impossibility of stressing the quantifier part of the reciprocal.

[13] Source: http://weblog.burningbird.net/_res/000695.htm, 01/01/2005
[14] Source: http://www.provinggrounds.com/forums/view.cfm?action=view&topic=12648, 01/01/2005
[15] Source: http://www.soj.org/review/1997/June22.html, 01/01/2005
[16] Source: http://www.covenanthouse.org/sisbk9702.html, 31/05/2005
[17] Discussing all the reasons for this state of affairs would require a separate article. The fact that both elements of the reciprocal are still transparent may hamper the production of sentences such as those in (11). After all, the same function word appears to occur twice in such examples, even though the two instances are not at all identical from the point of view of their syntactic function. A further factor that may be responsible for the rarity of such examples is the availability of another construction, namely the *each . . . the other* construction. Thus the sentence *We each know the other a little better* is in competition with *We each know each other a little better*.

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When we consider aspects such as number marking and article placement in relation to the question of fossilization, two viewpoints should be held distinct: the synchronic one and the diachronic one. From the synchronic point of view fossilization entails that the single elements of a fossilized whole do not function as independent linguistic expressions. Formally, this may manifest itself either in the absence of inflectional coding normally associated with the item at issue or in the lack of other function words that normally co-occur with the relevant item. In the case of *each other* I take the synchronic perspective to be fully applicable, since both elements of the reciprocal continue to be used productively in structures that are independent of the reciprocal. In other words, we can compare the elements *each* and *other* as they behave within the presumed lexicalized expression *each other* to their behaviour in other contexts. From the diachronic point of view there need not be a change on the level of the individual item. The reason is that in a lexicalized compound like *each other* the presence or absence of other material may reflect and preserve productive grammatical patterns of the stage at which the single elements became a unit. To put it differently, if an item A in a lexicalized expression [AB] differs from the formally identical item A′ as it is used outside of [AB], this need not imply that lexicalization triggers changes within [AB]. [AB] may simply conserve an earlier historical stage. We will see below that, given the present knowledge of the exact development of the reciprocal, the synchronic perspective on lexicalization is probably the safer way to go.

The first formal aspect that I will discuss is number marking on the alterity word *other*. Examples (12a)–(12d) illustrate that *other* is not marked for number if it functions as part of the reciprocal:

(12) (a) John, Harry and George know each other.
(b) John and Harry know each other.
(c) John, Harry and George each know the others.
(d) John and Harry each know the other.

Compare (12a) and (12b), reciprocal sentences involving the reciprocal, on the one hand, with (12c) and (12d), sentences in which the reciprocal relation is spelt out periphrastically. Crucially, the number value of *other* in (12c) and (12d) depends on the number of participants. If three or more participants stand in a reciprocal relation, the alterity word has the plural suffix (cf. (12c)). By contrast, *other* has the singular form if there are exactly two participants. Thus the number marking on *other* conforms to the compositional semantics of the *each . . . the other* construction: given a set A of two individuals, each standing in a relation R to all the other individuals in A, there can never be more than one 'other' individual. In situations like the ones in (12a) and (12c) it is different. If each of the three individuals in a set A stand in a relation R to all other individuals in A, there have to be two of the latter. It is therefore interesting to note that the reciprocal *each other* does not manifest such sensitivity to the cardinality of the set denoted by the subject – there is no plural suffix on *other* in (12a).[18] I take the

[18] This asymmetry has already been mentioned by McCawley (1988: 355).

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invariability of the reciprocal with respect to number specification as further evidence for the assumption that *each other* is a lexicalized unit.

As for the historical development behind this situation, it does not seem to be the case that the reciprocal shed its number marking as a result of lexicalization. At the time when the univerbation of *each* and *other* must have taken place, viz. late ME or early EModE, the word *other* was not obligatorily marked for number (cf. e.g. Curme, 1935: 159). A possible scenario is therefore that the reciprocal generalized the option of leaving the plural uncoded. Importantly, plural marking on the reciprocal did not become obligatory (or at least an option) when plural marking became obligatory for nouns in general, and thus also for the nominal use of *other* that is at issue here. We can conclude that the alterity word as a second element of the reciprocal *each other* has less behavioural potential than the same word when used independently.

A similar case can be made for the presence vs absence of the definite article preceding the alterity word. In PDE *other* in its nominal use must be preceded by a determiner, except for its use as an indefinite plural (*Others should do the job*). A context that should provide evidence for fossilization of *each other* is again exemplified by (12). When the reciprocal relation is spelt out as in (12c–d) *other* is obligatorily preceded by a determiner. This determiner is typically a definite article, but depending on which type of quantifier modifies (or constitutes) the subject it can also be the indefinite article *a*(*n*). The reciprocal is again exceptional in that it does not require a determiner in construction with the alterity word. Again I take this to be evidence for the lexicalized status of the reciprocal. Note that the significance of *other* lacking a determiner in sentences like (12a–b) cannot be explained away by saying that it is a plural form. I mentioned above that generally *other* lacks a determiner if it is used as an indefinite plural. In a sentence like (12b), however, *other* cannot possibly be analysed as a plural form. Recall that a compositional semantics of reciprocal sentences with two participants requires the alterity word to be singular. Therefore the lack of an article in (12b) must be considered a result of lexicalization.

From a historical perspective the lack of a determiner preceding the second element of the reciprocal may be the result of two different scenarios. Either there was a determiner when the two elements were reanalysed as a unit, or there was no determiner in the first place when univerbation happened. Again, as with plural marking, the univerbation of *each* and *other* seems to have taken place at a time where overt determination of nouns was not yet obligatory in all contexts. To be sure, the use of definite articles goes back as far as OE (cf. Mitchell, 1985: 131–2). Nevertheless, today's situation in which one can state for a given context whether the definite article is required or not had not yet been reached at the time when *each* and *other* univerbated. I examined occurrences of *other* in corpora of EModE (Helsinki Corpus, Lampeter Corpus) and found variation as to the presence or absence of the definite article, both in reciprocal and nonreciprocal contexts (cf. also Curme, 1935: 159). Therefore a detailed reconstruction of how the reciprocal evolved with respect to the two possibilities outlined above cannot be given at this point. But as I argued before, it should suffice if it can be shown that in PDE *other* behaves grammatically in a different way within and outside an allegedly lexicalized compound.

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The last symptom of lexicalization to be discussed is stress. The reciprocal is invariably stressed on the second syllable. It is not possible, therefore, to put stress on only one of the two elements in order to focus on a single semantic component of the compound. As with the other symptoms of lexicalization discussed above, we can compare this property of the reciprocal with reciprocal sentences in which the two elements are evidently independent words. Consider the following pair of examples:

(13) (a) Sammy Joe, Adam and Steven hate each other.
(b) Sammy Joe, Adam and Steven each hate the others.

In the most natural intonation (13a) would carry its main stress on the verb (*Sammy Joe, Adam and Steven HATE each other*). Alternatively, stress could fall on *other*. In this case, the reciprocal nature of the proposition expressed is underlined, if contrasted to a reflexive relation, for instance (*Sammy Joe, Adam and Steven hate each OTHER, not themselves*). We have to assume here that the whole reciprocal is focused, the second element being the focus exponent. Stress on *each* is not possible in (13a): **Sammy Joe, Adam and Steven hate EACH other*. Sentence (13b) is different. Either the verb, the quantifier, or the alterity word may carry the main stress. In each case the semantic effect is a different one. With stress on *hate* the sentence has a predicate focus interpretation. With stress on the alterity word (*Sammy Joe, Adam and Steven each hate the OTHERS*) the effect would be similar to the one that is achieved if (13a) is stressed on the reciprocal. Hence, a possible continuation would be: *Sammy Joe, Adam and Steven each hate the OTHERS, not themselves*. What about the third option, i.e. stress on the quantifier *each*? In *Sammy Joe, Adam and Steven EACH hate the others* the maximal quantification over the set denoted by the subject is focused. A possible continuation of the sentence could therefore be: *Sammy Joe, Adam and Steven EACH hate the others, not only Sammy Joe and Adam*. Summing up, (13b) allows more focusing options than (13a), an observation that is in line with the more general claim that the reciprocal *each other* is a lexicalized unit the two parts of which cannot be accessed for semantic interpretation (and stress) individually.

Having established that lexicalization of the string *each other* has taken place, we might ask why it was these two words that underwent univerbation and not, for example, the string Verb+*other*. The question is not a trivial one. In Swedish and other Scandinavian languages, for instance, verbs followed by a middle suffix in reciprocal contexts have been conventionalized as units and the verb stems do not occur without the suffix anymore. It would not be totally inconceivable, therefore, for English to have developed such 'reciprocal verbs' by univerbating the relevant verbs with the alterity word in source constructions like *Sammy Joe, Adam and Steven (each) hate others*.[19] Somewhat speculatively we might even think of the latter option as the one that is more motivated from a semantic point of view. After all, the alterity word functions as a complement of the transitive verb, whereas the floated quantifier is a modifier

[19] Recall that the obligatory determiner preceding *other*(*s*) is a relatively recent development.

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which is not required by the verb's argument structure. Rather, it is best thought of as semantically interacting with the subject NP.

Why has *each other* been lexicalized then? I suggest frequency as one possible contributing factor. The string frequency of the sequence *each*+*other* is much higher than the string frequency of any verb followed by *each other* or *other*, for that matter. Thus, if we imagine a paradigm of different verbs combining with the reciprocal, the reciprocal remains invariable while the verbs differ. Furthermore those verbs that are used most frequently in reciprocal contexts are syntactically intransitive (our symmetric and prototypically reciprocal verbs from above) and thus do not require an NP in object position. Therefore, in contrast to languages like German and Scandinavian, where these verbs take a middle marker (clitic or suffix), they could not serve as a source of univerbation of the type Verb+(*each*) *other*. Another factor might be that *each other* is more frequent as a PP complement than as a direct or an indirect object.

6.2 Grammaticalization

In the last section I brought forward a number of arguments that suggest lexicalization as a relevant process in the development of *each other* as a reciprocal marker. In this section I will ask whether grammaticalization has also been involved. Indeed, it will turn out that the reciprocal has undergone changes that fit our characterization of grammaticalization as semantic/pragmatic and syntactic context expansion of a grammatical construction.[20]

First of all it should be mentioned that the classical view of grammaticalization, viz. a lexical expression becoming grammatical or a grammatical expression becoming more grammatical, is problematic for the reciprocal. Both elements of the compound would intuitively be considered grammatical expressions. The word *each* is from the closed class of quantifiers, and to say that the semantic concept of reciprocity is in some way 'more grammatical' than ordinary quantification does not seem to be a convincing analysis. As for *other*, some grammars treat it as an adjective, although it behaves more like a determiner than like an adjective syntactically. In any case its meaning is clearly more abstract than that of prototypical adjectives denoting dimension, age, value or colour. Again, if we compare the meaning of independent *other* with the concept of reciprocity, it seems somewhat ad hoc to attribute a lower degree of grammaticalness to the former and a higher degree of grammaticalness to the latter.[21] I admit that

[20] Although the focus of this article is on *each other* as an element, it should not be forgotten that grammaticalization is always tied to specific syntactic constructions. In the case at issue this means that all the changes that are considered here concern the string *each other* if it alone fills a complement slot, the subject slot of that verb being filled by a (semantically) plural subject. Thus we disregard occurrences of the string *each other* in cases like *The meeting must be called by advertisements appearing at least once in a daily newspaper published or circulating in the place where the Company has its head office and in a daily newspaper published or circulating in each other place where the Company has an office that: . . .*. (Source: http://ukgroup.standardlife.com/content/members/whoisamember.html)

[21] Of course, this argument applies only to the semantic concepts expressed by the forms at issue. There are other ways of defining 'degree of grammaticalness' in which there is a dissimilarity between the different stages that

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the whole question of being more or less grammatical is problematic in the case at issue. Strictly speaking, if one tries to compare the degrees of grammaticalness of a single item A and a compound [AB], one does not compare one and the same form at different historical stages. Yet there is no alternative. The new form *each other* can only be traced back as far as it actually existed as a unit. Before that point in time there were only the simple words waiting to undergo univerbation. This would restrict the search for changing degrees of grammaticalness to the period after the univerbation of *each* and *other*, arguably a counterintuitive result, given that we would like to trace the expression's development from being lexical to being grammatical. As will be shown below, grammaticalization as semantic/pragmatic and syntactic context expansion is a more suitable framework for the case of the English reciprocal.

We can observe different stages of syntactic context expansion. I mentioned the occurrence of the reciprocal in PPs in section 6.1 above. The crucial change took place when *each other* could follow prepositions as a unit. Assuming that univerbation had to take place in direct object position in order for the reciprocal to be admissible in PPs, there is thus syntactic context expansion (DO > DO, PP). A further syntactic context in which the reciprocal became possible is the 'genitive construction' with *each other* as a prenominal possessor. The first examples of possessive reciprocals date from the late sixteenth century (cf. Raumolin-Brunberg, 1997: 230; Visser, 1963: 446):

(14) (a) wryte to me from tyme to tyme, for ellis (perchaunce) for lakke of knewledge often of eche other's proceedinges we may entre into a confusion of thinges . . . (1547; from Raumolin-Brunberg, 1997: 230)
(b) They strained one another's hand. (1590, from Visser, 1963: 446)

The most recent context expansion concerns the position of the subject in subordinate clauses. Reciprocals in subject position are still considered incorrect by prescriptive grammarians. Yet, structures like the following are commonly used in PDE:

(15) (a) You, you just see what each other are doing, because I'm going to put you into lots of groups in a minute. (BNC KPV 496)
(b) In time, I will post all the team sheets, at least to all the players. Then you can all see how each other are doing. (BNC J1C 2286)
(c) Shane claimed that he was there for the boat race as well, but both of them knew why each other was in Miami.[22]
(d) We all read what each other had written, anyway. (BNC EE5 1248)
(e) We follow the example of Mary of Nazareth and her cousin Elizabeth who made themselves available to each other when each other was in need.[23]
(f) We're both straight as far as any one else knows and in fact as far as each other knew at the time.[24]

each and *other* go through in the development of the reciprocal. I am grateful to an anonymous reviewer for pointing this out.

[22] Source: http://www.bethsdayspage.com/days/characters/Victor.html, 31/05/2005.

[23] Source: http://www.taborretreatcenter.org/M&EMission.htm, 31/05/2005.

[24] Source: http://magazine.adultfriendfinder.com/ magazine/ articles/ stories/35755.html?show_erotic=&lang=spanish&action=, 22/09/2004.

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(g) The limit can also be ontological or lexical, i.e. people can only communicate effectively when they share a common language and understand what it is each other is saying.[25]

The first instances of such structures are again hard to trace, given that reciprocal sentences are generally relatively rare. There is an isolated example from 1658: *Be not angry my dear, if thou hast not a Smock to thy back I would have thee, but in knowing what each other hath, we shall know the better how to improve it, do thou the same by me*,[26] but in any event it seems safe to assume that reciprocals in subject position were not well established before the late nineteenth century. Bolinger (1990) regards it as 'a construction that has become commonplace in the past half-century' (267). The reciprocal may now also occur in the subject position of nonfinite clauses:

(16) Children were playing and throwing a ball for each other to catch. (BNC HTY 841)

Further evidence for context expansion comes from sentences like the following:

(17) (a) 'Confidentiality' may mean my right (or wish) that you do not pass on what I have told you (or don't identify me as the informant), or it may mean my wish (or right) that you do not pass on information about me, or, with 'professional' prefixed, it may mean that our group will support each other by saying nothing about each other's judgements, competencies or foibles. (BNC AN5 519)
(b) I don't know how I'd cope as a solo artist because we're a real support group to each other. (BNC CBC 10341)

In the above examples the reciprocal takes a singular collective noun as its antecedent. Nothing of this type could be found in earlier stages of English, which suggests a recent development. Other likely instances of context expansion concern the appearance of *each other* in syntactic slots such as the predicative NP following a copular verb (cf. (18a)), or the fronted NP in a cleft construction (cf. (18b)). Admittedly, it is more difficult to trace the historical changes here, because such structures are generally rare.

(18) (a) In the end all we have is each other.[27]
(b) Everybody at Dover Downs loved America on Sunday. It was each other they had problems with.[28]

If a certain grammatical construction extends its territory in the sense illustrated above, the process of specialization in the sense of Hopper (1991) is a consequence thereof. Specialization in our case simply means that alternative means of expressing reciprocity either disappear or become less frequent. This is exactly what we observe throughout the history of English. Whereas in OE and ME there were several alternative means of expressing reciprocity, the function was gradually restricted to basically

[25] Source: http://dstc.com/Research/Projects/EWP/Papers/SJIS-Fitzpatrick.pdf, 31/05/2005.
[26] Source: 'A Pleasant Dialogue Betwixt Honest John and Loving Kate. The Contrivance of their Marriage and Way how to Live', 1685. Lampeter Corpus.
[27] Source: http://www.gracecathedral.org/church/sermon/ajsermontext.html, 21/09/2004.
[28] Source: http://www.thatsracin.com/mld/thatsracin/sports/motorsports/races/dover/ 2289791.htm, 21/09/2004.

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three strategies in PDE: (i) intransitive verbs which are either inherently symmetric or typically used in reciprocal contexts; (ii) the reciprocals *each other* and *one another*; and (iii) the *each . . . the other* – or 'analytic' reciprocal construction. I take it that the status of (i) and (iii) is different from (ii) in a way that makes it possible to say that the construction involving the reciprocals *each other* and *one another* is the major reciprocal construction in Modern English.

As for (i), this strategy is confined to a limited number of predicates, namely those that encode a reciprocal relation lexically. Given that in those cases reciprocity is part of the predicate meaning (or at least typically associated with it), it is dubious whether we should speak of a grammatical construction expressing reciprocity here. It should not be surprising, therefore, that strategy (i) has always been an option throughout the history of English, and at least for the core of really symmetric predicates it is unlikely that (ii) will extend its territory there.[29]

As far as (iii), i.e. the *each . . . the other*-construction, is concerned, there are a number of arguments which suggest that this structure has a different status from (ii). To be sure, the reciprocal relation in a sentence like *If there were only a few, each could know what the others were doing and all would be aware of being watched* (BNC J 57 979) is rendered schematically in the semantically transparent way described in section 6.1 above. There is no reason to expect this option to become impossible at some point. After all, reciprocity may be spelt out in many nongrammaticalized ways. Here are two random examples:

(19) How come you don't understand me, and how come I don't understand you?[30]
(20) The hairdresser must listen to the client, and vice versa. (BNC A7N 721)

If one assumes a grammar–lexicon continuum, there is in principle no difference between *The hairdresser and the client must each listen to the other*, on the one hand, and *The hairdresser must listen to the client, and vice versa*, on the other.[31]

From a diachronic point of view, however, it is interesting to see that the proportion of analytic reciprocal structures to reciprocal sentences as a whole seems to be much higher in earlier stages of English than in PDE. In other words, although the analytic construction has not completely disappeared in favour of *each other* and *one another*,

[29] The set of verbs in strategy (i) has not always been identical. In early ModE texts – Shakespeare's plays, for instance – the following verbs could also be used intransitively, thereby expressing a reciprocal relation: *greet*, *hug*, *know*, *kill*, *love*, *see*. (Some examples are given in Jespersen, 1927: 332.) Yet it should not be overlooked that this fluctuation does not concern symmetric predicates in the narrow sense, but only predicates frequently used in a reciprocal context.

[30] Source: Dream Theater 'Lifting shadows of a dream.' *Awake*. East West America, 1994.

[31] Consider also examples in which *others* may refer to a group that is not coreferential with the set of participants denoted by the subject. This is illustrated by the following examples from Roberts (1991: 217), originally attributed to Mats Rooth:
(i) The youngest three of the women each gave a lecture to the others.
(ii) The youngest three of the women gave lectures to each other.
As Roberts (1991: 217) points out: 'In [i], each of the youngest three women may have given a lecture either to the other two youngest women or to all the other women, young and old; i.e. the range argument of *other* is relatively free. But in [ii] there is only one reading, where each of the youngest three women gave a lecture to the other three youngest women.'

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the reciprocals have clearly gained ground on the analytic construction(s) in terms of frequency. I compared the relative frequency of *each other* and *each . . . the other* in the EModE (and early ModE) Lampeter Corpus, on the one hand, and the PDE corpus FLOB on the other. If we compare Lampeter and FLOB, we get the following frequencies: 102 occurrences of *each other* vs 3 occurrences of *each . . . the other* in FLOB, as opposed to 70 occurrences of *each other* vs 16 occurrences of *each . . . the other* in the Lampeter Corpus. This distribution shows that the reciprocal is significantly more frequent in PDE than in EModE ($\chi = 13.11$ ($df = 1$), $p < 0.001$). What these figures also show is that the reciprocal was already more frequent than the analytic construction at the time covered by the Lampeter Corpus (1640–1740). The expansion of *each other* at the expense of *each . . . the other* must therefore have started in the early phase of EModE at the latest. In my view, this chronology suggests that in the development of *each other*, both grammaticalization and lexicalization must have been involved, and have even occurred at the same time. If context expansion constitutes grammaticalization and univerbation and fossilization of two formerly independent words constitute lexicalization, the two processes cannot have happened one after the other. Recall that at least one of the symptoms of lexicalization discussed above, namely the co-occurrence of *each other* and the quantifier *each* in the same clause, is a relatively recent development, whereas other aspects of lexicalization, first and foremost the actual univerbation of the expressions *each* and *other*, took place as early as in late ME or in the early stages of EModE at the latest. By contrast, the quantitative data above suggest that context expansion – the most essential aspect of grammaticalization in the view adopted here – had been underway for a long time. In conclusion, a scenario that assumed lexicalization to have created the reciprocal, the latter then functioning as input for grammaticalization, would be too simple. We have to admit the possibility of the two processes happening simultaneously.

7 Conclusion

Summing up, the development of the reciprocal marker *each other* involves both lexicalization and grammaticalization, as defined in section 3. First, we find lexicalization in so far as a quantifier and an alterity word, once parts of a semantically transparent and productive syntactic construction, lose their status as independent items and develop into a fossilized compound expression. Symptoms of univerbation and fossilization were discussed in section 6.1 above: occurrence of the universal quantifier in a syntactic position (following prepositions) that is not accessible to floating quantifiers, loss of semantic compositionality as evidenced by so-called nonmaximal readings of reciprocal sentences, fixation of stress on the alterity word, lack of number marking and the article preceding *other* (which would be unexpected if the two elements were independent units), and finally co-occurrence of the reciprocal with the universal quantifier *each*.

Second, we find grammaticalization in so far as the contexts in which *each other* may occur have expanded. Syntactic context expansion is manifested by reciprocals in subject position and in the position of a prepositional or genitive complement. Semantic

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context expansion was exemplified by the possibility of having collective singular nouns in the subject position of reciprocal sentences. Concurrent changes typical of grammaticalization are specialization (Hopper, 1991) and paradigmaticization (Lehmann, 1995). Are these two manifest in the development of *each other*? As for specialization, the large variety of reciprocal strategies, especially as far as the quantificational subtype is concerned, has been constantly reduced, with *each other* clearly being the most productive marker of reciprocity. This contrasts with OE and ME, where a large number of periphrastic constructions competed with one another. Concerning paradigmaticization, the fact that *each other* (or *one another*) has become the default option for marking reciprocity in PDE appears to fit Lehmann's concept of paradigmaticization. Note, however, that considering the reciprocal to have become properly integrated into the pronominal system has a serious drawback, as already mentioned at the beginning of this article.[32]

Moreover, it was proposed that the development of *each other* provides an example of how grammaticalization and lexicalization can shape an emerging grammatical construction simultaneously.

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[32] In contrast to the other English pronouns, including reflexives, the reciprocal does not exhibit inflectional variation for gender, number, and person, as mentioned in footnote 2 above. In fact, this lack of morphological variability was taken to provide evidence for lexicalization above. In this sense *each other* does not look like a typical English pronoun and the case for paradigmaticization cannot really be made.

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