To appear in Bernd Heine and Heiko Norrog (eds.), *Handbook of Grammaticalization.* Oxford: Oxford University Press.

11 Grammaticalization and language acquisition

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The paper compares the diachronic evolution of grammatical markers to their development in child language. It is shown that grammaticalization and first language acquisition frequently involve the same semantic changes. In both developments, abstract grammatical meanings are commonly derived from more concrete meanings. However, the morphosyntactic changes of grammaticalization do not have parallels in child language, suggesting that language acquisition does not simply recapitulate the diachronic evolution of grammar. The paper argues that the semantic developments are often parallel in grammaticalization and language acquisition because diachrony and ontogeny involve the same mechanisms of categorization.

Keywords: Grammaticalization, language acquisition, relationship between ontogeny and diachrony, semantic change, morphosyntactic change

1. Introduction

There are extensive parallels between language acquisition and diachronic change that have intrigued historical linguists for many decades (see Baron 1977 for an overview of the older literature). The parallels are particularly striking in morphology. When children begin to produce inflected word forms, they often create novel forms that correspond to diachronic innovations. For instance, Bybee and Slobin (1982) showed that children's errors in the formation of the English past tense are similar to novel past tense forms in language change. There are also similarities between children's phonetic errors and patterns of sound change. For instance, Stampe (1969) observed that there is a similar tendency in ontogeny (i.e. child language development) and diachrony (i.e. historical language change) to simplify consonant clusters and to devoice final obstruents; however, other aspects of historical sound change do not have any parallels in child language (e.g. the tendency to weaken strong consonants, i.e. lenition; see Drachman 1978 and Vihman 1980).

The similarities between diachrony and ontogeny play an important role in certain theories of language change (see Croft 2001: § 3.2 for an overview). However, there is no consensus among historical linguistics as to how the two developments are related. Some scholars have argued that language change results from errors and misanalyses in child language (e.g. Andersen 1973); other scholars have claimed that children recapitulate the diachronic development (or phylogenetic evolution) of language in the process of language learning (e.g. Bickerton 1981; see also Givón and Malle 2002); and yet other scholars have

argued that ontogeny and diachrony are often parallel because they involve similar mechanisms of change (e.g. Ziegler 1997) or similar adaptive behaviours (e.g. Givón 2009).

The previous literature on the relationship between ontogeny and diachrony has been mainly concerned with parallels in morphology and phonology, but there are also intriguing parallels in the development of grammatical markers, suggesting that grammaticalization is not only a historical phenomenon but can also be found in child language (cf. Givón 1979, 2009; Givón and Shibatani 2009; Schmidtke-Bode 2009; Slobin 1994; Ziegeler 1997). On this view, the notion of grammaticalization refers to a general developmental process that is instantiated in both language acquisition and diachronic change (cf. Ziegeler 1997; see also).

This paper compares several cases of grammaticalization to the development of grammatical markers in child language. The review of the literature reveals some striking parallels in the semantic development of grammatical markers in ontogeny and diachrony. There is a general developmental pathway leading from relatively concrete meanings to meanings that are more abstract. However, the phonological and morphological changes of grammaticalization do not have parallels in child language, suggesting that the two developments are in principle independent of each other. There is no evidence that the acquisition of grammatical markers repeats the process of grammaticalization or that the historical development of grammatical markers originates from changes in child language.

2. Case studies

2.1. Adpositions

A classical case of grammaticalization is the development of adpositions from nouns and verbs (cf. Heine, Claudi, and Hünnemeyer 1991; Lehmann 1995). Historically, adpositions are derived from relational nouns, serial verbs, and various other lexical expressions. For instance, in some languages adpositions are derived from body part terms such ‘head’ (> ‘on’), ‘belly’ (> ‘in’), or ‘buttock’ (> ‘under’) (cf. Heine et al. 1991: 126). In contrast to the diachronic evolution, the ontogenetic development does not originate from lexical expressions; there is no evidence that children’s early adpositions are derived from nouns and verbs. But interestingly there are far-reaching parallels in the semantic developments of adpositions in language change and acquisition.

Adpositions denote spatial, temporal, causal, and various other semantic concepts. There is abundant evidence that the spatial sense of adpositions is the most basic meaning from which all other senses are historically derived. Across languages, spatial adpositions provide the diachronic source for adpositions with abstract meanings; notably temporal adpositions are commonly derived from adpositions with spatial meanings (cf. Haspelmath 1997; see also Heine et al. 1991).

The same development from space to time occurs in child language (cf. Ziegeler 1997). The earliest prepositions that English-speaking children produce have usually a spatial meaning. A notable exception are prepositions in fixed expressions such as *on Christmas* or *come on*, which often appear prior to all other uses because they are more frequent in the ambient language (cf. Hallan 2001). However, if we limit the view to the productive use of prepositions, the earliest uses have usually a spatial meaning, which is later often extended to more abstract meanings. Since many adpositions are ambiguous between several meanings,

semantic extensions are often difficult to recognize. However, sometimes children extend the use of spatial adpositions to non-spatial meanings that are not conventionalized, as in example (1), in which the spatial preposition *behind* is used with a temporal meaning (example adopted from Bowerman 1985: 1292):

(1) Can I have any reading *behind* the dinner? (= after)

Examples of this type suggest that children do not simply imitate the various senses they encounter in the ambient language; rather, they actively construe the mappings between space and time. Clark and Carpenter (1989) argue that children's semantic errors with adpositions reflect the existence of "emergent categories" that underlie the use of adpositions in child language. Using data from several English-speaking children, they compared the development of the preposition *from* in early child language to its development in language change. In present day English, *from* is primarily used with spatial and temporal meanings, but can also mark the oblique agent of the verb *get* (cf. examples 2-4).

(2)	That vase comes *from* Lugano.	spatial
(3)	*From* World War II on, their fortune failed.	temporal
(4)	He got a book *from* Jill.	agent

In Old English *from* occurred in a broader range of contexts, indicating not only spatial and temporal meanings and animate agents but also natural forces such as rain and wind. Clark and Carpenter argue that the various uses of *from* are conceptually related through a general "notion of source". Like a location and a point in time, an agent can be conceived of as a metaphorical source denoting the origin of an action. Interestingly, this notion of source plays an important role in the ontogenetic development of *from* in early child language. In addition to the spatial and temporal uses, children make extensive use of *from* with animate instigators and natural forces that are reminiscent of certain uses of *from* in Old English (cf. examples 5 and 6 adopted from Clark and Carpenter 1989).

(5)	This fall down *from* me.	animate instigator
(6)	Look at that knocked down tree *from* the wind.	natural force

Moreover, children use *from* to mark abstract causes and instruments (cf. examples 7-9) as well as possessors (cf. example 21 adopted from Clark and Carpenter 1989).

(7)	I am tired *from* my games.	cause
(8)	I drawed the lines *from* the pencil.	instrument
(9)	That's a finger *from* him.	possessor

Like animate instigators and natural forces, causes and instruments can be construed as the source of an action. The use of *from* with a possessor involves a further extension. Clark and Carpenter argue that a possessor can be seen as the source or origin of the possessed object,

which is reflected in the fact that in some languages possessors are marked by the same adposition as a spatial source (e.g. German *Das Auto von dir* 'The car from you').

In accordance with the historical development, children acquire the spatial sense of *from* prior to the temporal sense and the use of *from* with animate agents, which in turn appear prior to all other uses. While the ontogenetic development of *from* does not directly correspond to its diachronic evolution, it is consistent with the frequent mapping from space to time and other non-spatial meanings.

2.2. Future tense auxiliaries

A similar mapping from space to time is involved in the development of the motion verb *go* into a future tense marker (cf. Bybee, Perkins, and Pagliuca 1994). The development is well-known from the *be-going-to* future in English (cf. Hopper and Traugott 2003: 1-3). In the source construction, *go* denotes a motion event, involving an agentive subject and an allative prepositional phrase that indicates the (physical) goal of the motion event (cf. example 10a). This construction was transformed into a future tense construction in which *go* functions as an auxiliary. One important stage of the development involves the use of *go* in a bi-clausal structure in which the motion event is combined with an infinitive denoting a metaphorical goal, i.e. a purpose, of the motion event (cf. example 10b). In the context of this construction, the motion sense of *go* is backgrounded in favour of the semantic feature of intention. The semantic shift is evoked by the purposive infinitive emphasizing the metaphorical goal of the activity. If *go* is routinely used in this context, the motion sense is gradually reduced to the effect that it is eventually no longer perceived as a separate activity. At this point, *go* assumes the function of an auxiliary and the bi-clausal structure is reanalyzed as a simple sentence denoting a single future event (cf. example 10c). Parallel to these developments, the expression *be going to* is phonetically reduced to *gonna*.

(10)	a.	Peter is going to school.	motion
	b.	Peter is going (in order) to help John.	intention
	c.	Rain is going to fall.	future

The ontogenetic development of the *be-going-to* future takes a similar path. Drawing on comprehensive corpus data from several English-speaking children, Schmidtke-Bode (2009) found that the earliest utterances in which *go* occurs with an implicit future meaning denote a motion event that is combined with some other activity, as in the following example from a two-year old boy (adopted from Schmidtke-Bode 2009: 526).

(11)	Child:	Going wash a hands.
	Comment:	[Child goes into the kitchen to wash a towel]

These early motion-cum-purpose clauses are semantically similar to the diachronic source of the *be-going-to* future. They include the verb *going* with its literal meaning, combined with an activity that is conceptualized as the purpose of the motion event. The motion sense is dominant in the early uses, but it does not take long until the auxiliary use of *going* outnumbers the motion-cum-purpose sense. Interestingly, although the children's production

of *be going to* changed from the literal to the metaphorical sense, the children's parents produced the two senses of *be going to* with the same frequency throughout the time of the study, suggesting that the changes in the children's speech cannot be attributed to changes in the ambient language.

The semantic development of the construction is accompanied by morphosyntactic changes. The earliest instances of the *be-going-to* future occur in very simple constructions: They include the verb *going*, or the reduced from *gon*, without the auxiliary *be* and the infinite marker *to*, and often lack on overt subject (e.g. *Gon play outside*) (cf. Schmidtke-Bode 2009). Formally reduced clauses of this type differ from the historical source of the *be-going-to* future, in which *go* is accompanied by an overt subject and the auxiliary *be*, the *-ing* suffix, and the infinitive marker *to*. In fact, one could argue that the ontogenetic development of the *be-going-to* future proceeds in the opposite direction from the development of the *be-going-to* future in language change. Historically, the development of the future tense marker originated from a bi-clausal construction that was reduced to a simple sentence in which *be going to* is often phonologically reduced to *gonna*; but ontogenetically the future tense marker evolves in the context of morphologically deprived clauses that are gradually expanded into more complex structures (cf. Diessel 2004: § 4). Thus, while the semantic acquisition of the *be-going-to* future takes the same path as in diachronic change, the morphosyntactic development of the future tense marker does not correspond to the diachronic path.

2.3. Modal verbs

One of the most intensively studied phenomena of grammaticalization is the development of modal verbs (cf. Lightfoot 1979; Plank 1984; Krug 2000; Fischer 2007). The bulk of the literature is concerned with the emergence of modal auxiliaries in English, but there are also cross-linguistic studies on the development of modal verbs (e.g. Bybee, Perkins, and Pagliuca 1994). Across languages, modal verbs are commonly derived from lexical verbs such as *owe*, *need*, *know*, or *get* that take a nominal complement. When these verbs are routinely used with a deverbal noun (e.g. an infinitive) they may be reanalyzed as modal auxiliaries, which at first occur in performative contexts expressing 'obligation', 'permission', and 'ability'. These early deontic uses are later extended to epistemic uses expressing 'possibility' and 'necessity'. The development constitutes a unidirectional cline of modality with three major stages (cf. Bybee et al. 1994: 240-1):

(12) lexical verb > deontic modal verb > epistemic modal verb

The three stages can be identified in the history of the English language. In Old English, the demotic use of modal verbs was prevalent. Some Old English modal verbs were still commonly used as lexical verbs that could take a nominal complement (e.g. *cunnan*,), and some modal verbs could already be used with an epistemic meaning; but the majority of the Old English modal verbs occurred in the deontic use and developed the epistemic use only later as a secondary meaning (cf. Fischer 2007: 188-190). In Old English, modal verbs were primarily defined by semantic criteria; since most modal verbs were based on preterite-present tense forms, they had some morphological features that distinguished them from other (i.e. non-modal) verbs; but it was only in Early Modern English that the English modal verbs

were established as a particular grammatical class. At that time, some general syntactic changes led to the formal division between lexical verbs and modal auxiliaries. The most important change involved the emergence of the dummy auxiliary *do*, which became obligatory with lexical verbs in negative contexts and questions, whereas sentences with modal verbs preserved the old grammatical forms (cf. Plank 1984).

In parallel to the diachronic evolution of modals, the ontogenetic development of modal verbs originates from the deontic use. Children begin to use modal verbs in negative sentences, questions, and imperatives (i.e. in 'performative contexts') that are concerned with different aspects of deontic modality (cf. Stephany 1986). The epistemic use emerges only several months later and is initially restricted to specific verbs (e.g. *can, could, may*) (cf. Stephany 1986). However, the similarity between the ontogenetic and diachronic development of modals concerns only their semantic features; the morphosyntactic developments are different. There are several aspects that distinguish them: First, there is no evidence that the acquisition of modal verbs involves a categorical change from lexical verbs to auxiliaries. Second, the morphosyntactic changes that led to the development of a particular grammatical class of modal auxiliaries in Early Modern English have no parallels in child language. Third, among the earliest modal verbs that English-speaking children produce are contracted negative forms such as *can't* and *won't*, which are historically derived from two separate words through univerbation. And finally, the English modals have undergone a process of phonetic reduction (e.g. *cunnan* > *can*) that does not occur in child language.

2.4. Present perfect

Another grammatical construction that takes the same conceptual pathway in language acquisition and diachronic change is the English present perfect, which Slobin (1994) investigated in one of the earliest studies on the parallels between grammaticalization and child language. In diachrony, the present perfect originated from an attributive construction including the verb *habban* 'have' denoting possession and an attributive participle that modified the possessed noun (cf. example 13 from Traugott 1992: 191).

(13) Old English (ÆC Hom 1, 31, 458.18)

[Ic	hæbbe	[gebunden	Þone	feond]]	Þe	hi	drehte.
I	have	bound	that.ACC	enemy	DEM	them	afflicted

'I have bound the enemy who afflicted them.'

In example (13) the participial verb form is uninflected, but in other contexts it agreed in gender, number, and case with the direct object, indicating that the participle was originally a noun modifier rather than an element of the verb phrase. However, in the course of the development the participle lost its inflectional categories and became associated with the verb *habban*, resulting in an analytical verb form in which *habban* was downgraded to an auxiliary and the participle promoted to the main verb (cf. example 14):

(14) Ic hæbbe [gebunden [Þone feond]] -> Ic [hæbbe gebunden] [Þone feond]

The development was crucially motivated by semantic aspects of the source construction. Slobin argues that the construction in (13) is semantically ambivalent; it can be construed in two ways: If the focus is on the state of the bound enemy, the construction has its original attributive meaning, which can be paraphrased as 'I have that enemy bound that afflicted them'. However, if the focus is on the action of the subject, the construction invites the perfect meaning, i.e. 'I have bound that enemy that afflicted them'. In this interpretation, the sentence expresses the possession of a current state that is construed as the result of a past event. In this use, the present perfect occurred at first only with telic verbs denoting a resultant state with an (implicit) consequence for the present and/or future. However, later the *habban*-perfect was extended to iterative and non-telic verbs in which the result interpretation of the original perfect was backgrounded. In these novel uses, which Slobin calls the "perfect of experience" and the "continuative perfect" (cf. examples 15b-c), the present perfect does not imply a consequence as in the original "resultant state perfect" (cf. example 15a).

(15) a. I have eaten lunch [and am therefore not hungry]. resultant state perfect
b. I have been abroad several times. perfect of experience
c. He has sung in the choir for years. continuative perfect

A parallel development from the resultant state perfect to the perfect of experience and the continuative perfect occurs in child language. The first present perfect forms that children produce involve telic verbs "in contexts in which the completion of one action provides the grounds for a subsequent action" (cf. Slobin 1994: 122). Two subtypes of this use can be distinguished. Either the present perfect occurs in sentences that children use to "negotiate sequences of activities" (cf. example 16), or it occurs in sentences that function to "draw the hearer's attention to a result" (cf. example 17) (examples adopted from Slobin 1994: 122-3).

(16) Mother: Pick the bricks up, and then you go to bed.
Mother: No more pies this morning.
Child: Only one?
Mother: No
Child: When I'*ve picked* the bricks up? [I want more pie]

(17) Mother: You draw a letter for me.
Child: [draws letter] I'*ve drawed* a letter for you. [thus I want immediate attention]

In both uses, the construction invites the inference that the situation described by the verb in the present perfect has important consequences for the future. In example (16) it is implied that the child, a four year old boy, wants more pie after he has picked up the bricks, and in example (17) it is implied that the boy expects to receive immediate attention from his mother because he has already completed the task. Starting from these early uses, children gradually extend the present perfect to sentences with iterative and non-telic verbs that are pragmatically less constrained than the early uses with telic verbs.

3. Discussion

The previous discussion has shown that the developments of grammatical markers in child language are often parallel to their developments in language change. However, the parallels are restricted to semantic and pragmatic features; the developments of morphosyntactic and phonological features are different. If the acquisition of grammar recapitulated its diachronic evolution, one would expect that the parallels between the two developments comprise all aspects of language; but the evidence reviewed in this chapter suggests that the morphosyntactic and phonological features of grammatical markers evolve along different pathways in language acquisition and diachronic change. The following differences have been observed:

- First, grammaticalization involves categorical changes that do not occur in child language. According to grammaticalization theory, all grammatical markers are eventually derived from a lexical source, notably from nouns and verbs (see Diessel in press); but the acquisition of grammatical markers does not generally originate from a lexical source. Most grammatical markers are learned without a prior lexical term, and even if there is a related lexical expression, it is not generally the noun or verb that is learned first (e.g. the conjunction *[be]cause* appears prior to the noun *cause*).
- Second, grammaticalization involves syntactic reanalyses that do not have parallels in child language. There is, for instance, no evidence that the acquisition of the English present perfect originates from an earlier attributive construction with a participial verb form, or that the acquisition of the *be-going-to* future presupposes the acquisition of an earlier complex sentence construction that is later reduced to a simple sentence as in diachronic change.
- Third, grammaticalization processes often involve phonetic and morphological changes that do not occur in child language. In diachrony, grammatical markers are commonly derived from complex expressions that are phonologically reduced; but in language acquisition, children often learn the reduced forms (e.g. *don't, gonna, hafta*) prior to the analytical expressions (e.g. *do not, going to, hafta*) from which they are historically derived.

The formal differences between child language and diachronic change suggest that the two developments are in principle independent of each other; there is no direct link between them. Language acquisition does not recapitulate the diachronic evolution of grammar nor does grammaticalization originate from changes in child language. It is striking, however, that the acquisition of grammatical markers often proceeds along the same conceptual paths as the development of grammatical markers in language change. Some well-known grammaticalization clines are paralleled by semantic developments in child language:

(i) space > time
(ii) motion > future
(iii) deontic modality > epistemic modality
(iv) resultant state perfect > perfect of experience/continuative perfect

However, not all grammatical phenomena take the same conceptual route in language acquisition and diachronic change. Consider for instance the development of finite

complement clauses in English. The historical development originated from two independent sentences that were combined to a bi-clausal construction consisting of a main clause and a subordinate clause (cf. Hopper and Traugott 2003: 190-194; see Fischer 2007: §4 for a critical discussion of this analysis). Thompson and Mulac (1991) showed that in conversational English the main clause is often demoted to an epistemic marker with no referential meaning. Specifically, they argued that clauses such as *I think* or *I guess* do not denote an independent state of affairs, but function to indicate the speaker's attitude towards the proposition in the complement clause (cf. examples 18a-b).

(18) a. I think you are right.
b. I guess she will come.

Interestingly, the first complement clauses in language acquisition are similar to the formulaic main clauses that Thompson and Mulac characterized as the result of grammaticalization. As Diessel and Tomasello (2001) have shown, the earliest complement clauses that English-speaking children produce are accompanied by parenthetical main clauses functioning as epistemic markers, attention getters, or markers of the illocutionary force (cf. examples 19a-c adopted from Diessel 2004: §5).

(19) a.	I think I'm go in there.	b. I guess I better come.	c. See these are stamps.
	I think I play jingle bells.	(I) guess I lay down it.	See the peoples going.
	I think he's gone.	I guess I have one more.	See I'm writing.

As children grow older, the main clauses become increasingly more complex and diverse, occurring with different types of subjects, inflected verbs forms, and a greater variety of complement-taking verbs, including verbs of saying such as *say* or *tell,* which in contrast to the mental state verbs of children's early formulaic main clauses are referential (cf. examples 20a-b).

(20) a. The kitty says he wants to come in.
b. She telled me she forget the doll carriage for me.

Thus, while the diachronic development of complement clauses originates from two independent sentences, which are later reduced to a mono-clausal construction with a parenthetical main clause, the ontogenetic development originates from a simple sentence including a formulaic main clause that is gradually expanded into a fully developed clause (see Givón 2009: §7 for a somewhat different analysis). In other words, the two developments proceed in opposite directions, suggesting that they are driven by different forces. The historical development involves semantic bleaching and subjectification (cf. Traugott 1989), whereas the ontogenetic development is motivated by the fact that sentences with parenthetical main clauses are more frequent and simpler than complex sentences with referential main clauses (see Diessel 2004: §5 for discussion).

What this example demonstrates is that the conceptual developments of language acquisition are not predetermined by conceptual changes of grammaticalization—the two

developments do not *have* to coincide. However, as we have seen, very often they *do* proceed along similar conceptual paths leading from relatively concrete meanings to meanings that are more abstract. Slobin (2002) argues that the conceptual parallels between language acquisition and diachronic change are "spurious" because children and adults are engaged in different communicative tasks. Children seek to "discover" meanings that are present in the ambient language, whereas adult speakers sometimes extend the meaning of existing expressions to novel meanings by pragmatic inference. Slobin's analysis draws our attention to an important difference between child language and diachronic change; but it disregards the creative and innovative aspects of child language. As we have seen above, children's do not simply uncover existing meanings in the ambient language; rather, they actively construe novel forms and novel senses in ways that are similar to the creation of novel expressions in adult language. The occurrence of "emergent categories" suggests that the acquisition of grammatical markers involves the same creative mappings between conceptual domains as pragmatic inferences involved in diachronic change, and thus, we may hypothesize that the semantic parallels between the two developments are based on similar cognitive processes. Child language and language change occur under different circumstances, but the semantic parallels between them are not spurious because they involve the same mechanisms of categorization (cf. Ziegeler 1997).

4. Summary

To summarize, we have seen that there are striking parallels between grammaticalization and language acquisition, but the parallels are not without exception. There are developments that take a different path in language acquisition and diachronic change. Moreover, we have seen that the parallels between the two developments are restricted to semantic features; the phonological and morphosyntactic aspects of grammaticalization do not occur in child language, suggesting that diachrony and ontogeny are in principle independent of each other. There is no evidence that grammaticalization and language acquisition are directly related. However, the two developments often proceed along similar conceptual paths because they involve the same mechanisms of categorization.

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