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Diachronic change and constant complexity

1. Introduction. The study to diachronic change is generally dominated by two questions (cf. Roberts & Roussou 2001 a.o.):

(1) a. Given that grammars can be acquired without error, why is there syntactic change in the first place (often called 'the logical problem of language change', cf. Roberts & Clark 1994)?

b. Why does language change seem to follow pathways rather than exhibit arbitrary parametric change?

Generally it is assumed that both questions are answered by the fact that language change moves in the direction of simplicity. If (changed) cues during L1 acquisition allow acquiring a simpler grammar, the conservative nature of language learning will force the language acquirer to adopt this simpler grammar. The question how to define simplicity is not uncontroversial, but is often thought of in terms of Longobardi's (2001: 294) simplicity metric:

(2) A structural representation R for a substring of input text S is simpler than an alternative representation R' off R contains fewer formal feature syncretisms than R'

2. Problem. However, theories that take syntactic change to result from simplicity preferences face one serious problem: if grammar G_1 is simpler than grammar G_2, G_2 could not have been acquired (by previous generations) in the first place. After all, languages are standardly assumed to be equally complex. This holds for synchronic change (all languages modulo creoles/pidgins take just as long to be learned and are thus all equally complex states of UG), and as there is no principle difference between diachronic and synchronic change, this also holds for diachronic change.

3. Proposal. In my paper I argue that apart from the fact that change from G_1 into G_2 should be subject to a shift of proper cues in the language input, it needs to be governed by two complexity metrics:

(3) a. The change form G_1 into G_2 should lead to complexity reduction in one component of grammar.

b. The total complexity G_1 equals the total complexity of G_2.

Thus (3b) requires an increase of complexity in one component of grammar. Now two questions immediately rise: (i) which components of grammar count as a proper domain for complexity in-/decrease and (ii) how is complexity to be defined?

The first question is related to the levels that all syntactic operations apply. Under standard minimalist assumptions these are: LF, PF and the lexicon. Hence I argue that the complexity changes take place either at the interfaces of syntax with phonology or semantics or in the lexicon itself. The second question is dependent on each domain. I will not provide a formal definition of grammatical complexity, but show how complexity in-/decrease is formulated at each grammatical component.

W.r.t. phonological complexity reduction, I follow McCarthy & Prince (1986) and who provide the following (often observed) hierarchy: *word* > *Foot* > *Syllable* > *Mora*. Note that these phonological elements find a parallel in the syntactic notions of *(content) word*, *particle*, *clitic* and *affix* (cf. Hopper & Traugott (1993).

I argue (following Zeijlstra (2005)) that on the semantic level, the hierarchy consists of only two elements: Direct vs. Indirect Marking (DM vs. IM). In the case of DM, every two lexical items contribute fully to the semantics and no additional element has to be assumed. In the case of IM, two markers only mark the presence of abstracts operators, which on their turn provide the semantic contents. Most affixes (e.g. negative affixes) are not considered to be bearers of semantic content, but to stand in an agree relation with a corresponding (negative) operator. Obviously, from the semantic perspective, DM is favoured over IM.

Finally, on the lexical level, standard observations show that synonymy and polysemy are disfavoured: hence a 1:1 relation between lexical items and meaning is the least complex option.

4. Cycles and syntactic change: Given the fact that syntactic change is not due to one simplicity metric, but results from balancing contradictory complexity requirements, cyclic changes are predicted to occur frequently: they are nothing but complexity shifts from one component of grammar to another and back. Hence, this proposal should be able to explain instances of cyclic syntactic change such as Jespersen's Cycle (Jespersen 1917). Very much simplifying, the cycle consists of a phase where a sole negative particle is responsible for the expression of negation; in due course this negative marker turns into a clitic/affix, and needs to be strengthened by an additional NPI/n-word, which during a very short period even obligatorily accompanies the negative marker and then (starting in colloquial registers) replaces this negative marker. French is the prototypical example (5):

(5) a. Jeo ne di Old French
b. Je ne dis pas Standard French
c. Je dis pas Colloquial French

Roughly speaking, what happens is that the particle changes into a clitic/affix under phonological pressure. As a result negation can no longer be emphasized (cf. Eckardt 2004, Condoravdi & Kiparsky 2005) and NPIs are needed for emphasis, increasing the language's lexical negative inventory. Finally, the former emphasizing NPI adopts the role of standard negative marker and the former negative marker disappears. This reduces the lexical complexity, but it increases the phonological complexity as the clitic/affix is replaced by a phonological word. However (following Zeijlstra 2004) this also reduces the semantic complexity, as these XP negative markers can then become the phonological realisation of the negative operator itself, rather than the marker of an abstract operator: negation is in those languages realised through DM instead of IM. After this, the cycle can start all over again. Although the picture presented above is somewhat sketchy, it shows that the entire Jespersen Cycle can be seen as a shift from shifting complexity from the phonological domain, to the lexical domain, to the semantic domain, and back to phonology. In my presentation I demonstrate that similar observations can be made with other examples of language change, such as the development of modals (English) or of the future tense (Romance languages).

5. Pathways and grammaticalisation. One question that has remained open is why grammaticalisation seems to obey pathway structures. E.g. language change from clitic to affix and back hardly occurs. In other words, how can grammaticalisation be explained? I argue that this the result of input changes. Language change does not happen out of the blue. Cues change (due to the fact that multiple changes co-occur), and these changes trigger other changes. It can be shown that it is highly unlikely that the evidence to analyse elements as clitics instead of affixes arises in the language input, since this can only be shown if other clitics all of the sudden may enter between a root and an the affix. Such a change would be highly implausible for independent reasons, and therefore pathways can be adopted. Note however that this puts the notion of pathway (and grammaticalisation) in the realm of statistics and thus allows exceptions, whose presence is uncontroversial and known as *degrammaticalisation*.

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