ACQUISITION PREFERENCES FOR NEGATIVE CONCORD

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Negated sentences in Dutch child language are analyzed. It is argued that, rather than an innate UG structure, the child's acquisition procedure explains a temporary rise and fall of negative concord. It is further suggested that natural preferences of the acquisition procedure are a substantive source for grammatical universals. This evades the assumption that the evolution of the human brain as such has already produced an innate repertoire of grammatical universals.

1. A Trade off

One may have doubts whether little toddlers of less than 3 years old may acquire abstract principles of grammar when given no more than a set of elementary input sentences. If so, one may consider the conjecture that basic schemes of universal grammar (UG) are innate, wired into the human neural system a priori. The productive acquisition procedure could then be seen as filling in the schemes that were already there. The procedure implies that evolution in the prehistory of man must have somehow built in the features that allow the present verbal virtuosity of the species. This biological view implies a certain trade off between language acquisition steps and innate schemes. Everything in grammar that language acquisition is unlikely to deliver, suggests itself now as a welcome present from the evolution of the human brain. There is a certain ambiguity here. One may postulate that universal and typological features of grammar are those that are highly learnable for a general pattern recognizing intelligence. By contrast, one may as easily assume that universal and typological properties are so much hidden in the mass of the various data that they can only be recognized by an intelligence that is successfully predisposed to find them due to its innate scheme for grammar. This conceptual ambiguity between learnability versus grammar-specific a priories justifies that a conference on language evolution scrutinize specific cases of language acquisition in order to see what seems to be

learnable anyway and what seems to be less so. In this light, I will consider the successive forms of single and doubly marked negation.

2. Negative Concord

There are three ways to mark a sentence as a negation, (i) a modal clitic on the finite verb, (ii) a modal clitic on the finite verb obligatorily supported by a negative adverb (negative concord), or (iii) a negative adverb alone. Negation in French shows the following historical development ('Jespersen's cycle': Jespersen 1917, Zeijlstra 2004).

(1) a. Je ne dis   (Old French)
     b. Je ne dis pas   (Modern French)
     c. Je ne dis   (colloquial French)

The order in the historic changes shows that we have here more than a simple choice between negation by a single element versus negation by two elements. The change is caused by different perceptions of the input, a difference in learning. When a cliticized element is no longer acquired as an essential marking, the single full-sized negation adverb suffices. But there is more to it.

Negative concord was present in 17th century Dutch, but Modern Dutch sentence negation is realized by means of a single adverb. In spite of the single adverb input, Dutch (and German) child language shows a well-defined period of negative concord (two negative markers for a single negative meaning). It appears spontaneously in periphrastic predicates (*wilnie eten niet* 'want not eat not') and disappears just after the acquisition of the V2 rule. The rise and fall of the second negative marking can be understood from successive reconstructions by the acquisition procedure. The acquisition procedure reconstructs a double negation in spite of the fact that the adult input has a single negative element only. One may see this as a very early default parameter setting for negative concord, but that is not needed. There is a more substantive and interesting explanation, as I will argue now.

3. Input Reduction

Child language does not consider all structures at the same time. The child cannot attend to all data at once and she does not even try to. She applies a massive data reduction instead, and she subsequently builds a grammar for the residue only. That residue determines what new facts can be accommodated. The

reduction procedure needs no innate, biologically pre-wired, knowledge. It is based on ignorance.

The child's attention is first directed to binary word combinations in which each element allows an immediate interpretation in the speech situation (see also Jordens 2002). This implies that grammatical elements that are not pragmatically understood are left out of the initial utterances, although their frequency in the input is hundred or more times higher than the lexical items that are in fact reproduced. Two types of predicative structures dominate in early child language. The first type in (2) marks a kind of proto-illocution. It determines the sentence type (wish, statement, question).

(2) modal illocution operator (+ negation)
    a.   is (nie)   [assertion: *that is (not)*]
          is (clitic Neg)
    b.   hoefe (nie)   [wish: *I need (not)*]
          need (clitic Neg)
    c.   wil (nie)   [wish: *I want (not)*]
          want (clitic Neg)
    d.   hoort (nie)   [norm: *it belongs (not)*]
          belongs (clitic Neg)
    e.   kan (nie)   [possibility: *I can (not)*]
          can (clitic Neg)

The second type is a content element with characterizing function, a 'comment'.

(3) a.   ei (niet)
         egg (Neg)
    b.   bad (niet)
         bath (not)
    c.   pap-opeten (niet)
         porridge eat (Neg)
   d.   slapen (niet)
         sleep (Neg)

Both constructions can be followed by a negation element, as indicated in (2)-(3). The negative element in (2) is analyzed here as a clitic, as part of a fused modal illocution operator. It then gets a negative illocutive intention, something like 'negative name-giving' (2)a, 'negative wish' (2)b,c, 'negative norm' (2)d,

'impossibility' (2)e. An analysis of *kannie*, *hoefenie*, *magnie* as 'negative modal operator' is also present in Hoekstra & Jordens (1994) and Jordens (2002).

In a somewhat later development the recombination of reconstructed parts yields the forms in (4). See also Wijnen 2000 for the analysis of periphrastic predicates as a later development. The full supporting evidence is drawn from the negative sentences before, during and after the acquisition of the V2 rule in the Van Kampen corpus (two children) and Groningen corpus (four children). A comparison with the dense German Leo corpus (Behrens) is in preparation.

(4)　　　 negative operator + comment (content *niet*)
    a.　 isse*nie*　~ ei [niet]　　　　　　　　　(Sarah 2;4.2)
       thatsnot egg not
    b.　 hoefe*nie* ~ bad [niet]　　　　　　　　 (Sarah 2;4.25)
       (I) neednot bath not
    c.　 (ik) hep*niet* ~ sjembad [niet]　　　　 (Sarah 2;4.27)
       (I) havenot swimming pool not
    d.　 hoort*niet*　~ daar [niet]　　　　　　 (Sarah 2;5.22)
       (it) belongsnot there not
    e.　 kan*nie*　　 ~ vinden [niet]　　　　　 (Tim 2;2)
       (I) cannot find not
    f.　 past*niet* ~ ijsbeer in [niet]　　　　　(Matthijs 2;4.24)
       ((there) fitsnot polar-bear in not
    g.　 hoefe*niet*　　~ pap opeten [niet]　　 (Thomas 2;4.14)
       neednot porridge eat not
    h.　 khoef*nie* ~ s(l)apen [niet]　　　　　 (Laura 2;4.21)
       (I) neednot sleep not
    i.　 zijn*nie*　　　~ [niet] koud [niet]　　 (Laura 2;8.24)
       (they) arenot cold not

Since the two-part utterances in (4) were intended as a single negation, I analyze the negation element between brackets [*niet*] as a simultaneous and repetitive tag on the denotational element. A negation element *nie(t)* is the final element in both parts of the utterance.

(5)　　　　　　　　　　　　　 CP

           modal operator　　　　　　 comment

       modal　　　　 <+neg> comment　　　　　 <+neg>
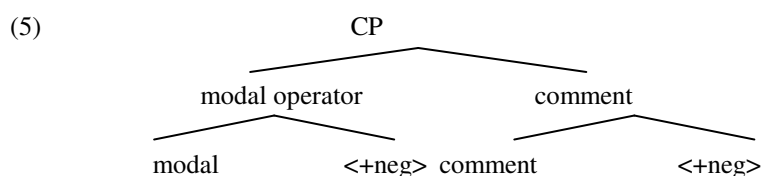
The doubling constructions appear just before the acquisition of V2nd, when complex sentences are still rare in the speech of the child. Therefore, the doubling constructions are not very frequent. They may easily be overlooked, but they are definitely there in the speech of the Dutch child, as has been shown by longitudinal graphs for the two girls.

The doubling of <+neg> need not arise from a deep intuition of the child about negative CPs. Their combination follows the general pattern of combining simplex or complex operator constructs with a context comment that will develop later in a grammatically-marked predicate. The result is a temporary doubling construction.

In this way, the doublings in (4) are not part of the input, but they will nevertheless arise from an acquisition procedure that combines pre-existing parts. The adult input is as in (6).

(6) Adult Dutch
    a.   ik hoef dat   niet t_V
          I need that   not   (I do not need it)
    b.   ik hoef het ei   niet t_V
          I need the egg not   (I do not need the egg)
    c.   ik hoef   niet t_V te eten
          I need   not   to eat   (I do not need to eat)
    d.   ik hoef   niet een ei t_V
          I need   not   an egg   (I do not need an egg)

The adult Dutch sentences in (6) allow us to consider the child language forms in (2)-(4) as temporary reductions by the acquisition procedure. The negation element can become part of different remnants.

The acquisition of the V2 rule will reveal that the negative modals are to be analyzed as modals plus a cliticized negation marker. When all illocution operators in initial position are reinterpreted as a finite verb that takes part in <+finite>/<–finite> paradigm, all input patterns show that the negation markings follow the finite forms and precede the non-finite forms.

(7) a. $[\text{hoenie}]_M$ => $[\text{hoef}]_M$ [niet …. t_M]
    b.   [hoenie] [ei eten] => $[\text{hoef}]_{<+finite, +M>}$ $[\text{niet}_{Neg} \text{ ei } t_M \text{ (te) eten}]_{predicate}$

The negative modal clitic *nie* can now be recognized as placed at the beginning of the predicate (the characterizing comment) and not necessarily fused with the modal operator. The negative following the predicate disappears. As a matter of

fact the double marked negative sentences disappear almost simultaneously with the acquisition of the verbal paradigm <+finite>/<–finite> and its characteristic positions, respectively sentence-initial/<+finite> versus predicate-final/<–finite>. This suggests an acquisition procedure that adds a binary opposition in category (<±finite>) and position (<sentence-initial operator> versus <predicate-final head>). Thereafter follows a uniform position for the negative element (<predicate initial>). Input reductions to elementary patterns, rather than a priori parameters, seem to determine the developmental steps.

Afrikaans has a similar double negation as in child Dutch. The modal verb and the negation *nie* appear also as a fused element see (8).

(8) Hy *kannie* kom nie, want hy is siek.
     He cannot   come not, because he is ill

Afrikaans fits the present learnability analysis, but it succeeds to maintain the negative concord that was present in child Dutch before the V2 rule. See Biberauer (2008) for an analysis along the line of innate UG procedures.

Not all child languages show the Neg doubling constructions. It has not (or hardly) been attested in English. English has a restricted use of low negation. English uses mostly a dummy *don't* in front of the lexical verb. In Dutch 'object + verb' constructions, the negation element appears in predicate final position (*Ik wil dat ei <u>niet</u> eten*), a configuration no longer present in VO English at all (*I <u>don't</u> want to eat that egg*). The dummy *don't* is picked up by the English child as sentence negation (<u>*no*</u>/<u>*don't*</u> *want that egg*) from the start.

4. Perfect Language

This learnability perspective on universal and typological properties of grammar is not as far from present day theorizing as one may imagine, although it is definitely a different, non-nativist, point of view. Chomsky (2005) mentions three factors for the acquisition of grammar: (A) general cognitive abilities, (B) innate UG distinctions, and (C) input sentences. He considers, and prefers in principle, the possibility that the determinants in (B) can be minimalized to zero. In that case, a general combinatorial system (A) would suffice to derive a grammar from input (C) without support by (B)

Grammatical constructions themselves are seen as implementing a general scheme for categorical combination "Merge and Agree". This scheme is general enough to fall under (A). More specific grammatical properties could follow from (B), such as (i) the categorial system, (ii) the binarity of all combinations

(iii) the headedness of phrases, (iv) the hope that all restrictions on combinations follow from lexical properties (inclusiveness), (v) the recursivity of combinations, (iv) the locality of all grammatical restrictions.

My argument is that they may as well follow from natural preferences in the acquisition procedure. If the acquisition procedure is not pre-programmed for the properties just mentioned, it could nevertheless hang on to them assuming the following learning strategy (see also Van Kampen 2009).

Suppose *dog* is identified as <+N> in the sense of 'element that can be used as a topic-name' (Krifka 2007) and suppose further that the article *the* is identified as 'followed by <+N>'. A later appearing *[angry dog]* must then become <+N> given *the [angry dog]$_N$* . The element *angry* is <−N> (not a topic-name), and hence *[dog]$_N$* is the head of the phrase *the [[angry]$_{−N}$ dog]$_{+N.}$*. The recursion in *the [angry [dark-haired dog]]* follows logically if the rule head on the left-hand side (N $\rightarrow$ A+N) is a repeatedly applied Merge. The binarity of the system was first a practical start and developed from there into a dominating property of the system. As such it is not necessarily an innate property of grammar, but rather a self-reinforcing tendency of the naïve acquisition procedure. A learner may have acquired the small phrase [β+γ]. When confronted with larger constructs, say [α+β+γ], there will be an immediate preference to hold on to the previous result [β+γ]. That favors the binary analysis [α+[β+γ]]. The pressure of such a learnability preference may in the long run impose on grammars the binarity principle. In general, let grammatical structures have the option to be (i) binary branching as well as multiple branching, (ii) headed as well as non-headed, (iii) conditioned by a local 'Agree' as well as non-locally (globally) conditioned. Then, in the long evolutionary run, the restricted system is likely to win the learnability competition on all these points.

Hence, the first principles of grammar may follow from the child's natural acquisition strategy, and need not constitute an innate scheme of grammar as such. Such a view does not explain why language should require a rather large brain in spite of the simplicity of the basic principles, why prehistoric man may have suffered from some kind of specific language impairment, or why first language acquisition is hardly possible after the age of 5 (whereas restarts are possible). Note though that the conjecture of an innate UG scheme does not answer such questions either. All such obvious questions require real models of the way the brain operates and that must be quite beyond the range of grammatical analysis as such. The suggestion that the initial limitations in child language might be due to a maturation of the young brain (Wexler 1999) runs in conflict with the findings about the acquisition of English in American adopted Chinese preschoolers (3000 children, aged 2½-6) (Snedeker et al. 2007). The

children acquired English from child-directed speech without access to bilingual informants. They showed the same developmental patterns in language production as monolingual infants, i.e. input reduction and a gradual expansion of the grammar. Their brain must have been matured in China, nevertheless they follow the same reduction and reconstruction method as their native classmates had done two or three years earlier. I consider this natural mass experiment on language acquisition as supporting a non-nativist view on grammar.

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