Doubling constructions in first language acquisition

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(How) can underlying structure be learned?

I. Demonstrate the need of underlying structure for scope-bearing items Q and Neg

II. Temporary doubling of scope-bearing items in child language
   a. negation
   b. wh-questions
   c. disappearance of the doublings with acquisition of V2nd

III. Learnability of grammar

   Traditional generative view
   (Crain, Goro & Thornton/Yang)
   by UG parameters

   Our view
   (Van Kampen 1997)
   by temporary input reductions
The scope-bearing phrase *which box* is related to
- a scope operator position (Spec,C) on the CP outside
- a scope focus position (twh) on the CP inside

The bi-location of the <+wh> element by a hidden underlying structure
(or in a categorial system by a more complex label)

How can the underlying structure be learned from reduced input?
Bi-location and difficulties for learnability

gap problem - how can a phrase position be perceived as an antecedent or as a gap?

distance problem - what antecedent/gap distance is not allowed?

Assumption (gap problem)
✓ gap and antecedent can be perceived due to primary licensing conditions
  - the outside operator phrase lacks a case configuration
  - the inside case configuration lacks a phrase

It follows that scope bearing items can be perceived (and acquired) when the learning system implies an ordering of acquisition steps
✓ primary licensing first
✓ underlying structure later

➢ The learning system implies an ordering of acquisition steps
Bi-location and the distance problem

(2)

If the movement path is learned islands fall out as non-paths without negative evidence

Evers & Van Kampen (to appear)

The distance between scope operator and scope focus is mediated by a path of phrase categories

- If the movement path is learned islands fall out as non-paths without negative evidence
Bi-location property of scope-elements

Scope-bearing items have a bi-location property
1. they add a quality to the sentence CP as a whole
2. they are subparts of a sentence CP

(3)

\[ \text{CP} \]

outside: scope operator

\[ \text{CP} \]

inside: scope focus

✓ Learnability of the bi-location of scope elements is enhanced by overt ‘concord’ marking between scope operator and scope focus

➢ Concord phenomena are more expressive about underlying structure
Bi-location properties of Q and Neg in Dutch

Adult Dutch expresses

**Q-marking**  - by the outside wh-scope operator
- the inside scope focus is empty

(4) welk boek heb jij t\textsubscript{wh} gelezen?  (which book have you read?)

**Neg-marking**  - by the Neg-element in the scope focus
- the outside scope operator is empty

(5) jij hebt dit boek niet gelezen  (you have this book not read)

**BUT**

Dutch child language spontaneously shows the inside and outside position by means of designated elements (**doublings**)

- Doublings of scope-bearing elements represent the unmarked forms for learnability
Doubling constructions (Neg, wh)

Doublings of scope-bearing items appear in
✓ early and later child Dutch (but not in adult Dutch)
✓ certain dialects/variants of Dutch, e.g. Frisian, Afrikaans
✓ various other language types

How does the child hit the idea of a structure where the Negation-element and the wh-element have overtly a bi-location not offered by the adult input?

The early doublings disappear in child Dutch with the acquisition of V2nd

Learnability questions

» What guides the acquisition procedure to (temporary) doublings?
» Why are they given up after the acquisition of V2nd?
Examples of Neg-doublings in early child Dutch

fused operator ~ content+Neg

(6) a. kwilnie(t) ~ badje [niet] ((I) wanna not bath not)
b. kannie(t) ~ vinden [niet] ((I) cannot find not)
c. issenie(t) ~ ei [niet] (that’s not egg not)
d. hoortniet ~ in kamer [niet] ((it) belongs not in room not)

✓ The doublings in negation are not part of the input
   full adult sentences:  
   ik hoef niet een ei te eten
   ik hoef het ei niet te eten

✓ initial group (with Neg) and final group (with Neg) appear first as single utterances.
   binary child utterances:  
   hoefenie / niet ei / ei niet

✓ the examples of “fused operator ~Neg-marked content part” can be seen as combining existing subparts
   combination of binary utterances:  
   hoefenie ei niet

➢ The Neg-doubling arises from combining pre-existing subparts
Examples of wh-doublings in early child Dutch

(7) a. wa(t)(i)s dat [nou] ? (what are you going to do now?)
   b. (wa)tga jij doen [nou] ? (what wil you do ‘now’?)
   c. waar(i)s die meneer [nou] ? (where is that man ‘now’?)
   d. wa(t)(i)sse buiten [nou] ? (what is there outside ‘now’?)

✓ The doubling of questions by *nou* is optional in the adult input. *nou* has a emphatic function in adult Dutch, but it is misinterpreted by the child as a standard Q-marking

✓ Simple *nou* appear as tags before or after the content element in structures merely reduced from the input

(8) a. waar is die meneer *nou* (tV) ? (where is that man ‘now’?)
   b. wat ga jij *nou* doen (tV) ? (what will you ‘now’ do?)

➢ The *wh/nou-doubling* arises naturally from the reduction of adult input to binary utterances
Early doublings and V2nd

(9) Dutch Sarah: The acquisition of V2nd (Evers/Kampen 2001)

appearance of doublings week 115-122

Doublings most frequent just before V2nd reaches acquisition point (> 80%)

Why is V2nd the turning point for early concord phenomena in child language?
V2nd as structural watershed

✓ The fusion of the initial operator is broken up as:
  [ personal pronoun + finite verb (+ Neg) ]
  kwinie → ik wil niet

✓ The final group gets a uniform analysis as:
  [ Neg + tV (+ infinitive/past participle) ]
  niet t<+fin> (spelen)

✓ Neg appears invariably as an adverb in front of the final group
  kwil niet in badje t<+fin> (spelen)

After the finite verb is analyzed as an illocution marker and scope-bearing item
✓ It is related to a C⁰-position having CP scope
✓ It is related to the predicate head final position

➢ V2nd integrates the root utterance as C⁰ - I⁰ - V⁰ chain
## Disappearance of Neg-doublings

<table>
<thead>
<tr>
<th>&lt;+finite&gt; &lt;+Neg&gt;</th>
<th>&lt;+Neg&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>kwil  (niet)</td>
<td>niet  bad</td>
</tr>
<tr>
<td>kan  (niet)</td>
<td>niet  vinden</td>
</tr>
<tr>
<td>is  (niet)</td>
<td>niet  ei</td>
</tr>
<tr>
<td>hoort (niet)</td>
<td>niet  in kamer</td>
</tr>
</tbody>
</table>

- badje  *niet  t\_v  (bath not)
- *vinden  niet  t\_v  (find not)
- ei  *niet  t\_v  (egg not)
- *in kamer  niet  t\_v  (in room not)

- V2nd breaks up the initial operator [pers. pronoun + V\_fin(+Neg)] and the final group [Neg + t\_v ]

- After V2nd all Negs can be interpreted as in front of final predicate group
Steps in the acquisition of Neg

initial tag      final tag

(10) a.  *isse nie(t) ~ ei niet*  \((t_V)\)  (that is not egg not)
b.  *hoefeniet ~ pap niet*  \((t_V)\)  (want not porridge not)

Step 1  Due to input reduction

Neg seen as part - of initial modal/Aux group
(ik) *hoefeniet* (te eten)
- of final predicate content group
(ik wil die) *pap niet*

Step 2  Combination of the complex operator and content part yields

double Neg-marking

Step 3  Final Neg wins out

(all Negs, re-interpreted as predicate adjuncts)

➤ Step 3 takes place after V2nd yields CP-scope
Steps in the acquisition of wh-movement

initial tag  final tag

(11) a.  *waar(i)s* - die meneer nou (tₐ) ?  (where are you ‘now’?)

   b.  *(wa)tga* - jij nou doen (tₐ) ?  (what are you doing ‘now’?)

Step 1  Due to input reduction
        Q seen as  - final adverbial tag *nou*
                       - (a little later) as initial wh-operator

Step 2  Combination of wh-marked initial operator and *nou*-marked predicate
        yields double Q-marking

Step 3  Initial <+wh> wins out
        *(nou)* is reinterpreted as pragmatic adverb

✓  Due to V2nd <+wh> pops up as an initial separate element in Spec,C (as
    in adult Dutch)

➤  Step 3 takes place after V2nd yields CP-scope
Evolution of the system in 3 steps

1. Scope-bearing items as operator tags due to reduction
   No bi-location assumed

2. Combination - operator + content part
   - both marked for the same tagged intention

3. Integration - spelled-out in one position
   - grammatically related to the other
   Bi-location established

- Integration follows V2nd, the central scope C° - I° - V° (always present)
Quantifiers and Neg-doublings in later child Dutch

✓ Once the properties of Dutch Q and Neg have been acquired, the child will not make the early doublings anymore
✓ Yet, explicit doublings pop up again in quantifier constructions

(12) Neg-doublings with quantifiers (around 4 years)
   a. _niemand_ speelt _niet_ met mama (= nobody plays with mummy)
      (adult: niemand speelt met mama)
   b. _niet_ tegen _niemand_ zeggen (= (do) not tell anybody)
      (adult: tegen niemand zeggen)
   and also:
   c. _alle_ kinderen gaan _niet_ slapen (= not all children go sleep)
      (adult: niet alle kinderen gaan slapen)
      als _iemand_ nog _niet_ begonnen is ..... (= if nobody has begun)
      (adult: als niemand nog begonnen is)

➢ The child maintains hard-won inside Neg (begin final group)
➢ It leads to (temporary) doublings for negation with quantifiers
Quantifiers and Negation in later child Dutch

(13)  
\[
\begin{array}{c}
\text{Spec} \\
\text{alle kin der e n}
\end{array}
\quad
\begin{array}{c}
\text{CP + Neg} \\
gaan
\end{array}
\quad
\begin{array}{c}
\text{IP + Neg} \\
niet
\end{array}
\quad
\begin{array}{c}
\text{IP} \\
op zolder
\end{array}
\quad
\begin{array}{c}
t_{\text{fin}} \\
slapen
\end{array}
\]

all children go not sleep in the attic = it is not true that all children are going to sleep in the attic

✓ The IP predicate is marked by the negative operator adverb *niet*

✓ The full CP is a negative utterance expressed by the projection of <+Neg>

✓ The order of c-command in the terminal string does not express that *alle* is in the scope of *niet*, but in child language it is

Later child Dutch maintains for a while a hard-won negation rule of early child Dutch (negative predicate implies negative sentence)

In (standard) Dutch the adverb *niet* is relocated in the quantifier
- *niet alle kinderen* gaan op zolder slapen

➢ The interpretation of (13) as *for all children it is not true*… is ruled out
The acquisition order blocks low-scope Neg

(14) a. de kinderen gaan [ *niet op zolder slapen ]
   (it is not true that the children are going to sleep in the attic)

b. alle kinderen gaan [ niet op zolder slapen ]
   (it is not true that all children are going to sleep etc.) (child Dutch)

c. niet alle kinderen gaan [ – op zolder slapen ]
   (same meaning as b: adult Dutch)

d. * alle kinderen gaan [ niet op zolder slapen ]
   (for all of the children it is not true that they are going to sleep etc.)
   geen van de kinderen gaat op zolder slapen

✓ (14)a > b > c is the order of acquisition

✓ (14)d is excluded since it would imply a retreat from the main rule
   Negation of the predicate must yield sentential scope anyway

- Acquisition steps are irreversible
- The order if acquisition steps explains why certain ‘logical’ options
  in the surface structure in a given language are excluded.
The child’s elementary grammatical frames

- The present view is part of a research program that rejects all innate knowledge of UG (contra the a priori assumptions in Crain/Thornton or Yang)

Basic idea
- a child need not have an a priori idea of a stairway in order to climb to the second floor
- the child decodes the input in small steps

Question: Does the system allow such stepwise decoding?

Answer: It does

- Grammar allows a stepwise decoding
- Doublings are temporary symptoms of a decoding procedure
Does Universal Grammar exist?

- Yes, but it is in the (grammatical) tool, not in the mind (the stairway to be climbed by the child)

- Input reduction happens to reveal a hierarchy of elementary frames by which the child eventually captures grammar

- Typological properties (parametrized UG) are revealed by input reduction before other properties

- Typological properties are present as the elementary properties that enable the learnability of the system

- UG is the discovery of the acquisition procedure
- Learnability explains the tenacity of typological properties
Universal Grammar as a line of (re)inventions

- UG is the discovery/outcome of the acquisition procedure rather than the source of the acquisition procedure.
- The child starts with a maximally simplified grammar.
- After input reduction there is a stairway of strong stimuli up to the adult grammar.
- The evolution of grammar (in child language acquisition and in the species) is then the evolution of a tool.

- The more “perfect” tool a system of language is, the less innate UG it needs.
Selected references

On the learnability of V2nd and wh-movement (a stochastic approach)

General view on learnability

Optionality in child and adult grammars

On the learnability of syntactic categories N and V

Other references