Null Subjects

Along with missing inflections, researchers have long noted that children acquiring English often produce incomplete sentences, e.g.,

Charlie (2;6)
  ah, ___ fell down.
  ___ need one toy now deda.
  yeah, ___ need help.

Linguists began investigating the differences between languages with obligatory subjects like English, and languages with optional subjects like Italian in the 80s. Researchers then tried to account for the differences between subject use by children and adults. These approaches are divided between competence and performance accounts.

II. Competence Accounts

A. Parameter Setting (Hyams 1986)

In 1981 Chomsky proposed a model of language that distinguished between principles and parameters. Principles, such as X-bar theory, are universals that apply to all languages. The parameters specify the set of options that define the range of variation between languages. Each parameter determines language specific values for a wide range of linguistic features. Children acquire a specific language by setting the values of the parameters that govern language variation.

One example is the head position parameter. Languages are classified as head-first or head-last. By setting the head position parameter, a child can predict the relative positions of:

i. verb + direct object (the verb’s complement)
ii. (pre)position + complement
iii. auxiliary + complement
iv. noun + complement
v. determiner + complement

One example of a parameter that received early attention was the pro-drop parameter. Hyams (1986) applied the pro-drop parameter to the acquisition of English. Hyams proposed linking this parameter to the form of agreement specified for each language. Languages with ‘rich’ agreement systems like Italian and Spanish identify the agreement feature with the null pronominal element PRO. PRO is found in English infinitival constructions, e.g., Clyde asked Sandy PRO to paint his garage. PRO functions as a pronoun to indicate the subject of the infinitive, but it only occurs in non-finite contexts, c.f., *Clyde asked Sandy if PRO painted his garage.
By linking PRO to the agreement feature, Hyams predicts:

i. the optional use of subject pronouns (since PRO provides the reference for null subjects)
ii. the presence of ‘rich’ agreement (allows ‘recovery’ of the deleted subject reference)
iii. the absence of auxiliary verbs (auxiliaries create a finite contexts incompatible with PRO)
iv. post-verbal subjects (the agreement features may move to the verb at either the level of syntax or phonology. Syntactic movement allows the agreement features to license a post-verbal subject. Phonological movement licenses pre-verbal subjects.)
v. no expletive subjects (e.g., ‘It’s cold’; PRO replaces expletive pronouns)

Hyams proposed that all children begin with the pro-drop setting for this parameter. Children learning English would then optionally omit subject pronouns, not use auxiliary verbs, use post-verbal subjects, and not use expletive pronouns. She predicted that once children notice the use of expletive subjects in English they would ‘reset’ the parameter to the non-pro-drop position.

Assessment

Hyams provides the first detailed parameter-setting model for language acquisition. She chose examples from different children to illustrate her theory rather than systematically analyzing data from a single child. Thus, we cannot assess the observational adequacy of her model.

Hyams’ model has several logical flaws:

i. English-speaking children do not produce the ‘rich’ agreement inflections that license null subjects.
ii. English-speaking children do not produce auxiliary verbs with finite verb complements, e.g., *He can goes.
iii. She does not explain why it takes so long for children to notice expletive subjects (Davis 1989)
    It’s time for bed!
    Once upon a time, there were three bears ....

The model is not supported by empirical evidence

i. Ingham (JCL 1992) reports that one child (Sophie) used subjects in 90% of her sentences at 2;4, but didn’t use expletive pronouns until 2;9 or auxiliaries until 2;7-2;8.
ii. other children have some auxiliaries during the pro-drop period.
iii. children omit verbs and objects as well as subjects.
iv. children omit first and second persons more frequently than third person arguments (Clancy 1993).
v. children omit subjects of transitive verbs more frequently than subjects of intransitive verbs (Allen & Schroeder 2003; Clancy 2003).
vi. there are large differences in the rate of subject (and object) omission across languages.
<table>
<thead>
<tr>
<th>Language</th>
<th>Subject omission</th>
<th>Object omission</th>
</tr>
</thead>
<tbody>
<tr>
<td>English (P. Bloom 1989)</td>
<td>55%</td>
<td>9%</td>
</tr>
<tr>
<td>Chinese (Wang et al. 1992)</td>
<td>56%</td>
<td>23%</td>
</tr>
<tr>
<td>Korean (Kim 2000)</td>
<td>77%</td>
<td>51%</td>
</tr>
<tr>
<td>K‘iche’ (Pye 1992)</td>
<td>92%</td>
<td>67%</td>
</tr>
</tbody>
</table>


The parameter-setting procedure raises several concerns

i. Children should apply the **Subset Principle** to avoid learnability problems (Wexler & Manzini 1987). Children begin with the most restrictive setting of a parameter and relax this setting when they find positive evidence. This principle applies to the pro-drop parameter in different ways.

   a. focusing on expletive subjects, pro-drop languages are a subset of non-pro-drop languages
   b. focusing on optional subjects, non-pro-drop languages are a subset of pro-drop languages

ii. Different parameters may interact and create a learnability problem (Davis 1989), e.g.,

Parameter 1: Wh-movement. Languages like English and Hausa have overt wh-movement. Languages like Basque and Japanese do not.

Parameter 2: Bounding. Languages like English restrict the movement of wh-phrases. Languages like Italian are less restrictive.

Do children set the movement parameter before the bounding parameter or vice versa?

if Move P < Bounding P requires negative evidence for English bounding restrictions
if Bounding P < Move P children lack evidence for bounding without movement

Other Wh-parameters also exist:

Multiple Wh-Parameter:

**Bulgarian (Rudin 1988)**
Koj kakvo kupuva?
who what buys
‘Who buys what?’

**Russian (Nina Radkevich, pc)**
Kto kogo kogda gde i s kem videl?
who-nom who-acc when where and with who-inst saw
‘Who saw whom with whom where and when?’

Rudin’s classification (1988: 448):

<table>
<thead>
<tr>
<th></th>
<th>Chinese</th>
<th>French</th>
<th>English</th>
<th>Bulgarian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single wh</td>
<td>LF</td>
<td>LF/syntax</td>
<td>syntax</td>
<td>syntax</td>
</tr>
<tr>
<td>Multiple wh</td>
<td>LF</td>
<td>LF</td>
<td>LF/syntax</td>
<td>syntax</td>
</tr>
</tbody>
</table>
B. Topic-Drop (Hyams 1992)

Children may begin with a topic-drop language like Chinese rather than a pro-drop language like Italian, e.g.,

___ kanjian ta le. (Huang 1984)

see he Perfective

‘He saw him.’

\[
\text{CP} \\
\text{Op_j} \\
\text{C'} \\
\text{C} \\
\text{IP} \\
\text{DP} \\
\text{I'} \\
\text{t_j} \\
\text{I} \\
\text{VP} \\
\text{Spec} \\
\text{V'} \\
\text{t_j} \\
\text{V} \\
\text{DP} \\
\text{kanjian} \\
\text{ta}
\]

Problems:

1. The hypothesis is not supported by the crosslinguistic differences in the rate of subject and object omission noted earlier.
2. The hypothesis does not account for postverbal subject drop found in children acquiring German (Hamann 1992).

Christoph (3;4.5) Elisa (3;1.12)

Das muß ___ zusammenbauen Ganz viele hab ___ hier
that must/1 ___ put_together very many have/1 ___ here
‘I must put that together.’ ‘I have quite a lot here.’

Percentages of different types of null subjects for children acquiring German (Hamann 2002)

<table>
<thead>
<tr>
<th>Child</th>
<th>preverbal</th>
<th>postverbal</th>
<th>yes-no question</th>
<th>subordinate clause</th>
<th>Wh question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elisa</td>
<td>58%</td>
<td>17%</td>
<td>17.5%</td>
<td>5.3%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Christoph</td>
<td>82.9%</td>
<td>11.4%</td>
<td>5.7%</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
C. Root Infinitives

Wexler (1994, 1996, 1998) connected the absence of subjects to children’s use of root infinitives. Wexler’s Agreement Tense Omission Model (ATOM) predicts that children would produce null subjects with infinitive verbs since they license PRO subjects, e.g.,

I had PRO to see you.

Recall that Wexler (1998) assumes that initially children can only check the subject’s D-feature once. Since the D-feature must be checked twice in English, this limitation prevents children from producing a finite form of the verb. Schütze and Wexler (1996) split English inflection into two features—tense and agreement, which can surface independently:

<table>
<thead>
<tr>
<th>Features</th>
<th>Example</th>
<th>Prediction</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+ tense] [+ agreement]</td>
<td>she goes</td>
<td>Nom subject; null subject prohibited</td>
</tr>
<tr>
<td>[+ tense]</td>
<td>her go, her goed</td>
<td>Acc subject, null subject prohibited</td>
</tr>
<tr>
<td>[+ agreement]</td>
<td>she go, go</td>
<td>Nom subject, null subject possible</td>
</tr>
<tr>
<td>[ ]</td>
<td>her go, go</td>
<td>Acc subject, null subject possible</td>
</tr>
</tbody>
</table>

Schütze and Wexler assume that agreement assigns nominative case, and that tense must be present for agreement to occur. Agreement cannot occur independently of tense. Schütze and Wexler point out that most non-nominative subjects children produce occur with past tense verbs. Wexler (1998) augments this framework with the stipulation that the use of null subjects with finite verbs is a result of topic drop, e.g.,

Adam (3;6) Tickles me.

Advantages:

ATOM ties subject use to an overt tense feature. The theory assumes that children’s null subjects can take several forms—PRO and null topics in English, and pro and null topics in Italian. It predicts children’s surface forms can be quite varied. It also accounts for the asymmetry in the use of null subjects and objects.

Problems:

1. Adult PRO is licensed by the absence of tense, but identified through control:

   I promised Mary PRO to see you.
   I persuaded Mary PRO to see you.

   ATOM does not account for the differences between child and adult identification (Hamann 2002.198).

2. ATOM predicts the infinitive is an unmarked verb form. This is fine for English, but not Danish (Hamann 2002.204). Danish present tense is marked with -er, past tense by -de/t and the infinitive by -e. None of the tensed verb forms show agreement so the only difference between the tensed forms and the Danish infinitive is the presence or absence of tense. ATOM has no way to predict the production of null subjects with finite Danish verbs.
3. The theory does not account for the gradual increase in morpheme use.

4. ‘the generally low frequency of non-nominative subjects with agreeing verbs has to be seen in the context of the frequency with which children produce non-nominative subjects and the frequency with which they produce agreeing as opposed to non-agreeing verbs...’ ‘the frequency with which non-nominative subjects with agreeing verbs would be expected to occur... can be estimated very easily by multiplying the number of non-nominative subjects produced by the child by the proportion of nominative subjects that occur with unambiguously agreeing verb forms’ (Pine et al.)

5. The theory does not account for cross-linguistic differences in null subjects and objects.

**D. Truncation (Rizzi 1993/4)**

Rizzi accounts for the missing elements in children’s sentences by assuming that they do not produce complete tree structures. In particular, root infinitives lack the Complementizer projection. This enables children to produce finite sentences with null subjects:

```
  IP
   /\  \
  /   \  \\
DP       I'
      |      |
      NC    I     VP
        Spec   V'
             /\    |
             V  DP
               tickles me
```

Rizzi added a new type of empty category, the **null constant** (NC), to account for children’s null subjects. Null constants are acceptable as long as they are not c-commanded by a potential antecedent.

**Predictions:**
1. Children’s sentences may have null subjects, but not null objects.
2. Null subjects occur in root infinitives when the structure is truncated at VP.
3. Null subjects cannot occur in questions with a fronted wh phrase or auxiliary.
4. Null subjects cannot occur in embedded clauses.

**Problems:**
1. The theory assumes a discontinuity between child and adult grammars for the licensing of null constants.
2. The theory cannot account for the difference in null subject use with modal (5%) and main verbs (11%; Valian 1991).
3. The theory does not account for crosslinguistic differences in the use of null subjects in questions.

<table>
<thead>
<tr>
<th></th>
<th>Root Infinitives</th>
<th>Null Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam</td>
<td>62.4%</td>
<td>35%</td>
</tr>
<tr>
<td>German</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Danish</td>
<td>4.6%</td>
<td>7.3%</td>
</tr>
<tr>
<td>French</td>
<td>–</td>
<td>1%</td>
</tr>
</tbody>
</table>

4. The theory does not account for the gradual increase in subject use.
5. The theory does not account for the other missing elements in children’s sentences.

References


Pine, Julian M., Caroline F. Rowland, Elena V. M. Lieven, and Anna L. Theakston. ms. Testing the Agreement/Tense Omission Model: Why the data on children’s use of non-nominative subjects count against the ATOM.

