GRAMMARS AND SYNTACTIC DEVELOPMENT

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The purpose of this paper is to give a brief summary of the criteria for the evaluation of theories of language acquisition as presented in Atkinson (1978); to exemplify the application of these criteria to some theories of syntactic development presented in the form of grammars; and to discuss some aspects of Bowerman (1973) with the aim of highlighting the problems in writing grammars for child language in general.

1. CRITERIA FOR ADEQUACY

According to Atkinson (1978:1), metatheoretical discussion concerning first language acquisition is particularly important, as this is a domain "where empirical adequacy is rarely, if ever approached." Another argument for opening up such a discussion is the finding that "a good deal of the theorizing (in this domain) lacks rigour and direction and is apparently divorced from any overall view of human development." The metatheoretical framework, ie. the criteria for the evaluation of theories of first language acquisition, presented by Atkinson (1978) certainly makes this growth area of research easier to digest. Atkinson suggests three preliminaries for theories of language acquisition:

(i) Fixing the domain of language development to be studied. Such domains are, for example, the ability to produce syntactically structured utterances; the ability to comprehend such utterances; the ability to perform speech acts; the ability to refer to concrete objects; and the ability to comprehend the relational terms *more* and *less*.

(ii) Collecting data relevant to the domain. In a developmental study data will have to be collected at a number of points in time, or 'stages'.

(iii) Constructing a theory for each stage. If the theorist fixes his domain as "the ability to produce syntactically structured strings", for example, he may accept as relevant data the structured strings produced by the child at the different stages.

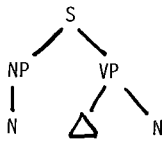
He may then construct a sequence of theories or grammars, in this case, to describe the child's ability at each stage. Further, Atkinson (1978) presents five conditions for theories:

(i) The theory for a domain must take a stand as to what constitutes an explanation for linguistic development; one possibility is to embed the linguistic phenomena in a more general developmental theory. By way of example, a reference is made to Fodor (1965) as to what constitutes an explanation in psychology. (As indicated by the fourth condition below, the matrix theory need not necessarily be a psychological one. The fifth condition, however, requires that psychological commitment be made explicit.)

(ii) The theories constructed for the different stages must be commensurable, ie. there must be a *linguistic* matrix theory of which the theories can be seen as components. If this is not the case, additional argument is needed to restore the explanatory status of the theory. The discrepancy or discontinuity may be shown to be a consequence of a more general psychological or sociolinguisic phenomenon explained by the matrix theory in which the linguistic subtheories can be embedded. For example, pivot/open (P/O) grammars, as first suggested by Braine (1963), violate this condition, as the categories P and O cannot be shown to develop into any categories in adult grammars, such as NP and VP within the TG framework, and as no matrix theory has been presented to account for the discontinuity.

(iii) The matrix theory must account for the developmental sequence along the criterion of additive complexity. This means that the child should not be credited with more complex knowledge at the first stage than at the second stage etc.

Assuming a reduction transformation to explain the missing VP in a child utterance of two nouns, as done by Bloom (1970), exemplifies violation of this condition. Bloom suggested the following deep structure for N + N strings:



The verb was deleted by a reduction transformation. The child's grammar at this stage would then be more complex than adult grammar, and development would consist of 'unlearning'.

(iv) The sequence of theories for the different stages must admit of a teleological, a reductive, or an environmental explanation. Amenability to what Atkinson refers to as 'teleological explanation' is related to the commensurability requirement quoted in (ii). If the theorist has a linguistic theory as the only framework, he must ensure commensurability of the theories constructed for each stage. An attempt to account for the first stage in a domain in terms of systemic grammar and the second stage in terms of case grammar, for example, would result in a position in which teleological explanation is impossible. In a reductive explanation, a domain of linguistic development is explained, eg., by reference to specific features in cognitive development, as was done by the Piagetian school, or in social development, as was done by Halliday. The environmental explanation relies on the linguistic environment to account for aspects of language acquisition. This type of explanation is typically encountered in studies committed to behaviorism.

It should be obvious from what has been said above that these categories of explanation are not mutually exclusive. It should also be noted that there are some domains, such as aspects of lexical development, which are amenable to, eg., environmental explanation, and others, such as aspects of syntactic development, which may not be amenable to other than specifically linguistic explanation.

(v) The matrix theory must be able to specify transition from the theory of one stage to the theory of the next, ie. it must involve a learning theory to explain the learning mechanism. Again, this condition is neutral as to whether the learning theory in question is empiricist or rationalist in its approach.

2. METHODOLOGY IN BOWERMAN

As pointed out by Atkinson (1975), Bowerman's data collection and interpretation suffer from limited recording time, her inadequate knowledge of Finnish, and hence problems in transcription, accompanied by inaccurate notes concerning features of the situations in which the children's utterances appeared. In addition, there are inconsistencies in the interpretation of data.

The grammars presented by Bowerman are more or less simplified versions of their prototypes, the *Aspects* model of TG and Fillmore's case grammar as presented in 1968. A version of TG with no Verb Phrase or a case grammar with case relations obtaining

between two cases such as agentive and objective are typical examples. The fact that there are no constraints on the length of strings generated by the grammars seems preposterous at a stage when a child hardly produces more than a morpheme at a time.

The purpose of this section, based on Tirkkonen-Condit (1978), is to point out some problems related to the interpretation of the Finnish data which seem to have bearing on Bowerman's conclusions. Some similarities across languages, for example, become less striking when one takes a closer look at her judgements concerning the Finnish language and the Finnish data. As I have not had access to Bowerman's original data, my appraisal remains to some extent tentative. (For a general review of Bowerman (1973) cf. Atkinson 1975.)

2.1. *Prolocatives*

2.1.1. Number of morphemes

Prolocatives, such as *täällä* ('here'), *sinne* ('there-to') and *missä* ('where') could have been treated as one morpheme each, instead of the compromise (Bowerman 1973:20) of treating them as 1.5 morphemes each. Adult speakers of Finnish hardly understand the prolocatives manifested by Bowerman's data as composed of two morphemes. Her data consists of utterances such as *Missä pallo?* ('Where ball?'), *Tule tänne,* ('Come here') *Sinne meni avain* ('There went the key').

2.1.2. Location vs. nomination

The two transformational grammars written for the two Finnish subjects treat prolocatives differently. For Seppo at MLU 1.81 prolocatives are derived by a PS rule Loc → $\left\{\begin{matrix}\text{N}\\\text{Proloc}\end{matrix}\right\}$ while for Rina at MLU 1.83 they are derived by two PS rules: Dem → $\left\{\begin{matrix}\text{Tää}\\\text{Proloc}\end{matrix}\right\}$ and Loc → $\left\{\begin{matrix}\text{N}\\\text{Proloc}\end{matrix}\right\}$. Utterances such as *Tuossa kala* ('There fish') or *Kala tuossa* ('Fish there') are given under the heading Noun - Locative for Seppo and under Demonstrative (- Copula) - Noun phrase for Rina (cf. Bowerman 1973: 263 and 277 respectively). These meaning relations are similarly quoted in Brown (1973:209). It is true that Finnish motherese tends to use such questions as *Missä kala?* ('Where fish?') or *Mikä tässä?* ('What's here?'), as pointed out by Bowerman (1973:52), where English motherese would prefer *Show me the fish.* This may account for the frequency of what look like locatives in children's speech. Against the background that both Seppo and Rina used 'here' and 'there' as operators in pointing out and naming objects far more often than 'this' and 'that', it seems unjustified to treat these operators differently in the two grammars.

Moreover, these nominators do not have much in common with locative expressions such as *Immi tuohon piirtää* ('Immi there-to draws') or *kengä(t) jalka* ('shoes foot').

The grammars also treat prolocatives as 'locatives' in main verb constructions, although the samples indicate that even here a distinction should perhaps have been made between location and nomination. Seppo, for example (Bowerman 1973:263), uses both *siinä* and *sinne* with the same verb *putoo*, possibly to differentiate nomination and location respectively.

There would have been an intonational clue to differentiating genuine locative expressions from nomination expressions in contexts in which either interpretation seems equally plausible.

2.1.3. Word order

Word order, too, has a role to play, the tendency being for nomination to manifest the order Proloc - Noun and for locations to manifest the order Noun - Proloc. But as reverse orders are possible, the information provided by intonation and stress should have been used. There is no indication in Bowerman's study that this was done.

Bowerman's grammars generate one word order by PS rules (the base) and the other transformationally. The criterion used for determining which word order is basic and which derived is frequency in the particular child's speech (Bowerman 1973:128). For Seppo, N + Proloc happened to be more frequent and for Rina Proloc + N. As no attention is paid either to the semantic function of word order or to that of intonation in expressions including prolocatives, this criterion seems inadequate.

An optional reordering transformation (Bowerman 1973:122) implies that these word orders are in free variation semantically, which might not be the case in these children's speech. In adult Finnish the following two sentences (which illustrate utterance types very common in motherese), if pronounced with unmarked intonation have different meanings:

(i) Tuossa on koira ('There is a dog there')
(ii) Koira on tuossa ('The dog is there')

There are two alternative ways of revising the grammar. Either both word orders are derived by the base or only one, with the other derived by a context-sensitive obligatory transformation. Otherwise the child is credited with knowledge which he has to unlearn later - namely that one word order is more normal than the other. (Cf. section

on word order below. See also the account on basic word order in Finnish in Hakulinen and Karlsson (1979).)

In conclusion, then, the grammars can hardly claim descriptive adequacy as far as prolocatives are concerned.

2.2. *Word order related to negation and adjectives*

Additional problems result from Bowerman's (1973: 74) assumption that the 'negative word' in Finnish is usually after the subject and before the verb, its "ultimate position in surface structure in adult English and Finnish." The fact is that the negative verb, especially in spoken Finnish, can appear in a variety of places, depending on the topic of the utterance and the domain of negaiton.

As for word order with attributive vs. predicative adjectives, Bowerman (1973: 123) is considering a reordering transformation for Seppo at MLU 1.81, to account for noun-adjective strings. Only the coincidence that the order adjective-noun was almost invariably used in longer utterances made her avoid this.

2.3. *Imperatives vs. third person singulars*

Footnote (a) on p. 260 reads as follows: "Included (in subject-verb constructions) are a few constructions which contain repeated words *or vocatives*, and two which seem to consist of two constructions run together without a break in intonation. These constructions are not, strictly speaking, generated by the grammar, but are *closely related* to those that are" (my emphases). Just how many voc + imperative constructions are included in the subject-verb constructions for Seppo and MLU 1.81 is impossible to determine without access to the original data, but it seems that Bowerman probably had no way of telling these constructions apart.

Many verbs in Seppo's and Rina's samples are not "formally marked as imperatives" (Bowerman 1973:149) as against 3rd person singular. There is a difference in pronunciation, however. In Appendix I (Bowerman 1973:260-261), where the subject-verb and verb-object constructions are sampled, there are 15 instances in which the interpretation of Voc + Imp would be possible on the formal grounds salient

for Bowerman: *äiti avaa, setä korjaa, fantti pelaa, hiiri syö, hakkaa isi*, etc.[1]

2.4. *Direct object case*

Whether Bowerman (1973:126) is clear about the case forms that are grammatical in direct objects cannot be determined from her account. It is not only imperative sentences that "provide a model for using nominatives as direct objects". What she calls "impersonal usage" (probably because it looks like the passive form) can also take direct object in the nominative form. In instances where direct objects appear, the case form could thus provide another clue for determining whether an utterance is a manifestation of Voc + Imp or Subj + 3rd p. sg. predicate.

2.5. *'Missing' personal pronouns*

"Seppo and Rina, unlike the American children, used no personal pronouns. This may have been an idiosyncracy of both children, or it may be a general difference between children learning the two languages" (Bowerman 1973:152). Bowerman (1973:125) is equally embarrassed by Seppo's mother who seldom used personal pronouns. "There were a few tokens of 'we' and 'our', but almost none of 'they', 'them' or 'their'. Bowerman probably assumes that personal pronouns, manifested as separate words, are as obligatory in Finnish as they are in English. In samples from Seppo in late Stage I there are utterances such as *Viedään kauppa* (pro *Viedään kauppaan*, 'Let's take...to the shop'), *Täällä ollaan* ('We are here'), *Illalla pestään* ('We'll wash tonight'), *Ei syödä tämmö* ('We don't eat this'/'Let's not eat this'). Bowerman (1973:144) considers the utterances incomplete because the first person plural pronoun *me* (we) is missing. With this verb form, which Bowerman (1973:269) calls "the impersonal usage", the personal pronoun is either

[1]Bowerman does not discuss pronunciation, and my suspicion concerning her failure to hear this difference gets support from her failure to hear even a more obvious difference which distinguishes these two forms in some verbs. *Jaksa* is trans-scribed as *jaksaa* in a dialogue between Rina and her mother (Bowerman 1973:99): *Et sä jaksaa, kulta enää* ('You don't have the strength to, any more').

impossible (the imperative meaning) or optional (the indicative meaning) in adult Finnish. Thus Seppo's behaviour, when he "omitted subjects both from sentences which had imperative intent and from those which did not" (Bowerman 1973:133) shows compliance with a standard colloquial Finnish pattern.

When discussing Rina's replies to Yes/No questions such as *Onko tämä lintu?* ('Is this a bird?') and *Onko tässä lintu?* ('Is here a bird?') Bowerman (1973:137) writes: "Although a pronoun or prolocative is technically needed in reply, as in *Tämä on lintu* ('This is a bird'), and *Tässä on lintu* ('Here is a bird'), Rina had a model for omitting them, since her mother sometimes omitted them in answering her own questions." Answers in which the "technically needed" pronoun is present would be artificial: A: *Onko tämä lintu?* B: *Tämä on lintu.* ('A: Is this a bird? B: This is a bird.')

2.6. *Inflection*

In the grammars from Stage I there is no provision for inflections, verbal auxiliaries and other functors (cf. Bowerman 1973:154). Bowerman is probably right in not providing for these, as the children hardly produced any of these consistently enough to warrant their inclusion. The fact, however, that the children were learning various functors at Stage I cannot be denied. Grammars, in the attempt to "cover everything", fail to cover anything to such an extent as to make cross-linguistic comparisons very meaningfull. The following are just examples of what the Finnish children are learning about inflections but are not (probably justifiably) credited for in the grammars.

Rina's answers to yes/no questions are often appropriate as shown by her responses illustrated in Bowerman (1973:137 and 155). Moreover, it would be interesting to know the contexts in which Rina produced her one-word utterances of *on* ('is') - 5 instances - and *ei* (neg. verb) - 13 instances - because these, and other single-word utterances of verbs are possible appropriate answers to yes/no questions. Against the background that "judgements about comprehension are difficult to make" (Bowerman 1973:149). I would expect to see such judgements where they seem feasible. That possible comprehension cannot be accommodated into a grammar without due production is a different matter.

As Bowerman (1973:104) correctly states, "in standard Finnish the partitive of *auto* is *autoa*, but in colloquial speech it is often formed simply by lengthening the final vowel." As final vowel length is not

particularly easy for a non-native speaker to discern and as Bowerman's renderings are not always accurate (there is confusion between *jo* and *joo; jaksa* and *jaksaa,* for example), the children's performance may not have always been done justice to. The treatment of Rina's direct object case serves as an example. *Kakkua* and *kakkuu* would be the free variants of the partitive case form of *kakku* ('cake'). Bowerman's transcripts show the forms *kakku* and *kakkua,* but the former may also be due to confusion caused by the final vowel length. That Rina is well underway in learning the direct object case is shown by the seemingly correct inflection of the demonstrative pronouns in object position and the form *kakkua* in direct object position. Rina's grammar, however, does not recognize other than the uninflected nominative form for direct object. This seems wrong, especially as the same grammar does recognize the allative case form (ending in *lle*) in free variation with the uninflected form.

2.7. *Grammars as a basis for generalizations*

One of the arguments Bowerman produces for the possible superiority of case grammar over TG as an account of the early stages is that subjects can be identified with Agents and that direct objects are inanimate. Bowerman's data, however, does not unequivocally support this argument.

The claim that "every one of Seppo's verbs (at MLU 1.42) was of the subclass for which the grammatical function 'subject' is identified with the semantic role of Agent" (Bowerman 1973:188) is shown wrong by the following instances: Verb + Experiencer:[1] *nalle aa-aa* ('teddybear sleeps'); *humma aa-aa* ('horsie sleeps'); *vauva aa-aa* ('baby sleeps'). Verb + Object: *bmbm käy* ('car is in operation'); *auto auto auto käy* ('car car car is in operation').
Verb + Place: *kenkä kutittaa* ('shoe itches'). Verb + Instrument: *tipu kutittaa* ('chick itches').

The verbs 'sleep' and 'be in operation' are incorrectly classified as taking an Agent in the "Case Grammar Lexicon" (Bowerman 1973: 285), whereas the verb *kutittaa* can be classified either as an active verb which takes an Agent ('tickle') or as a stative verb which takes an Experiencer and optional Place and/or Instrument ('itch'). This verb also appeared 11 times in single-word utterances whose contexts are not elaborated on.

[1] Fillmore (1971) according to Huddleston (1976).

At MLU 1.81, as Bowerman points out, there are several verbs whose subjects are not Agents: *hiiri pelästyy* ('mouse gets frightened'), *kissa putoo* ('cat falls'), *torni kaatuu* ('tower falls down'), *kastuu api(na)* ('gets-wet monkey').

That Seppo's direct objects at MLU 1.42 were "always inanimate" (Bowerman 1973:108) runs contrary to what is said earlier (Bowerman 1973:97) about verbs that do take animate objects: *piirtää* ('draw'), *syö* ('eats'), *hakee* ('fetches), *työntää* ('pushes').

Vehicles seem to be animate for one purpose (Verb + Agent) and inanimate for another (Verb + Object). (See Bowerman 1973:286-287 for examples.)

There are other instances in which generalizations are even less justified. Table 11 (Bowerman 1973:145) of Seppo's and Rina's main construction patterns includes eight "main patterns" shich occurred only once or twice in one particular sample. Bowerman (1973:144-146) concludes, on the basis on Table 11, that both children were working on very nearly the same set of sentence patterns. In fact the only sentence patterns with relatively high - but very different - frequencies are subject + verb and demonstrative/prolocative + noun constructions. In all the rest either the figures are very low or the differences are of the order of 12:1 or 8:21.

Inadequacies in the treatment of word order and inflections discussed previously further undermine the cross-linguistic and other generalizations in the book.

3. EVALUATION OF BOWERMAN AGAINST ATKINSON'S CRITERIA

Bowerman's study satisfies Atkinson's second condition, which requires that there must be a linguistic matrix theory of which the theories of the different stages can be seen as components. She makes an attempt to embed her data on child syntax in three established theories, the pivot/open theory, the TG theory and the case grammar theory. One of the achievements of her study is to show the observational and descriptive inadequacy of the pivot/open proposal. She also offers some convincing arguments in favour of case grammar as against TG, but many details in her work show the futility of grammar writing in an attempt to account for a child's overall syntactic development, let alone to write universal child grammars. As such an attempt, Bowerman (1973) can now be considered a classic, a good representative of the era of grammar writers in language acquisition literature.

The other criteria presented by Atkinson (1978) are not fulfilled by Bowerman's study. It is not explanatory in the sense specified above. There is no explicit attempt at producing a coherent explanation, whether environmental, reductive, or even teleological, of the developmental stages and the transition from one stage to another. There is no matrix theory that would explain, for example, why within the case grammar framework, the grammatical subjects first tend to fall on the case Agent and why they are subsequently generalized to other cases.

Neither has the domain of study been clearly identified. The aim of writing grammars suggests a competence study, and although Bowerman's study is based on utterances actually produced by the subjects, it was not always possible to determine if an item was productive, ie. eligible for inclusion in the grammar. Thus comprehension also plays a part, albeit an inconsistent one. Problems in choosing relevant data and the fact that young children's linguistic intuitions cannot be studied make the domain of competence far too vague. Confronted with such problems, the exercise of grammar writing as a method of describing, let alone explaining children's syntactic development can be seriously challenged. This points to the necessity of fixing the domain *within syntactic development* in a more modest way. Instead of studying syntax as a whole, the domain can be confined to just one particular aspect, as negation, direct object case, and comprehension of yes/no questions, for example.

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