

On Language Acquisition and Syntactic Theory

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I. Questions

- (1) Is syntactic variation a "deep" domain of inquiry, supporting rich, explanatory generalizations?
- (2) If so, why have we discovered so few of these generalizations?
- (3) And what would be a better method of investigation?

II. Deriving and testing predictions for language acquisition

- (4) If two surface structures in a given language follow from a single, marked parameter-setting, then (all else equal), children learning the language should acquire the two constructions concurrently.
- (5) If the marked parameter-settings required for construction A, in a given language, are a proper subset of those required for construction B, then (all else equal) the age of acquisition for A should be either less than or equal to the age of acquisition for B. No child should acquire B *significantly earlier* than A.
- (6) Advantages over cross-linguistic surveys:
 - a. We can focus on a single, well-studied language.
 - b. Each child provides evidence comparable to a new language in the "survey" approach.
- (7) A possible disadvantage: Information about a given child's grammar at a particular point in development is often quite limited.
- (8) Thesis: Grammatical Conservatism (Snyder 2002, 2007, 2011)

Children do not make productive, *spontaneous* use of a new syntactic structure until they have both determined that the structure is permitted in the adult language, and identified the adults' grammatical basis for it.

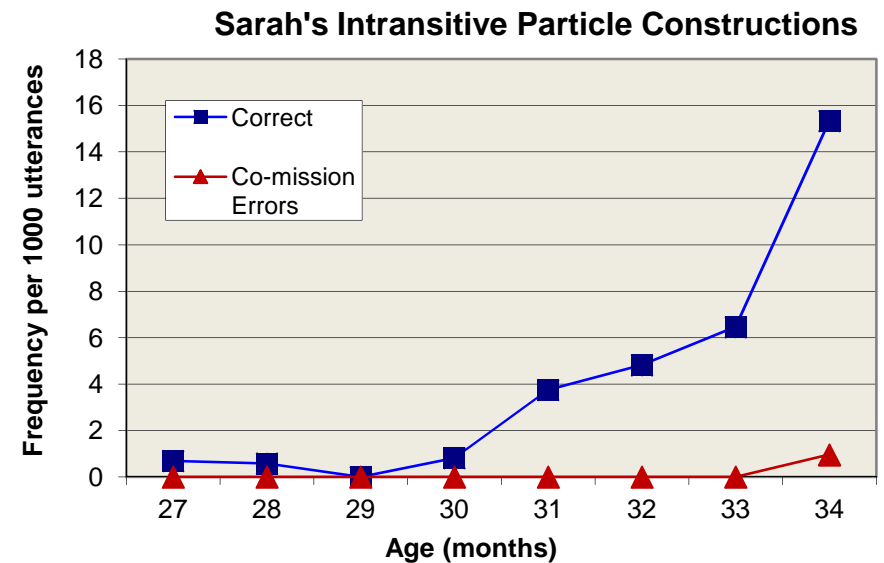
- (9) Measure of Acquisition: Given a longitudinal corpus of a child's *spontaneous* speech, and a structure that is used *frequently* once acquired, the time of acquisition is well approximated by the age of "FRU" - a *first use*, followed soon after by *regular use* with a variety of lexical items). (Stromswold 1996, Snyder & Stromswold 1997, Snyder 2007)

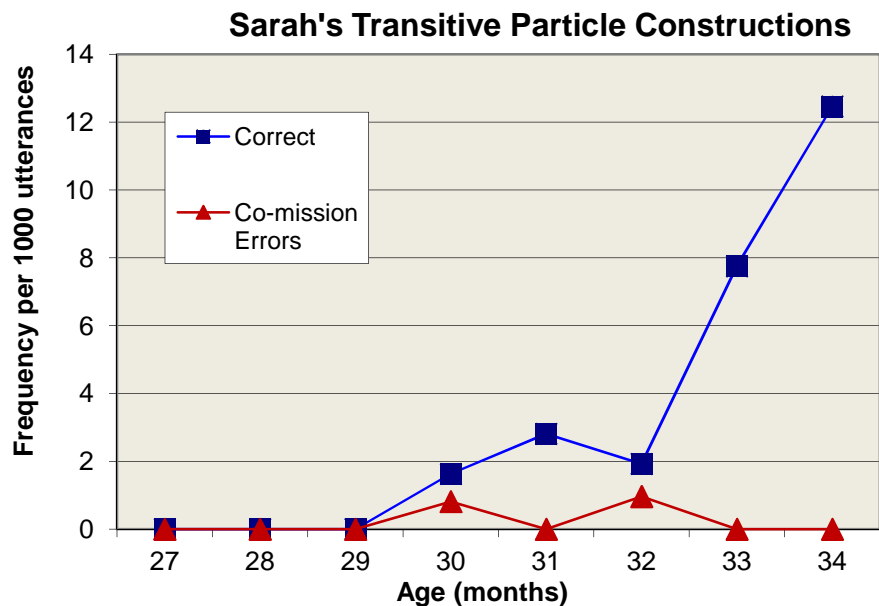
III. Evidence that children are grammatically conservative

- (10) The overwhelming majority of children's *spontaneous* errors involve omission, not "co-mission." (cf. Maratsos 1998 on "underground acquisition")
- (11) The co-mission errors that *do* occur with any frequency are limited to a tiny subset of the logical possibilities.
- (12) Note: This pattern is found in spontaneous speech (not elicited production or tests of comprehension). Yet, even if limited to spontaneous speech, the phenomenon has major implications for both method and theory (including the format of parameters, and the mechanisms of language acquisition).

Example: English Verb-Particle constructions

- (13) a. Mary stood up / lifted the box up / lifted it up / lifted up the box.
b. * Mary lifted up it / lifted up the box out / lift up+ed the box / etc.
- (14) Snyder (2007, Chapter 4): Near-exhaustive search for errors in the longitudinal corpus for Sarah (Brown 1973; CHILDES, July 2004).





(15) From the beginning of the corpus through age 2;10 (2 years, 10 months), Sarah produced 102 examples of verb-particle constructions, of which 32 contained an error. Yet almost all were errors of omission.

(16) Of these 32, only one (<3%) was a genuine co-mission error:
I [...] go down+ed. [Transcript 34, line 569, age 2;10,20]

(17) Conclusion: Sarah made a fairly rapid transition from never using the structure, to using it like an adult, with almost no errors of co-mission.

Other studies searching for co-mission errors:

(18) Rodríguez-Mondoñedo (2008), on Differential Object Marking in children's spontaneous Spanish.

(19) Westergaard (2009), on word order in the spontaneous Norwegian (Tromsø dialect) of three children (1;09-2;11).

(20) Villa-García (2008), on overt subjects in children's spontaneous Spanish.

(21) Tieu (2010), on Negative Polarity Items in (26) children's spontaneous English.

(22) Xu & Snyder (2010), on negative *wh*- and *yes-no* questions in children's spontaneous English.

(23) Sugisaki & Snyder (2003), on P-questions in children's spontaneous English and Spanish.

(24) Sugisaki & Snyder (2010), on fragment answers to P-questions in children's spontaneous English and Spanish.

Why this evidence points to GC:

(25) Each of these studies examined a different structure, but in every case the child made a rapid transition from *never* using it to using it in an *adult-like* fashion, with remarkably few (<10%) errors of co-mission.

(26) *Anything less* than Grammatical Conservatism should have led to numerous co-mission errors. The scarcity of these errors provides powerful support for GC.

IV. Acquisition as a test of parametric hypotheses

(27) The fact that children exhibit GC means that longitudinal corpora of their spontaneous speech provide an extraordinary testing ground for parametric proposals.

Case-study: The Compounding Parameter (Snyder 1995, 2001, 2007, 2011)

(28) Languages differ sharply in whether they allow endocentric, bare-root compounding as a fully "**creative**" process (cf. creating new sentences).

(29) a. English: *university lab space committee*
b. Spanish: ** comité espacio laboratorio universidad*

(30) Certain syntactic structures seem to be permitted only in languages with this type of "creative" compounding.

(31) Verb-NP-Particle constructions
a. English: *Mary pulled the top off.*
b. Spanish: *María tiró el tapón (* de).*

(32) Adjectival resultative constructions:
a. English: *John wiped the table clean.*
b. Spanish: *Juan frotó la mesa (*limpia). [* on result reading]*

(33) Preliminary cross-linguistic evidence supports these impressions:

Language	Separable particles?	Adjectival resultatives?	Creative N-N compounding?
(<i>Austroasiatic</i>) Khmer	Yes	Yes	Yes
(<i>Finno-Ugric</i>) Estonian	Yes	Yes	Yes
(<i>Germanic</i>) Dutch	Yes	Yes	Yes
(<i>Sino-Tibetan</i>) Mandarin	Yes	Yes	Yes
(<i>Tai</i>) Thai	Yes	Yes	Yes

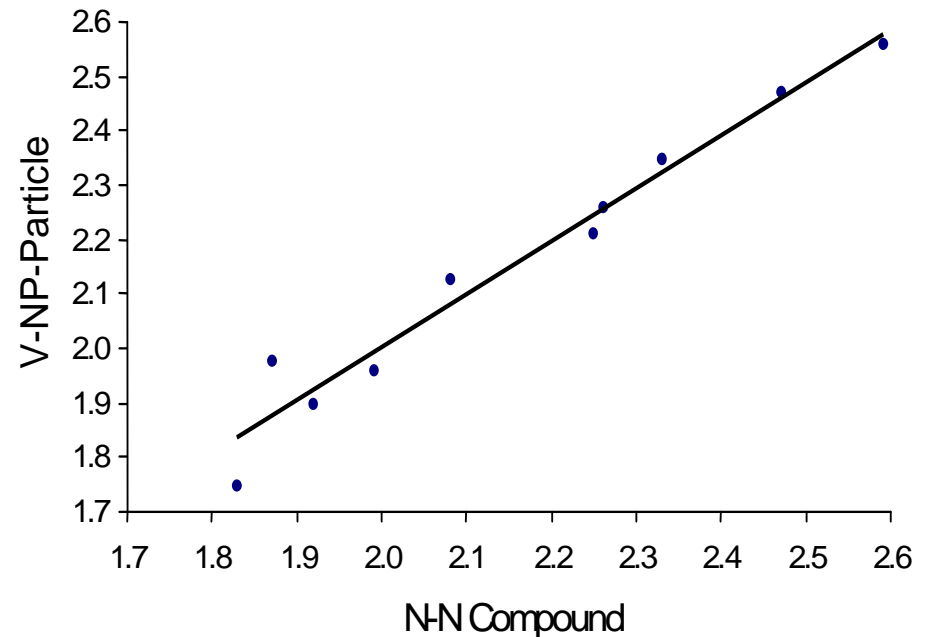
Japanese	No	Yes	Yes
American Sign Language	No	Yes	Yes

Basque	No	No	NO
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(<i>Afroasiatic</i>) Egyptian Arabic	No	No	No
(<i>Austronesian</i>) Javanese	No	No	No
(<i>Romance</i>) Spanish	No	No	No
(<i>Slavic</i>) Serbo-Croatian	No	No	No

(34) Acquisitional Testing (Snyder 1995, 2001)

- Located high-quality longitudinal corpora of spontaneous-speech samples from each of ten children acquiring American English (CHILDES, MacWhinney 2000).
- Confirmed that particles and novel compounds are both reasonably frequent in the children's spontaneous speech, once acquired.
- Determined the ages (in years) of each child's FRU's of particles and novel compounds, as plotted in the following graph.



- (35) Correlation is exceptionally strong: $r=.98$, $t(8)=12.9$, $p<.0001$
 [Note: Findings are much the same in (Snyder 2007), with $N=19$, and with the inclusion of British as well as American children.]
- (36) Partial correlations, removing the contributions of various control measures, remain extremely strong. Partialling out...
- The age at which MLU_w reached 2.5 words: $r=.94$, $p=.0001$
 - The age of child's first lexical N-N compound: $r=.95$, $p=.0001$
 - The age of child's first A-N combination: $r=.95$, $p=.0001$
- (37) Creative compounding seems to be the "limiting" factor, even though there are languages with compounding and no particles (e.g. Japanese).
- (38) Interpretation: Children learning English probably get creative compounding as a *by-product*, when they acquire particles.
- (39) **Question:** What exactly are the children acquiring?
Proposed answer: The positive setting of TCP.

The Compounding Parameter (TCP):

The language (does / does not) permit Generalized Modification.

(40) Generalized Modification (GM)

If α and β are syntactic sisters under γ , where α is the head of γ and denotes a kind, then interpret γ semantically as a subtype of the kind α , and as standing in a pragmatically suitable relation to the denotation of β .

(cf. Kratzer 2010:16-17 and Jackendoff 2002:249-250 on the semantics of English nominal compounding)

(41) || *frog man* || = man of a type related to frogs

(42) || *wipe the table clean* ||
= a table-wiping event of a type related to the table being clean
= an accomplishment event, whose development consists of wiping the table, and whose culmination consists of the table being clean

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*For more examples of parametric hypotheses tested with acquisitional data, see (a.o.) Sugisaki et al. 2000, Beck & Snyder 2001b, Sugisaki & Isobe 2001, Sugisaki 2003, Isobe 2005, Kang 2005, Rodríguez et al. 2005, Viau 2007, Koulidobrova 2008, Hanink & Snyder 2011, and Goodrich & Snyder, in press.*

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V. Some broader implications of Grammatical Conservatism

A. Implications for how language acquisition works

(43) GC indicates Deterministic Learning, in the sense of Berwick 1985: *No backtracking*.

(44) GC indicates that there are no substantive defaults, in the sense of an unmarked option that could be incorrect in some languages. (*Sugisaki & Snyder 2003, 2006*)

(45) Any use of "interim" grammars, with at least a few incorrectly valued non-subset parameters, would predict numerous co-mission errors in children's spontaneous speech

(46) Therefore, GC is difficult to reconcile with trial-and-error models like the Trigger Learning Algorithm examined by Gibson and Wexler (1993). Related problems arise for Yang's (2002) Variational Model of Language Acquisition, because of GC and because of robust *ordering effects*.

B. Implications for what the child is acquiring

(47) The information that the child is acquiring must be in a form that permits the one-by-one addition of new surface structures to the child's repertoire, and that permits the child to wait for conclusive evidence that a given structure is part of the adults' language.

(48) **Proposal:** Parameters of syntax are "**constructive**" parameters – they have the effect of adding new "building blocks" or new structure-building operations. (cf. Rizzi 2010)

(55) TCP (as formulated above) will qualify as a constructive parameter, because its positive setting provides a semantic composition rule for syntactic combinations that would otherwise be uninterpretable.

(56) One possible format for a constructive parameter is Fodor's (1998) 'treelet'. (cf. also the 'cues' of Dresher 1999, Lightfoot 1999)

(57) **Treelet:** An annotated fragment of a phrase-structure tree, corresponding to syntactic material at the point of spell-out

(58) On Fodor's approach, parametric choices might take the form of including or excluding a particular treelet (or perhaps *set* of treelets) as an option in the language.

(59) Fodor's idea of 'parsing to learn' involves a parser that operates in terms of treelets. If an input can be parsed using a particular combination of treelets, *and* there was no point of ambiguity in the parse, then these treelets must be permitted in the target language.

(60) **GC with treelets:** Let the child's parser *analyze* the input using all possible treelets. *BUT* in production, the child can only use the treelets that have occurred in an unambiguous parse.

(61) *Open question:* Do 'treelets' allow us to capture TCP? (See Snyder 2011 for some ideas.)

(62) Another approach to "constructive" parameters: Adopt a version of **Distributed Morphology** along the lines of (Harley 2002).

(63) Harley assumes that the syntax builds structures out of abstract heads like **v_{CAUS}** and **P_{POSS}** (which have **semantic content**)

- (64) A semantically more *specific* Vocabulary Item (e.g. *give, send, promise*) can later be inserted into a node *only* if the VI is linked to a meaning that is compatible with the abstract material in that node (e.g. [_v P_{POSS}+V_{CAUS}], created by head-movement). (cf. Marantz 1997)
- (65) Harley proposes that languages vary in the set of abstract heads that are available (e.g., if P_{POSS} is missing, the language will simply lack structures in which a possessor c-commands a possession).
- (66) Languages that lack P_{POSS} will then lack possessional verbs like English *have*, and will also lack any double-object structure (in which GOAL c-commands THEME) for verbs corresponding to English *give* and *send*.

VI. General Remarks and Conclusions

- (67) GC greatly increases the utility of spontaneous speech data: When a child abruptly goes from never using a particular structure, to using it frequently and correctly, we are entitled to conclude that she has genuinely acquired one of the grammatical (or perhaps lexical) properties of the target language.
- (68) This makes longitudinal records of children's spontaneous speech an extremely valuable testing ground for theories of cross-linguistic variation (Snyder 2007).
- (69) GC adds to the burden of the Logical Problem of Language Acquisition:
 For explanatory adequacy, a theory *now* needs to account for success by a deterministic learner.
- (69) Finally, GC constrains the possible format of syntactic parameters.

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