

Path Phrases and Compounds in the Acquisition of English

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1 Background

1.1 The Compounding Parameter (Snyder 1995):

- (1) Resultatives and verb-NP-particle constructions are possible only in languages with fully productive root compounding, and hence only in languages with the positive setting of the "Compounding Parameter."
- (2) Root compounding: *banana box*
Resultatives: *beat the metal flat*
Verb-NP-particle: *lift the box up*
- (3) Crosslinguistic support (from Snyder 2001):

	<u>Productive N-N Compounding</u>	<u>Resultatives</u>
American Sign Language	YES	YES
Austroasiatic (Khmer)	YES	YES
Finno-Ugric (Hungarian)	YES	YES
Germanic (English, German)	YES	YES
Japanese-Korean	YES	YES
Sino-Tibetan (Mandarin)	YES	YES
Tai (Thai)	YES	YES
Basque	YES	NO
Afroasiatic (Arabic, Hebrew)	NO	NO
Austronesian (Javanese)	NO	NO
Bantu (Lingala)	NO	NO
Romance (French, Spanish)	NO	NO
Slavic (Russian, Serbian)	NO	NO

1.2 Beck and Snyder (2001)

- (4) All of these constructions require an operation of compounding (indicated by [+]) during the syntactic derivation.

- (5) *banana box* = [*banana* + *box*]
beat the metal flat = *beat* [*the metal*] [*t_v* + *flat*]
lift the box up = *lift* [*the box*] [*t_v* + *up*]

(On the possibility of head-movement out of a syntactic compound, see Neeleman 1994.)

- (6) Syntactic compounding makes resultatives and verb-NP-particle constructions interpretable by Beck and Snyder's Rule R.
- (7) Semantic composition by Rule R can combine an activity verb and a stative predicate to form a resultative.
- (8) *beat the metal flat* = beat the metal and thereby CAUSE it to BECOME flat
lift the box up = lift the box and thereby CAUSE it to BECOME up
- (9) **Rule R** (based on Stechow 1995):

If $\alpha = [\nu\gamma \text{ SC}\beta]$ and β' is of type $\langle s, \langle \tau, t \rangle \rangle$ and γ' is of type $\langle e, \dots \langle e, \langle s, \langle \tau, t \rangle \rangle \rangle \rangle$ (where γ' is an n-place predicate), then $\alpha' = \lambda x_1 \dots \lambda x_n \lambda w \lambda t. \text{CAUSE}_{w,t} (\lambda w' \lambda t'. \gamma'_{w',t'} (x_1) \dots (x_n), \lambda w'' \lambda t''. \text{BECOME}_{w'',t''} (\beta'))$

- (10) The analysis is extended to resultative Path PPs (or "Goal PPs") in compounding languages:
walk to the summit = walk and thereby CAUSE oneself to BECOME at the summit
- (11) Only in compounding languages can resultative path PPs convert activity verbs to accomplishment predicates, as illustrated by the following examples from English and Spanish (Aske 1989):
(a) John walked to the summit in an hour.
(b) Juan caminó hasta la cima (*en una hora).
- (12) Moreover, Beck and Snyder report that in the longitudinal corpora for ten English-learning children, no child acquired resultative Path PPs appreciably earlier than compounding.

2 A Puzzle

- (13) Talmy (1985) offers a similar typology of "English-type" languages and "Spanish-type" languages.

(14) Characteristics of English-type, but not Spanish-type languages, include:

- verb-particle constructions
- resultatives
- manner-of-motion verbs + path-of-motion PPs
 - resultative: *walk to the store*
 - non-resultative: *slide down the banister*

- (15) Yet, applying Rule R does not yield the correct interpretation for non-resultative path phrases, as in *slide down the banister*.
- (16) Question: Does semantic interpretation of English non-resultative path PP's also depend on the positive setting of the compounding parameter?

3 Study of Spontaneous Speech Data

- (17) Longitudinal corpora from ten English speaking children were taken from CHILDES (MacWhinney and Snow 1990).
- (18) First clear use of a motion verb with a non-resultative path PP:

Child	Utterance	Age
Adam	<i>take (the record) off here</i>	2;03.18
Allison	<i>I'm running (a)round you!</i>	2;04.00
April	<i>take his hand off there</i>	2;01.00
Eve	<i>jump off the table</i>	1;09.00
Naomi	<i>go up stairs</i>	1;11.11
Nathaniel	<i>slide down the ladder</i>	2;05.18
Nina	<i>flying in circles</i>	2;00.03
Peter	<i>roll down there</i> [rolling a car down a slide]	2;01.00
Sarah	<i>climb up the stairs</i>	3;01.03
Shem	<i>I'm gonna take it out uh that</i>	2.02.23

- (19) First clear use of a motion verb with a non-resultative path PP is closely correlated with first clear use (from Snyder 1995) of a novel noun-noun compound ($r=.91, t(8)=6.26, p<.001$).
- (20) This correlation remains significant even after partialling out the age of first clear use of a V with a non-path PP ($r=.80, t(7)=3.52, p=.01$).

(21)

Child	Non-resultative path PP	Noun-noun Compound
Adam	2.30	2.26
Allison	2.33	2.33
April	2.08	2.08
Eve	1.75	1.83
Naomi	1.95	1.92
Nathaniel	2.47	2.47
Nina	2.01	1.99
Peter	2.08	1.87
Sarah	3.09	2.59
Shem	2.23	2.25

4 Discussion

(22) Our acquisitional findings indicate that in a language of the English type, both resultative and non-resultative path PPs depend, for their interpretation, on syntactic compounding.

(23) We propose a revised version of Beck & Snyder's Rule R, without the semantic primitive BECOME:

Rule R': If $\alpha=[v\gamma SC\beta]$, β' is of type $\langle s, \langle \tau, t \rangle \rangle$, and γ' is an n-place predicate ($\langle e, \dots \langle e, \langle s, \langle \tau, t \rangle \rangle \rangle \rangle$), then:
 $\alpha' = \lambda x_1 \dots \lambda x_n \lambda w \lambda t. \text{CAUSE}_{w,t} (\lambda w' \lambda t'. \gamma'_{w',t'}(x_1) \dots (x_n), \lambda w'' \lambda t''. \beta'_{w'',t''})$

(24) As in Beck & Snyder, we assume that Rule R' can apply only to sisters that were combined by an operation of syntactic compounding.

(25) We propose that the lexical semantics of English *to* is roughly "BECOME AT," so that the interpretation of sentence (a), after the application of Principle R', is appropriately paraphrased as in (b).

- a. John₁ [walked + [PRO₁ to the beach]].
- b. There exist events e_1 and e_2 , where e_1 is an event of John's walking, e_2 is an event of John's becoming at the beach, and e_1 caused e_2 .

(26) As in (Snyder 1995), we assume that the English resultative construction involves a null morpheme that contributes the semantic primitive BECOME:

- a. John beat [the metal]₁ [t_v + [ϕ_{BECOME} PRO₁ flat]].
- b. There exist events e₁ and e₂, where e₁ is an event of John's beating the metal, e₂ is an event of the metal's becoming flat, and e₁ caused e₂.

(27) With a non-resultative path PP, nothing contributes BECOME. Hence, (a) will be interpreted roughly as in (b), and (c) will be interpreted roughly as in (d):

- a. [The plane]₁ [flew + [PRO₁ in circles]].
- b. There exist events e₁ and e₂, where e₁ is an event of the plane's flying, e₂ is an event of the plane's moving in circles, and e₁ caused e₂.
- c. Mary₁ [climbed + [PRO₁ up the stairs]].
- d. There exist events e₁ and e₂, where e₁ is an event of Mary's climbing, e₂ is an event of Mary's moving up the stairs, and e₁ caused e₂.

(28) In this way we can extend the system of (Beck & Snyder 2001) to the interpretation of both resultative and non-resultative path PP's in a language with the positive setting of the Compounding Parameter.

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