ATELIC PATHS AND THE COMPOUNDING PARAMETER:
EVIDENCE FROM ACQUISITION*

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1. Overview

In an acquisitional study of motion predicates, Snyder, Felber, Kang, & Lillo-Martin (2001) reported a strong association between first novel compound words, and first atelic path phrases with motion verbs, in children acquiring English. Some of the children acquired novel compounding early, some late, but whenever a given child acquired compounding, atelic path phrases followed soon after.

This finding, if correct, has important implications for the nature of cross-linguistic variation in the expression of motion events. Yet, Gehrke (2008) has questioned Snyder et al.'s evidence, noting that many of their "atelic" examples were also compatible with a telic reading. Here we re-examine the issue, using much stricter criteria and higher-quality data.

The new results strongly support the original conclusion: English atelic path phrases, like telic path phrases, depend on the positive setting of The Compounding Parameter (TCP; Snyder 1995, 2001, 2007, 2011, 2012). We argue that TCP is fundamentally a parameter of the syntax-semantics interface, and that [+TCP] languages have a special semantic operation that can be used for novel compounds, telic path phrases, and also atelic path phrases.

2. Background

Snyder (1995) first observed that certain syntactic structures are found only in languages that allow fully productive (or "creative") root compounding, illustrated for English in (1).

(1) a. banana box (e.g. 'box for bananas', 'box in the shape of a banana', etc.)
   b. faculty lab space committee chair

Here "creative" refers to the creative aspect of human language. For example, native speakers of a given language freely create sentences that may (for all they know) be novel, and they reasonably expect other speakers to understand them. In languages like English and German, the same is true for the creation of bare-root endocentric compounds. Thus, banana box in (1a) can be used as a completely novel term, to refer to a box that has a contextually salient connection to bananas. As long as the listener has enough information to see the connection, use of the term is completely natural and appropriate. In languages that lack creative compounding, such as Spanish, one finds endocentric compounds that are lexicalized, but one cannot create new ones at will.

* The present paper is an off-shoot from the work presented at GLOW-in-Asia 2012 by William Snyder, who is extremely grateful for the questions and comments received there. The authors are likewise grateful for the comments received when an earlier version of this work was presented at the 2011 Workshop on Verbal Elasticity, at the Universitat Autònoma de Barcelona. All remaining errors are of course our own.
Namiki (1994) observes that creativity of compounding, in this sense, is tightly linked to the possibility of recursive compounding, as illustrated for English in (1b): A language has creative compounding if and only if it has recursive compounding. Indeed, in some languages the child's most reliable cue that compounding is a "creative" process in her target language may be adults' use of recursive compounds (Roepere, Snyder & Hiramatsu, 2002).

Snyder (1995) argued that languages permitting separable-particle constructions as in (2) or adjectival resultatives as in (3) are also consistently languages with creative compounding.

(2) V-NP-Particle constructions:
   a. lift the box up
   b. turn the light off

(3) Adjectival resultative constructions:
   a. beat the metal flat
   b. wipe the table clean

The basic pattern can be seen by comparing English with Spanish, as in (4-6).

(4) Root compounding
   a. English: frog chair (e.g. 'chair in the shape of a frog')
   b. Spanish: *rana silla (lit. 'frog chair'), *silla rana (lit. 'chair frog')

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

(6) Adjectival resultative constructions
   a. English: John beat the iron flat
   b. Spanish: Juan golpeó el hierro (*plano)
               Juan beat the iron flat

Snyder (1995, 2001) provided two different types of evidence to support a connection of particles and resultatives to creative compounding. First he conducted a modest cross-linguistic survey, using native-speaker consultants, with the results summarized in Table 1.\footnote{Note that Table 1, drawn from Snyder 2011, includes some updates to earlier versions. In particular, Basque was initially classified as a language with bare-root endocentric compounding like that found in English, but discussion with experts on the language led to the realization that that classification was probably erroneous.} Note that the implicational relationship in Table 1, at least for particles and compounds, is one-way. That is, the availability of separable particles (e.g. the V-NP-Particle construction of English) entails the availability of creative compounding, but creative compounding does not entail the availability of separable particles (cf. Japanese, American Sign Language).

Snyder (1995, et seq.) proposes to derive the pattern in Table 1 from a grammatical parameter, The Compounding Parameter. Languages with a positive setting of the parameter ([+TCP], e.g. English) allow both creative compounding and at least some (but not necessarily all) of the associated syntactic structures, while the [-TCP] languages (e.g. Spanish) allow neither. In other words, [+TCP] is one of the pre-requisites, but not necessarily the only pre-requisite, for structures like the English V-NP-Particle construction.
Atelic Paths and the Compounding Parameter (M. Goodrich and W. Snyder)

Table 1. Crosslinguistic survey (from Snyder 2011):

<table>
<thead>
<tr>
<th>Language</th>
<th>Separable particles?</th>
<th>Adjectival resultatives?</th>
<th>Creative compounding?</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Austroasiatic) Khmer</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(Finno-Ugric) Estonian</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(Germanic) Dutch</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(Sino-Tibetan) Mandarin</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(Tai) Thai</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Japanese</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>American Sign Language</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Basque</td>
<td>No</td>
<td>No</td>
<td>No?</td>
</tr>
<tr>
<td>(Afroasiatic) Egyptian</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Arabic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Austronesian) Javanese</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>(Romance) Spanish</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>(Slavic) Serbo-Croatian</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

This first type of support for TCP, from a very small-scale cross-linguistic survey, was of a preliminary character, but it was supported by strong converging evidence from a second source, the time course of child language acquisition. Snyder (1995, 2001) examined longitudinal corpora of spontaneous speech from ten children in the CHILDES database (MacWhinney 2000). There he determined the age of acquisition for V-NP-Particle constructions, and for creative endocentric compounding. The age of acquisition was taken as the age of FRU (First clear use, followed soon after by Regular Use; cf. Stromswold 1996).²

The findings were dramatic: Each child began producing novel compounds (i.e. bare-root endocentric compounds that were not lexicalized, had never before been used by the adults in the recordings, and were treated by the interlocutors as novel) at almost exactly the point –

² Note that unlike particles, adjectival resultatives were not examined. The reason was the low frequency of English adjectival resultatives in the speech of both children and adults. Low frequency makes it very difficult to determine an age of acquisition from samples of spontaneous speech.

In Japanese, however, creative compounding is acquired on average about one year later than in English. Sugisaki and Isobe (2001) have tested the prediction of TCP for Japanese adjectival resultatives using experimental tasks (elicited production, EP; and truth-value judgement, TVJ) that can be used appropriately with three-year-olds (but not with two-year-olds). Overwhelmingly, the children who succeeded at their TVJ task for resultatives were the same ones who produced novel N-N compounds in their EP task.
frequently in the very same recording – where he or she began producing V-NP-Particle constructions. These data are presented graphically in Figure 1.

The results of a correlation analysis were highly significant \((r=0.98, t(8)=12.9, p<.0001)\), and remained extremely strong even when measures of general language development were controlled for, using a partial correlation procedure. Similar findings were obtained in a follow-up study using corpora for a total of 19 American and British children (Snyder 2007).

![Figure 1: Ages (in years) of FRU of novel compound vs. V-NP-Particle](image)

A major question is what the proposed parameter, TCP, actually does. A number of leading proposals have come from research examining the possible role of TCP in the linguistic expression of motion events (Beck & Snyder 2001a,b; Snyder & Lillo-Martin 2005; Zubizarreta & Oh 2007; Gehrke 2008). Here we will focus on the proposals of Beck and Snyder ('Rule R'), and of Snyder and Lillo-Martin ('Rule C', or 'Generalized Modification').

Building on work of Stechow (1995), Beck & Snyder (2001b) proposed a semantic interpretation of TCP: [+TCP] languages can use Rule R for semantic interpretation, which in turn makes it possible to have resultatives and/or V-NP-particle constructions.

\[(7) \text{ Rule R:}\]

\[
\begin{aligned}
&\text{If } \alpha = \gamma_1 \cdot \text{sc} \beta, \text{ } \beta' \text{ is of type } <s, s, t>, \text{ and } \gamma' \text{ is of type } <e, e, e, s, s, e, s, t, t, t>, \\
&\text{then } \alpha' = \lambda x_1 \ldots \lambda x_n \lambda w \lambda t. \text{CAUSE}_{w,t}(\lambda w' \lambda t'. \gamma_{w,t}(x_1) \ldots (x_n), \lambda w'' \lambda t''). \text{BECOME}_{w,t'}(\beta').
\end{aligned}
\]

For example, semantic composition by Rule R can combine an activity verb (\(\gamma\)) and small clause (\(\beta\)) to form an accomplishment predicate \(\alpha\): beat the metal [\(\text{PRO flat}\)] = beat the metal and thereby CAUSE it to BECOME flat; lift the box [\(\text{PRO up}\)] = lift the box and thereby CAUSE it to BECOME up.

Crucially, Beck & Snyder (2001a,b) argued that in [+TCP] languages this analysis can be extended to telic path phrases (e.g. walk to the summit = walk and thereby CAUSE oneself to BECOME at the summit). Their account predicts that telic (i.e. 'resultative') path phrases may combine with simple activity verbs to form accomplishment predicates only in [+TCP]
languages. Indeed, Spanish contrasts with English in exactly the way predicted, as illustrated by the following examples from Aske (1989):

(8)  
   b. *Spanish*: Juan caminó hasta la cima (*en una hora).

   Juan walked until the summit in an hour

In (8a), English allows the telic path phrase *to the summit* to convert an activity verb *walked*, which is ordinarily incompatible with the modifier *in an hour*, into an accomplishment predicate that can take the modifier. In (8b), Spanish permits the phrase *hasta la cima* to function in a way similar to the English phrase *to the summit* (although *hasta* is probably closer in meaning to 'until' than 'to'). Yet, the predicate *caminó hasta la cima* remains a simple activity, like *caminó*, not an accomplishment. For Beck and Snyder, the conversion of an activity into an accomplishment (using a telic path phrase or any other type of result phrase) is a consequence of applying Rule R, and in [-TCP] languages Rule R is simply unavailable.

The connection made by Beck and Snyder to path phrases drew attention to the fact that TCP overlaps quite a bit with the verb-framed/satellite-framed typology of Talmy (1985, 1991, 2000). Talmy’s typology distinguishes between “satellite-framed” (English-type) languages and “verb-framed” (Spanish-type) languages. In a satellite-framed language, path of motion is normally expressed by a “satellite” — a particle or PP (Talmy 1985:62) — which in (9a,b) leaves the verb free to encode the manner of motion:

(9)  
   a. The rock slid/rolled/bounced down the hill.
   b. The napkin blew off the table.

In a verb-framed language such as Spanish, however, path is normally expressed in the main verb (Talmy 1985:69):

(10) La botella entró a la cueva (flotando).
    The bottle moved-in to the cave (floating)
    ‘The bottle floated into the cave’

According to Talmy (e.g. 1985:68,104), both directional particles and adjectival resultatives are typical of satellite-framed languages. This naturally suggests the possibility of identifying Talmy's satellite-framed languages with Snyder's [+TCP] languages.

This move is actually a bit dangerous, as discussed in (Snyder 2012). One reason is that Talmy's proposals concern language typology, in the sense of the types of surface expression that are typically employed in a given language. In contrast, TCP is a proposal within parameter theory, where the goal is to precisely specify the sentence-meaning pairs that are possible in a given language, in terms of abstract grammatical characteristics.

Nonetheless, the parallels are suggestive, and led Snyder, Felber, Kang & Lillo-Martin (2001) to wonder if Beck and Snyder's approach might have been too restrictive. Specifically, the path phrases tied to the [+TCP] setting in Beck and Snyder's proposal were limited to those that specify an end-point location for the Theme (e.g. *walk to the store*), and that are therefore effectively result phrases. Yet, in Talmy's work, no sharp distinction is made between telic (resultative) and atelic path phrases (e.g. *walk in circles*). Perhaps the distribution of both telic and atelic path phrases is influenced by the setting of TCP, and if so, perhaps Rule R should be replaced (at least in the formulation of TCP) by a more general composition rule, one that can apply to atelic path phrases.

To evaluate these possibilities, Snyder et al. (2001) returned to the evidence from child language acquisition. They found that the age of FRU for a motion verb with a non-resultative (atelic) path phrase was tightly correlated with the FRU of novel compounding (*r*=.91,


\( t(8)=6.26, p<.001 \). Thus, their results indicated that a positive setting of TCP affects atelic path phrases as well as telic path phrases.

In order to account for these findings, Snyder & Lillo-Martin (2005) proposed that the [+TCP] setting makes available a semantic composition rule ('Rule C', or 'Generalized Modification', to be discussed below) that is much more general than Beck & Snyder's (2001) Rule R. Yet, Gehrke (2008) questions the need for such a general composition rule, on the grounds that some of the data points given as examples of "atelic" path phrases in (Snyder et. al. 2001) actually seem compatible with a telic interpretation, a concern which we address in our new study.

3. The Study

3.1. Predictions

Beck & Snyder (2001), as well as Gehrke (2008), predict that there will be no systematic relationship between atelic path phrases and novel compounding as children acquire a [+TCP] language. Snyder & Lillo-Martin’s (2005) account, in contrast, predicts that atelic path phrases (e.g. with pure manner-of-motion verbs) will become grammatically possible for the child at the same time as novel compounding.

3.2. Method

Longitudinal corpora from eleven American English-speaking children were downloaded from CHILDES (MacWhinney 2000) and searched for FRU’s of novel compounds and atelic path phrases. Corpora that did not meet the standards outlined in Snyder (2007) were excluded from study. These stringent standards state that the corpora must “follow monolingual English acquiring children without any known developmental abnormality, that are based on audio- or videotape recordings of spontaneous speech (rather than simple diary notes, or recordings of controlled experiments), that cover a time span of at least nine months, that begin when the child is no older than 2;03, that have an average gap between recordings of no more than one month, that contain at least 10,000 child utterances, and that are described in the available documentation as being in a finished state” (Snyder 2007: 53).

Utterances judged to be potential FRUs of atelic path phrases were then evaluated as follows:

(i) Transcribers' notes in the transcripts and original video data (where available) were used to clarify the most likely intended meaning of the child’s verb + path phrase combinations.

(ii) Highly ambiguous path phrases were simply discarded from analysis, in favor of utterances whose physical and/or pragmatic context strongly favored an atelic interpretation.

(iii) Path phrases involving an “un-location” were not counted as atelic. For example in Snyder et al. (2001), expressions like take the record off were treated as atelic, on the grounds that the eventual end-point of the record was left unspecified. Yet, an alternative view (Aske 1989) is that the end-point in this type of example is an "un-location": The record was originally on the turntable, and it became not on the turntable. From this perspective such expressions are better viewed as telic, and were therefore excluded in the present analysis.
3.3. Results

The FRU of a motion verb with an atelic path phrase is given in Table 2 for each of the eleven children studied.

Table 2. FRUs of atelic path phrases with a motion verb

<table>
<thead>
<tr>
<th>Child</th>
<th>Utterance</th>
<th>Onset Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam</td>
<td>move away</td>
<td>2:03,04</td>
</tr>
<tr>
<td>Eve</td>
<td>Jody coming down the stair</td>
<td>1:09,00</td>
</tr>
<tr>
<td>Lily</td>
<td>mouse is going down the slide</td>
<td>1:10,23</td>
</tr>
<tr>
<td>Naima</td>
<td>run around hay</td>
<td>1:05,11</td>
</tr>
<tr>
<td>Naomi</td>
<td>going up</td>
<td>1:10,29</td>
</tr>
<tr>
<td>Nina</td>
<td>slide down</td>
<td>2:01,15</td>
</tr>
<tr>
<td>Peter</td>
<td>tape go round</td>
<td>2:00,10</td>
</tr>
<tr>
<td>Sarah</td>
<td>climb up the stairs</td>
<td>3:01,03</td>
</tr>
<tr>
<td>Shem</td>
<td>wheel turn around</td>
<td>2:03,02</td>
</tr>
<tr>
<td>Violet</td>
<td>turn around [spinning a toy]</td>
<td>1:09,27</td>
</tr>
<tr>
<td>William</td>
<td>let's go this way</td>
<td>2:04,01</td>
</tr>
</tbody>
</table>

Each of the uses in Table 2 was followed soon after by additional uses, involving different lexical items. In every case the context strongly supported an atelic interpretation. For example, Adam's utterance move away might initially appear to involve an "un-location," as discussed above, but in context the particle away clearly expresses the path of motion, rather than movement out of a specific starting location. (The child is describing a cat that he and his mother had seen in the park. According to the child, the cat first moved farther away from them, and then began to climb up something, possibly a tree.)

The FRU's of atelic path phrases in Table 2 are closely correlated with the FRU's of novel compounding in Table 3 ($r=.9405$, $r^2=.8833$ $t(9)=8.3$, $p<.001$). This relationship is first shown graphically in Figure 2. Note that one child, Sarah, is something of an outlier in the sense that she has an unusually late age of FRU for atelic path phrases, even relative to her late age for first novel compounds. This is plausibly due to Sarah having an especially low frequency of atelic path phrases in her spontaneous speech. (See below for similar findings in the children Lily and Naima.) For the sake of comparison we provide a second graph (Figure 3) with Sarah removed. Nonetheless, to be conservative we will rely on the calculations where Sarah is included in the sample, since there was no prior reason to exclude her.
The correlation in Figure 2 remains significant even after mathematically "removing" the portion of the data that one could explain in terms of more general differences across children in their overall rate of linguistic and conceptual development. For purposes of this analysis we calculated two different measures of the children's general development. First, given that children's (and adults') novel compounds are overwhelmingly N-N compounds, the FRU of lexical N-N compounds provides a sensitive index of any delays in novel compounding due to morphophonological difficulty. In other words, to the extent that a child's acquisition of novel compounding might be held back by more general difficulties with the phonology or morphology of the actual surface form of a compound, those difficulties should apply equally to lexical compounds, and should result in a corresponding delay there too.
Second, the FRU of attributive adjectives provides a sensitive index of any delays in novel compounding that are due to general conceptual difficulties with the relationship between a modifier and a head. By mathematically removing all the variability in our data that could be explained in terms of these two measures of more general development, we can see if there remains a strong, statistically significant association (i.e. a significant "partial" correlation) that is specific to true, novel compounding and atelic path phrases.

The results are that the correlation of novel compounding with atelic path phrases remains robustly significant even after we mathematically remove the variability that can be explained by the ages of FRU for lexicalized compounds ($r_{\text{partial}} = .835, t(8) = 4.3, p < .0026$), and even after removing the variability that can be explained by the ages of FRU for simple adjectives modifying nouns ($r_{\text{partial}} = .845, t(8) = 4.46, p = .0021$).

### Table 3. Age of acquisition (in years) of atelic path phrases and novel N-N compounds

<table>
<thead>
<tr>
<th>Child</th>
<th>N-N compound</th>
<th>Atelic path phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam</td>
<td>2.26</td>
<td>2.26</td>
</tr>
<tr>
<td>Eve</td>
<td>1.58</td>
<td>1.75</td>
</tr>
<tr>
<td>Lily</td>
<td>1.74</td>
<td>1.90</td>
</tr>
<tr>
<td>Naima</td>
<td>1.38</td>
<td>1.45</td>
</tr>
<tr>
<td>Naomi</td>
<td>1.92</td>
<td>1.91</td>
</tr>
<tr>
<td>Nina</td>
<td>1.96</td>
<td>2.12</td>
</tr>
<tr>
<td>Peter</td>
<td>1.87</td>
<td>2.03</td>
</tr>
<tr>
<td>Sarah</td>
<td>2.59</td>
<td>3.09</td>
</tr>
<tr>
<td>Shem</td>
<td>2.23</td>
<td>2.21</td>
</tr>
<tr>
<td>Violet</td>
<td>1.73</td>
<td>1.82</td>
</tr>
<tr>
<td>William</td>
<td>2.34</td>
<td>2.34</td>
</tr>
</tbody>
</table>

Examining the ages in Table 3 carefully, one will notice that the age of FRU for novel compounding is sometimes almost identical to that of atelic path phrases, but other times is a good bit earlier. (No child, however, begins using atelic path phrases substantially earlier than novel compounds.) This systematic relationship results in a significant ordering effect by paired $t$-test ($t(10) = 2.60, p = .0265$).

In principle this could mean that atelic path phrases have a second grammatical pre-requisite, in addition to the parameter-setting of [+TCP] required for novel compounding, and that some children acquire this second pre-requisite substantially later than [+TCP]. Yet, a simpler explanation strikes us as more plausible: Atelic path phrases are used much less often than novel compounds in children's spontaneous speech, even when both are clearly available to the child. Hence, even if compounding and atelic path phrases become grammatically available to the child at precisely the same age, we expect that we will often encounter compounds in a child's speech sooner than atelic path phrases, simply by the luck of the draw.

To assess the plausibility of this frequency-based explanation, we performed detailed case-studies on two children (Lily and Naima) who have a large gap between the two FRU's. The statistical method we applied was a binomial test, based on the relative frequency of the two structures in the child's own speech, after atelic path phrases had begun to appear.

In the case of Lily, the FRU of novel compounding was found at age 1;08.28 (1 year, 8 months, 28 days). The FRU of atelic path phrases was found at age 1;10.23. Before the latter FRU, Lily produced exactly three novel compounds. In a sample of later transcripts, after the latter FRU, Lily produced five novel compounds and only one additional atelic path phrase.
Under the null hypothesis that atelic path phrases were available to Lily just as early as novel compounds, and had the same relative frequency of use as seen in later transcripts, the exact probability of sampling at least three novel compounds simply by chance, before the first occurrence of an atelic path phrase, is \( p = \frac{5}{(1+5)^3} = .571 > .05 \). Hence, the observed gap is not statistically significant.

The corresponding probability for Naima is also not significant: \( p = \frac{4}{(4+2)^3} = .287 \) NS.

While it is always difficult to interpret null results, in these cases we take the lack of significance as an indication that the findings are fully consistent with what is expected based simply on the relative frequencies of novel compounding versus atelic path phrases. There is not as yet any strong evidence for a more complex model, involving a second grammatical pre-requisite for atelic path phrases.

4. Discussion

The results of our study are fully consistent with the results of Snyder et. al. (2001), even though we restricted our attention to the highest-quality longitudinal corpora available, and to path phrases that met strict standards for being atelic. Thus, the findings constitute strong acquisitional evidence for a version of The Compounding Parameter that is relevant to both telic and atelic motion predicates. Such an account is laid out by Snyder and Lillo-Martin (2005), who argue that [+TCP] languages have available a highly general semantic composition rule, which they termed 'Rule C'. An updated version of this rule, now termed 'Generalized Modification' (Snyder 2011, 2012), is given in (11).

(11) Generalized Modification (GM):

If \( \alpha \) and \( \beta \) are syntactic sisters under the node \( \gamma \), where \( \alpha \) is the head of \( \gamma \), and if \( \alpha \) denotes a kind, then interpret \( \gamma \) semantically as a subtype of \( \alpha \)'s kind that stands in a pragmatically suitable relation to the denotation of \( \beta \).


The mechanism of GM can be used to obtain a semantic interpretation for each of the distinctive structures that are found in [+TCP] languages. For example, bare-root compounds can be created quite easily in any language, using the syntactic operation of Merge, but to assign a semantic interpretation to a novel compound we need GM. Thus, the English N-N compound frog man in (12) is appropriately used in a wide variety of contexts, with a variety of meanings, and is not restricted to its lexicalized meaning of 'underwater diver'. In the right context, a frog man might also be a man who looks like a frog, keeps frogs as pets, or conducts scientific research on frogs.

(12) Novel compounding:

\[
\text{frog man} = \text{man of a type related to frogs}
\]

All of these novel, non-lexical uses follow from the denotation provided by GM: a subtype of the semantic kind 'man' that stands in a pragmatically suitable relation to the denotation of frog. What is pragmatically suitable will vary, of course, depending on the context of utterance.

The mechanism of GM can also be used to compose a path phrase (whether telic or atelic) with a simple manner-of-motion activity verb. An example is provided in (13). As discussed at some length in (Snyder 2012), GM can apply to individual-kinds, like 'man', or
equally well to event-kinds, such as a "floating" event. Yet, where the human conceptual system can provide countless possible relations between an individual-kind like 'man' and an et-predicate like 'frog', the possibilities for event-kinds are severely restricted. In the case of (13), one of the few relations available between an activity-type event-kind and a locative small clause is the relation between the two subparts of an accomplishment event, the "development" and the "culmination" (in the terms of Parsons 1990). This possibility yields the correct interpretation for (13) when it is understood on a telic reading: The bottle underwent a floating type of motion, beginning at some point that was not under the bridge, and eventually reached an endpoint that was under the bridge.  

(13) Telic path phrases:

\[ \text{[The bottle] floated [PRO under the bridge]} \]

= There exists a (past) event of the bottle floating, and this event is of the kind associated with the bottle being in a location under the bridge.

= There exists a (past) accomplishment-type event whose development consists of the bottle floating, and whose culmination is the bottle coming to be under the bridge.

Note that (13) can also receive an atelic reading, where under the bridge denotes a path of motion, rather than a resultant location. In the terms of (Gehrke 2008), we might take the PP (at least on this reading) to denote an atemporal sequence of points in space. In this case GM will also succeed in providing a suitable meaning for the VP, as follows: 'There exists a (past) event of the bottle floating, and this event is of the kind associated with a sequence of points passing under the bridge'. We take it that the human conceptual system will ultimately interpret this type of semantic denotation as something along the lines of, 'There exists a (past) event of the bottle floating, and in this event the Theme (i.e. the bottle) moved along a path passing under the bridge'. Admittedly this is just a rough paraphrase, and we will have to leave it to the semantics community to see if the details of this suggestion can be made to work.

Crucially, though, on both the telic (resultant-location) reading of (13) and the atelic (path-of-motion) reading, GM is proposed to play a vital role. In a language that is [-TCP] and therefore lacks GM, we expect that the direct counterpart to (13) will lack both of these readings, and that the PP corresponding to under the bridge will simply be understood as specifying the location of the entire event. In the case of Spanish, at least, this is known to be correct (Talmy 1985).

5. Conclusion

We have now presented evidence that English-learning children acquire the process of novel bare-root endocentric compounding concurrently with atelic path phrases. This evidence lends strong support to a version of The Compounding Parameter like that of Snyder

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3 Interestingly, Berit Gehrke (p.c.) has noted variation between British versus American speakers of English, in that the British speakers she has consulted resist the telic interpretation of (13), while the American speakers accept it. The British speakers instead favor the atelic-path interpretation discussed below, in which the bottle's path of motion passes under the bridge but continues to points unknown, no longer under the bridge. This variation across speakers could be due to a difference in the precise lexical semantics of float. If so, we expect that the same speakers who resist a telic reading of (13) will nonetheless accept such a reading if a different manner-of-motion verb (e.g. walk) replaces float. We leave this as a topic for future investigation.
& Lillo-Martin (2005): The mechanism in a [+TCP] language that allows creative compounding can also be used for both telic and atelic path phrases.

References