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“It Was So Much Fun.
It Was 20 Fun!”¹

Cognitive and Linguistic Invitations to the Development of Scalar Predicates

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The choices that speakers make as they piece together sentences from the lexical, syntactic, and morphological resources of their language are not carried out independently of one another... Learning how to coordinate the components of grammar is an important aspect of first-language development.... (Bowerman, 1981, p. 179)

How do children develop complex linguistic systems that necessarily involve multiple concurrent developments in semantic, syntactic, and cognitive realms? Research is often of necessity restricted to examining developments within one realm or another (e.g., syntactic, semantic, or cognitive),²

¹ Sadie 3;4.8 (see text for further details on this utterance).

² I am using the terms *semantic* and *cognitive* throughout fairly narrowly: *semantic* to refer to meaning that gets encoded in language, and *cognitive* to conceptual understanding of the world irrespective of how and whether those concepts get encoded in the language. The two are inextricably linked, of course, but are not one and the same; for example, young infants learning both Korean and English may well understand (i.e., cognitively) that spatial relations between objects may involve tight fit, as opposed to loose fit (Choi, 2006; Casasola, Wilbourn, & Yang, 2006), but Korean-speaking children need to learn as well that this notion gets encoded semantically in Korean, while English-speaking children learn it is irrelevant to English semantic structure (Choi, 2006).

or within a small set of linguistic structures within a given domain (e.g., tense or inflectional elements, active vs. passive sentences, word meaning, development of one word (*more, big*) or a few related words (e.g., *more* and *less*; *more* and *-er*; *all, every, some*). We do not often get many glimpses of real-language data that allow us to see how the acquisition of multiple sets of constructs interact over time. Bowerman's work has provided some of the most valuable insights into such interaction, showing how distinct structures influence each other when they begin to "bump up against each other's territories" (Bowerman, 1978, p. 391; Bowerman, 1982). Her ground-breaking work on late-emerging errors in a number of realms (e.g., spatial and temporal terms, causative verbs, Figure-Ground expressions, and verb-argument structure) has provided countless new insights into the ways in which the child goes about constructing a grammar that encompasses a wide range of substructures. That work has provided some of the impetus behind much current theorizing on language development positing that children establish systems on the basis of networks in interaction, or dynamical systems. These theories suggest that the more children learn, the more their knowledge in one realm will begin to influence their knowledge in another (Elman, 1998; Gershkoff-Stowe & Thelen, 2004; Smith, 1999). The purpose of this chapter is to examine closely another wide range of structures in order to gauge the extent to which their acquisition hinges on such interaction between structures, and on interaction between syntactic, semantic, and cognitive factors. The data are interpreted as indicating that such interactions occur at multiple levels throughout the development of the forms in question.

The structures of interest here are a complex set of English constructions that broadly involve quantification and the specification of degree. These are related in the adult language through common syntactic patterns as well as related semantic content. The question addressed here is how the development of these constructs proceeds in the English-speaking child. Of critical interest are several major questions:

- To what extent do children approach these structures on the basis of broad syntactic categories and structures? That is, does knowledge of syntactic structure guide children's acquisition of these forms, or do the syntactic structures emerge out of the children's experience with the forms?
- Are the developments in the syntactic and semantic (and cognitive) realms autonomous, or do developments in one area influence developments in another?
- Do children follow a common trajectory in the development of these systems, or is the developmental path followed idiosyncratic and distinct across children?
- Does language lead cognitive development, cognitive development lead language, or a mixture of these two?

An examination of spontaneous speech data from two children will reveal that the process of learning is long and drawn out, involving considerable early lexically specific knowledge that evolves through small, repeated steps involving the child's discovery of syntactic and semantic linkages, into a complex network of structures.

The structures to be examined are primarily those shown in (1) (related forms will be included as relevant). These involve degree markers such as *too*, *-er*, *-est*, *enough*, and the first *as* in constructs with adjectival and nominal heads, as in (1a) and (1b), as well as standard markers, which introduce standards of comparison, such as the last *as* in (1ai) and (1bi) and *than* in (1av) and (1bv).

(1) a. As:

- i. *J is as happy (as T).*
- ii. *J is too happy (for his own good/to Y).*
- iii. *J is that happy.*
- iv. *J is so happy [that...]*
- v. *J is happier (than a lark/than S). J is more intelligent (than...)*
- vi. *J is the happiest (of all/in the world). J is the most intelligent...*
- vii. *J is happy enough (to Y/for Y).*

b. Ns:

- i. *J has as much bread/as many meatballs (as T).*
- ii. *J has too much bread/too many meatballs (for his own good).*
- iii. *J has that much bread/that many meatballs.*
- iv. *J has so much bread/so many meatballs [that...]*
- v. *J has more bread/more meatballs (than T).*
- vi. *J has the most bread/the most meatballs (of all/in the whole class).*
- vii. *J has enough bread/enough meatballs (to Y/for Y).*

Such structures are relevant to the questions above for a number of reasons. First, they involve a whole set of structures that are interlinked. By examining their development, we can explore the extent to which a child builds up a system, rather than (or in addition to) storing individual constructions, and we might discover the point at which such a system might emerge.

Second, the structures are complex, both syntactically and semantically, as outlined below. An examination of their acquisition by children can therefore provide some insight into how children tackle complex constructs with complex interrelations.

Third, they involve individual lexical items that themselves show a range of lexical complexity. Many of the lexical items are polysemous or homophonous (e.g., *as* [*J is as tall as H; J cried as he entered the room; J works as a plumber*], *too* [*J is too tall; M is tall, too*], *so* [*J is so happy; J sat down so he could rest, and Mary did so too*]). Many of them show syntactic co-occurrence or agreement patterns; for example, *-er* must take standard marker *than*; degree marker *as* requires standard marker *as*; and so forth.

Fourth, discovering how these develop across time could provide a possible window into the relationship between syntactic, semantic, and cognitive development. The semantic content of these structures is closely tied with certain cognitive concepts (e.g., they involve comparison across instances or items, assessment of relative degrees of the presence of a property or item, assessment of the serial order of the presence of such a property, and so forth). They may thus provide

substantial information on the relationship between language and cognition and possible insights into how and when language might "lead" cognition, and how and when cognition might "lead" language.

Fifth, examining such a broad range of structures in several children's development may provide a possible window into universals and individual differences across children in the course of development.

In what follows, I will first review some of the relevant properties of the syntactic and semantic makeup of these structures, in order that we can then examine the syntactic and semantic development in children. It will become clear, even with this rather cursory overview, that these structures involve complex and sometimes unpredictable relations, both at the syntactic and semantic levels. The syntactic complexities involve orders of constituents within phrases, co-occurrence restrictions both within local forms and between elements and their complement types, and lexically specific idiosyncratic patterns of usage; the semantic complexities involve the polysemy of many forms, restrictions on semantic modification, and relative levels of semantic complexity across forms. I will go into considerable detail regarding the syntactic and semantic patterns observed in adult English, to provide the reader with a taste of the complex nature of this set of structures, and to help the reader gain an appreciation of the enormity of the task faced by the young language-learning child.

Following the initial layout of these structures, I will then outline some of what is already known about the acquisition of such structures. This will then be followed with the data from the children reported on here and an assessment of the relevance of those data to theories of acquisition in general.

SYNTACTIC CONSIDERATIONS

Local Form

One could briefly describe the shared syntactic makeup of these structures as involving degree markers, as in (2a), and quantifiers, as in (2b).

- (2) a. Degree markers: *as, too, that, so, -er, -est, how*
 b. Quantifiers: *much, many, little, few, enough*

With adjectives, the degree markers occur immediately before the adjective in most cases: *as happy, too happy, that happy, so happy, how happy*, as in (3a), but the bound forms *-er* and *-est* attach as suffixes to many adjectives (*happier, happiest*).

With nouns, the degree markers alone cannot occur immediately preceding the noun, but must occur with a quantifier, as in (3b): *as much bread, too much bread, that much bread, so little bread, how little bread*. Mass nouns select *much* and *little* as quantifiers, count nouns select *many* and *few* (*as many meatballs, too few meatballs, etc.*).

The bound forms *-er* and *-est* can overtly attach to the quantifier *few* (*fewer, fewest*), but suppletive forms *more* and *most* are used instead of *much-er, many-*

er, *much-est*, *many-est*. Similarly, suppletive forms *less* and *least* occur instead of *little-er* and *little-est*.³

The quantifier *enough* can occur with adjectives, but must occur after them (*happy enough*), as well as with (both mass and count) nouns (*enough bread*, *enough meatballs*), as in (3c). *Enough* cannot occur with any of the degree markers: **so enough bread*, **that happy enough*.

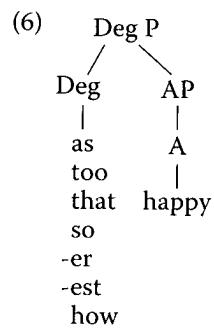
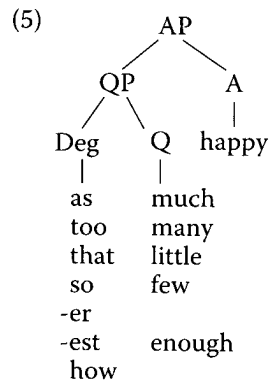
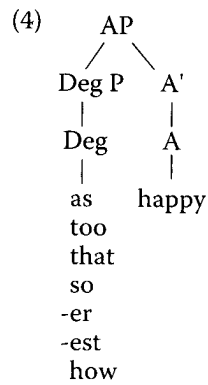
- (3) a. *as/too/so happy*
 b. *as much/too little/so much bread* [Mass N]
 as many/too few/so few meatballs [Count N]
 c. *happy enough*
 enough bread
 enough meatballs

Finally, while many adjectives (mostly single syllable, and two-syllable forms ending in an unstressed vowel (*happy*), /əv/, or syllabic /l/, plus a few idiosyncratic forms (e.g., *quiet*) (Quirk & Greenbaum, 1973)) show suffix *-er* and *-est* for the comparative and superlative; longer adjectives (other two-syllable forms and longer forms) take *more* and *most*: *more intelligent*, *the most interesting*.

The precise syntactic structure of these forms is hotly debated. Disagreements concern, among others, the status of the degree markers: Are they specifiers of APs, as in (4) (e.g., White, 1998); modifiers of As, as in (5) (Bresnan, 1973); DP heads, as in (6) (Corver, 1990; White, 1998), etc.? Is *more* of the Q (Corver, 1997b) or Deg (Rijkhoek, 1998) category, and are *enough*, *much*, etc., Q heads (Corver, 1997b) or adjuncts (Doetjes, 1997; Doetjes, Nelleman, & Van de Koot 1998)? Also in dispute is the number of distinct structural types involved (e.g., Bresnan, 1973: one; Corver, 1997b: two; Kennedy & McNally, 2005: three), related to the questions of whether the adjectival modifiers and the nominal modifiers derive from the same or different structures and whether the degree markers are of the same or different syntactic classes (Deg vs. Q). (For a sample of alternative treatments, see, e.g., Bowers, 1970; Bresnan, 1973; Corver, 1997a, 1997b; Doetjes, 1997; Doetjes, Neeleman, & Van de Koot, 1998; Hackl, 2001; Huckin, 1977; Huddleston, 1967; Keenan, 1987; Kennedy, 2000; Kennedy & McNally, 2005; Liao, 2005; Matushansky, 2002; Napoli, 1983; Pinkham, 1985; Rayner & Banks, 1990; Rijkhoek, 1998; White, 1998). (See Androutsopoulou and Español-Echevarría [2006] for a comparison of English with another language, Spanish.)

These considerations are well beyond the scope of this chapter. However, they highlight the intricate nature of the syntax of even the local constructs and should alert us to potential key questions regarding acquisition: Does a given modifier (e.g., *so*) emerge with adjectives and nouns at the same time, and do children treat its use with adjectives and nouns in the same way? Do all, or even a subset, of the modifiers develop concurrently, indicating a shared syntactic source, or do they develop separately?

³ The forms *littler* and *littlest* occur as the comparative and superlative forms of the adjective *little*, of course, but not as the comparative and superlative of the quantifier *little*.



Elaborated Forms

Beyond these local/immediate patterns, one key feature of these constructs in English is the ability to “stack” or employ “multiple modification” with these phrases. Thus, one can use phrases such as *much*, *so much*, *as much* in conjunction with Degr *too* and *-er* as in (7):

(7) a. Adjectives:

*J is much too courageous for...**J is so much happier than T**J is as much more courageous than T as B is.*

b. Nouns:

*M has much more courage than A.**M has so much more courage than A.**M has that many too many meatballs.**M has many too many friends.*

Again, researchers have disagreed on the best syntactic analysis of such structures in the adult language, primarily according to whether local degree modifiers are viewed as specifiers of AP, in which case, the structure might be, for example [_{AP} [_{DegP} [_{DP} so much] more] courageous] (Bresnan, 1973); or as DP heads, in which case, the structure might be [_{DegP} [_{DP} so much] [_{DegP} more [_{AP} courageous]]] (White, 1998).

Despite the differences in analyses, some important aspects of the behavior of these structures are relevant to any analysis. For the purposes of exposition, I will not make any assumptions regarding the internal structure of these constructs and will use "Deg" and "Q" for the elements in each of the two "modifiers" in the sequence, so each multiple modification can be described as involving a sequence Deg₁ - Q₁ - Deg₂ - Q₂ [with or without one or more elements in this sequence as null elements].

Some important co-occurrence restrictions apply to the multiple modification of forms:

First, the first modifier must have a nonempty Q₁. One cannot say, for example, **so more courageous*, **so happier*, **so more courage*, but must say *so much more courageous*, *so much happier*, *so much more courage*.

Second, Deg₂ must be nonempty. One cannot say, for example, **so much ___ much courage*, **this much ___ much courage*, **that much ___ happy* but can say, e.g., *so much more courage*, *this much too much courage*, *that much happier*. This implies that *enough* cannot occur as Q₂, which is the case: **so much enough courage*.

Third, the only degree markers that can occur as Deg₂ are *-er* and *too*: *so much happier*, *this much too much milk* are possible, but not **so much as much courage*, **so much as courageous*, **this much enough milk*. This appears to be related to the semantics of *-er* and *too*, described below.

Finally, multiple modification is not restricted to these forms. Other quantifiers and terms expressing quantities besides *much*, *many*, *few*, and *little* can occur in initial position, as in (8):

(8) *J gave us two gallons too much water.**J has five dollars too much.**There are tons more people here than we thought.**J is five inches taller than M.**This dress is a (little) bit too short.**It is way too short.**It is a lot shorter than hers.*

(See Kennedy and McNally [2005] for a proposed syntactic and semantic analysis of the full set of forms into three types.)

Status of *Very*

One word that participates in many of these constructions is *very*. The syntactic status of *very* is unclear (e.g., Androutsopoulou & Español-Echevarría, 2006; Bresnan, 1973). In some ways, *very* acts similar to the Deg markers above, in that it can combine with adjectives and quantifiers, as in (9a) and can combine with a Q_1 *much/many* to act as a modifier of a $Deg_2 - Q_2$ structure, as in (9b).

- (9) a. *very happy*
 very much bread/very many meatballs
 b. *very much bigger*
 very much more intelligent
 very much too big
 very much more N
 very many more N

Compare (9) with the forms in (10) with the semantically similar forms *really* (and *real* in colloquial American English), which are not allowed in many of these structures. Note also that the acceptable forms—10d, 10f, 10h—take on the meaning “truly much bigger,” and so on, not “very much bigger.”

- (10) a. *really/real happy*
 b. **really/ *real much/many N*
 c. *[*really/real much*] bigger
 d. *really [much bigger]*
 e. ?[*really much*] too big
 f. *really [much too big]*
 g. ?[*really much/many*] more N
 h. *really [much/many more N]*

On the other hand, *very* is unlike the Deg markers in that it can modify a second Deg_2 *-est*, without an intervening Q_1 , as in (11a) (and 11b?), and it can occur in combination with an immediately preceding Deg_1 without *much* intervening, as in (11c). However, even its acceptability modifying *-est* is restricted: It is (marginally?) acceptable with *most* in adjectival phrases (11b), but not in nominal phrases (11d).

- (11) a. *the very biggest/ *the very much biggest*
 b. ? *the very most intelligent*
 c. *so very big/ *so much very big*
 d. *? *the very most bread/ *? the very most meatballs*

These idiosyncratic properties of *very* appear related to and grounded in its source meaning, “true,” coming from Old French *verai* (F *vrai*) (*Cassell's Concise*

Dictionary, 1997; see Slobin, 1997, for similar relic semantics invading the use of indirect and direct object markers in Chinese and Persian.) Indeed, in earlier times, English allowed *verier* and *veriest*, but these are now obsolete. It is also of note that there are some polysemous uses of *very* that also reflect and derive from this earlier meaning; see (12).

- (12) Polysemous uses of *very*:
- a. *the very end; the very top; the very bottom* [= absolute]
 - b. *her very own; the very same day* [= absolutely, exactly]
 - c. *the very thought, the very idea* [= mere?]

Order of Constituents within NPs

When an NP contains both a nominal Det (*a, the*) and an adjectival phrase containing a degree marker, the order of constituents depends on whether the Deg form is bound (*-er, -est*) or free (*too, so, as, this, that*). If Deg is free (and, therefore, precedes the adjective), the nominal Det must occur between the A and the N, as in (13). (Note that in this regard *very* does not act like a free Deg; see (14).)

- (13) a. **a too happy N*
 b. *too happy a N*
 c. **an as happy N as...*
 d. *as happy a N as...*
 e. **a that happy N*
 f. *that happy a N*
 g. **a so happy N*
 h. *so happy a N*
- (14) a. *a very happy N*
 b. **very happy a N*

Also note that an alternative to *so A a N*, as in (13h), is *such a A N*, as in (15) (see Bresnan, 1973):⁴

- (15) *such a happy N*

When Deg is *-er* and *-est*, however, both orders are used, but acceptability depends on whether the *-er* and *-est* have been suffixed to the following adjective or occur in the suppletive forms *more* and *most*, and on the desired meaning. In (16), for example, the order in (16b), (16f), and (16h) appear archaic or obsolete, but in (16d), the comparable order appears acceptable. In (16g), *the most handsome N*

⁴ Note that if constructions like that in (15) are viewed as deriving from *a so much happy N*, with a rule that *so + much* → *such*, there is a problem in that this rule could not apply to comparable phrases such as *so much rice* and *so many things*, as these do not mean the same as *such rice* and *such things* (Bresnan, 1973).

has a superlative meaning, whereas *a most handsome N* has an "intensifier" meaning (= "a very handsome N"). In contrast, in (16h), only the form with *a* is even marginally acceptable, and it carries the meaning of intensification; the form with *the* appears unacceptable.

- (16) *I never saw...*
 a. *a happier N*
 b. Archaic?: *happier a N*
 c. *a more handsome N*
 d. *more handsome a N*

He is...

- e. *the happiest N*
 f. **?happiest the N*
 g. *a/the most handsome N*
 h. Archaic?: *most handsome a/the N*

Long Distance Co-Occurrence Limitations

Complement Types One key aspect of the syntax of these forms is the co-occurrence restrictions on the forms that complements must take for certain structures. The degree markers *as*, *-er*, *-est*, *too*, and *enough* all take strictly constrained standard markers and complement types. With degree markers *as* and *-er*, the standard markers are strictly *as* and *than*, respectively:⁵

- (17) a. *T is as happy as J.*
 b. *T is as happy *like/*than/*from/*to/*that/*when/*of J.*
 c. *T is happier than J.*
 d. *T is happier *from/*to/*of/*in J.*

With *-est*, *too*, and *enough*, wider options of complement types are available, although still restricted:

- (18) a. *T is the happiest in the world/of all/ (out) of that group.*
 b. *T is the happiest *from/*than them.*
 c. *T is too short to play that part/for that part.*
 d. *T is too short *of/*in/*than X.*
 e. *T is tall enough to play that part/for that part.*
 f. *T is tall enough *of/*in/*than X.*

The degree markers *so* and *how* do not usually occur with complements (but see, e.g., *T is so happy that he can't stop smiling*). Nor does the degree marker *that*; this is because *that* itself expresses the standard of comparison. Thus, *T is that tall* is equivalent to *T is as tall as that*.

⁵ In the case of *as...as*, it is of note that the degree marker *as* can be omitted in some contexts, such as more archaic uses (*Its fleece was white as snow*, *He came in quiet as a mouse*) and some more colloquial and idiomatic speech (*He's blind as a bat*).

Obligatoriness of Complements For most of these forms, in principle, the complement/standard of comparison is not obligatory. If a complement is not specified, the standard of comparison is understood from the discourse or context of the utterance. Thus, given the appropriate contexts, one can say: *This is just as tall/taller/the tallest/too tall/tall enough.*

Nevertheless, an initial examination of real language use reveals important differences in the occurrence of complements across structures: A good, and pertinent, example is a comparison of *as...as* and *-er...than* constructions.

To gauge the occurrence of complements with these two structures, two types of data were consulted: first, a set of written texts, and, second, a collection of Kuczaj's Abe transcripts from CHILDES (<http://childes.psy.cmu.edu>). The data show that degree marker *as* is invariably accompanied by standard marker *as* and that *-er* is much less reliably linked with *than*.

Written Texts: A search in three written texts (Oller & Eilers, 2002; Schwartz, 2003, n.d.) involving eight different writers and a total of 99,241 words, reveals the following:

For *as...as*: Out of 510 total uses of (any meaning of) *as*, only 5.3% (N = 27) involved the degree marker *as*. But within these 27, fully 92% (i.e., 25) involved overt specification of the standard of comparison with *as...*. The remaining two occurrences were both of the type *as A or A-er than* (e.g., "as large or larger than..."), where the use of *than* precluded the use of *as*. In addition, there were other uses of *as* showing distinct semantic usage, see below, as well as two occurrences of *as much as + Number*, three occurrences of *as long as* to mean "providing/provided," and 30 occurrences of *as well as* (plus 12 occurrences of *as well*). Thus, when degree marker *as* does occur, it seems to be highly linked overtly with its standard marker *as*.

For *-er...than*: There were 402 total occurrences of *-er* forms with comparative import in these written texts. (This leaves out idiomatic or frozen phrases such as adverbial *further*, *the latter*, *no longer* (time), and so forth.) Of the 402 *-er* comparatives, 160 involved *better*, *fewer*, and *significantly A-er*, mostly used in reporting of statistical results in which one or other group was reported as performing "better" or "significantly higher/lower" than another group. Since the occurrence of these forms in these academic texts may inflate the patterns artificially and could skew the general distribution of the use of *than* phrases, the remaining 242 occurrences were examined without these. The remaining 242 occurrences of *-er* forms show 31.8% of the constructions including a *than* phrase, and 68.2% without. Thus, the link between *-er* and its standard marker *than* appears less strong than that between degree marker *as* and its standard marker *as*.

Furthermore, the occurrence of the *than* phrase appears to be related to the overall structure of the sentence. When the *-er* phrases occurred with *than*, only 33.8% of the sentences showed the comparative as a noun modifier (i.e., 66.2% were like *larger than X*, not *larger N than X*). In contrast, when the *-er* phrase occurred without *than...*, fully 78.2% of the sentences showed the *A-er* modifying a noun (e.g., *larger N*). This difference is likely related to differences in the informational structure of the discourse in the two cases.

It is also worth noting that both *A-er...than* and *A-er* without *than* showed similar numbers (16 vs. 15, i.e., 20.8% of constructs with *than* vs. 9.1% of constructs without *than*, respectively) of constructs involving qualification of the *A-er* form through modification by *much*, *a lot*, *slightly*, *somewhat*, etc. (e.g., “much stronger than,” “slightly smaller than,” “considerably weaker than,” “notably smaller”).

Adult Speech to Children: These glances at the usage of forms by adults in written texts suggest that children may be confronted by a number of different patterns of co-occurrence of usage across what may be deceptively similar constructions. In order to gauge whether these patterns hold also in adults’ speech to children, a collection of Kuczaj’s Abe files on CHILDES (<http://childes.psy.cmu.edu>) were examined.

For *as...as*: To examine the use of *as...as* by adults, the first and last 50 Abe files (files 1–50 and 161–210) were examined. In all 100 transcripts, Abe’s mother and father showed a total of 32 utterances in which (all meanings of) *as* was used. Out of these 32, 4 involved *as* as a standard marker occurring with *same* (“same...as”). Of the remaining 28, 26 (92.9%) involved the degree marker *as* (as opposed to other semantic uses of *as*), a proportion of usage that is much higher than for the adult written uses of degree marker *as*.⁶ (Of these 26 utterances, 23 (88.5%) also included the standard marker *as*. Of these 23, 13 were *as soon as*, 4 were *as big as*, 2 *as far as*, 2 *as many as*, and 1 each of *as long as* and *as good as*. The three that did not include standard marker *as* were all within the scope of negation—*not as bright in here*, *not as annoying*, *not quite as wobbly*.)

This high proportion of occurrence of the standard marker *as* is in line with the high occurrence in the adult written texts, indicating a reliable occurrence of standard marker *as* whenever degree marker *as* is used. Interestingly, on one occasion when Abe used degree marker *as* without the standard of comparison (in Abe 23), and another when Abe similarly used *same* (in Abe 180), his parents questioned him: “as much money as what?” “the same as what?”—suggesting the adults’ expectation that degree *as* is accompanied by a standard of comparison introduced by *as*.

For *-er...than*: Adults’ use of *-er* forms in speech to children was similarly examined in the first 50 Abe files. In those files, Abe’s mother and father and one other adult used 57 comparative forms. Of those, 55 (96.5%) occurred without an accompanying *than* phrase. One of the two that did occur with *than* was used in reaction to Abe’s “huh?” when the mother first used *A-er* without *than*; the other was used by the father in addressing the mother, not Abe. Among the 55 *-er* forms without *than*, 26 (47.3%) were uses of *later*, 14 (25.5%) were uses of *better*, all but twice in conjunction with a verb (*like it*, *taste*, *make it*, *shows up*, *set*, *look*, *feel*, *aim*, *work*, *looks*). Only two out of all 57 utterances contained a modified noun (e.g., “better idea”), one of these in imitation of Abe (“bigger shoes”).⁷

⁶ The remaining two uses of *as* were: “We want them to do as they want to do” and “as a matter of fact.”

⁷ See Alrenga (2005) for a discussion of the occurrence of weak and strong nominal determiners in attributive comparative constructions, in which a comparative adjective occurs pronominally.

It is also interesting to note that the only uses of *A-er* involving multiple modification in speech directed to Abe involved *a little ((tiny) bit) A-er*, which occurred in 6 of the 55 utterances (10.9%) without *than* phrases. There was also one use of *a lot older than*, but this was directed by the father to the mother. Finally, there was a relatively high number of noncomparative uses of *better* (9 uses) as a quasi-modal, as in his father's "we better run fast if we see any ghosts # huh?" (Abe 46).⁸

These data on *-er* indicate that the link between *-er* and *than* in adults' speech to children is much more tenuous than in the written adult texts, which also showed a less reliable link between *-er* and *than* than between *as* and *as*. This suggests that the link of *-er* with *than* may lack "validity" (in the Competition Model sense [MacWhinney, 1987; McDonald, 1989]) for children. At the same time, the qualification of *A-er* with multiple modification may be fairly similar in incidence to comparable forms in adult language to adults (here, use in about 10% of *-er* forms that occurred without *than* phrases).

We will see below in the data from Sadie and Rachel that these differences between such constructs as *as...as* and *-er...than* may have significant consequences in children's acquisition of these forms.

Challenges for the Child

These syntactic considerations highlight a number of aspects that may pose challenges for children. These include:

- Differences between adjectival and nominal structures in the overt use of a quantifier after Deg modifiers (*so happy*, **so much happy*, **so bread*, *so much bread*): Do children show evidence at any point of treating these as having either separate or common source structure?
- Suppletive forms (*less*, *least*, *more*, *most*): At what point do children realize that these express comparative and superlative notions and are related to *-er* and *-est*?
- Idiosyncrasies of the placement and use of *very*: Do children treat *very* like the Deg markers?
- Polysemy of *very* (and others, see below)
- Local distributional restrictions:
 - Distributional restrictions concerning mass/count forms (*much*, *many*, etc.)
 - Distribution of *-er* versus *more* as comparative markers on adjectives.

How and when do children link these? Or do they?

⁸ In Abe's speech across these transcripts, he used comparative-looking forms 46 times, all but once with just three forms, *better*, *bigger*, and *later*: He used Modal *better* 9 times, *later (on)* 10 times, *better* with a verb 9 times (6 of these: *feel better*), *bigger* 10 times, mostly (80%) with *grow* ("grow bigger," "grow bigger and bigger," "grow bigger and biggest" [also "grow big and big"]). He used *bigger N* 7 times, and *bluer* (with uncertain semantic content) once.

- Long distance distributional restrictions:
 - Co-occurrence restrictions, e.g., between *-er* and *than* and between *as* and *as*: At what point do children observe these?
- Degree of obligatoriness of standard of comparison: Does the highly reliable and available link in *as...as*, for example, make *as...as* easier to learn than the largely unavailable link between *-er* and *than*?
- Form of multiple modification:
 - Must have a nonempty Q_1
 - Restricted to modification of *-er* and *too* as Deg_2
 When do children begin multiple modification, and do they observe these restrictions?
- Order of constituents:
 - *A enough* vs. *enough N*
 - Order within NPs with nominal determiners (*so great a man* vs. *such a great man*; *too great a man* vs. *a very great man*; etc.)
 When do children observe these?

We will see that all of these syntactic matters come to bear and pose their own challenges in children's development of these forms.⁹ While it is impossible to address all of them thoroughly within the scope of this chapter, the longitudinal data presented will help provide some insights into their answers.

SEMANTIC CONSIDERATIONS

An examination of the semantic content of these forms provides another window into the challenges faced by the child in acquiring these forms. I will discuss the major semantic notions encoded through these forms; examine the complexities involved with the encoding of these notions, their polysemous character, and their relationship with cognitive concepts; and return again to the challenges these pose for children acquiring these forms.

Meanings Encoded

INTENSIFICATION

Modifiers of Adjectives or Quantifiers: First, a wide collection of these forms, as well as others, are used to express INTENSIFICATION,¹⁰ or to express "very X" (or

⁹ There are, of course, many other matters relevant to the acquisition of the syntax of comparatives, which will not be covered here. These include, for example, the syntax and semantics of post- and prenominal comparatives (*She met a dancer younger than Mary*; *She met a younger dancer than Mary*) (e.g., Lechner, 2000); comparative correlatives (*The more you eat, the fatter you get*; e.g., den Dikken, 2005).

¹⁰ SMALL CAPS will be used throughout to represent semantic concepts.

a similar paraphrasable notion involving "very"). These include all of the fairly standard degree-marking forms in (19), used to modify adjectives and quantifiers, as well as more colloquial forms such as those in (20) (which have often evolved by semantic bleaching from other meanings).

- (19) *so* ____
very ____
really ____
real ____
quite ____

reduplication ("a big big X," "a little little X," "itsy bitsy spider")
 lengthening ("a biiiiiig X," "a liiiiiittle X")

- (20) *great* ____ ("great big"; selects for *big*? Probably a variant of reduplication, given "big" meaning of *great*— "The Great Lakes")
all ____ (as in "all dirty," "all clean," "all messy," where *all* is not interpreted as a quantifier but as an intensifier)
pitch ____ ("pitch black"; selects for *black*, *dark*; from original meaning, "as black/dark as pitch")
damn/darn ____ ("a damn/darn good read")
stone ____ ("stone cold"; selects for *cold*; but see: "I'm stone in love with you" [Stylistics])

The meaning INTENSIFICATION is also often expressed on adjectives and quantifiers with the noninterrogative uses of *how*, as in (21).

- (21) "How sweet it is to be loved by you." [sung by James Taylor/Carole King, lyrics and music by Holland, Dozier, & Holland]
 "I just called to say I love you. I just called to say how much I care. I do. (...) And I mean it from the bottom of my heart." [composed and sung by Stevie Wonder]

This use of *how* is quite common in parents' speech to children, as in the following casually overheard examples:¹¹

- (22) [Dad to child, about 3 1/2—Dad bringing pizza to table in airport:]
 Dad: Look **how big** this pizza is!

¹¹Note: Throughout the text, and in all tables, cited forms shown in bold are the target forms. Underlining of cited forms indicates stress.

[M, F, and child (boy, about 3) have walked out to end of pier]

M: Do you see **how far out** we are!

Boy: How? [with falling intonation]¹²

Finally, while the marker *-est* has as its central use the marking of the superlative (below), it is also used, in a semantically bleached fashion, to express intensification, as in (23).

(23) *This dress is made of the finest silk.* [to mean "very fine silk," not necessarily the absolute best]

She is a/the most intelligent person! [to mean "really intelligent," not necessarily the most intelligent]

This is the best ice cream! [to mean "really good," not necessarily the best]

Multiple Modification: The meaning INTENSIFICATION is also expressed through quantifiers and other forms modifying a degree marker, Deg₂, as in (24).

(24) *a lot* ____ ("a lot bigger"; selects for *-er*; cannot be used with the other Deg₂ form, *too*—*a lot too big)

much ____ ("much bigger," "much too big," "much more," "much too many"; can be used with either Deg₂ form, *-er* or *too*)

¹²The response of this child, using *How?* with falling intonation and without the modified adjective, instead of the appropriate *How far?* suggests that the child does not treat *how far* as a constituent. This type of query is common among young children. Other examples from my son, Jaime, are the following:

(i) (J 3;9.2)

M: How old is Amy today?

J: **How** [with falling intonation]?

M: Four.

J: Why?

M: 'Cause it's her birthday.

J: Is she a mommy?

M: No—she's not as big as her mommy, is she?

J: What's her mommy?

M: How old is her mommy [checking that is what J meant]?

[J nods].

M: Twenty-nine.

J: And what is Rachel?

[J answers own question by holding up one finger].

M: One.

J: What is Julio? [re: boy living in apt downstairs]

M: How old is Julio?

J: **How** [with falling intonation]?

M: Two.

(ii) (J 3;9.11)

J: Cows have three feet.

M: Uh-uh. [= "no"]. How many do they have?

J: **How** [with falling intonation]?

M: Four feet.

way ____ (“way bigger,” “way too big,” “way more,” “way too much/many”;
can be used with either Deg₂ form, *-er* or *too*)

EXTREME ENDS Another group of forms express the placement of a property or quantity at (the absolute) extreme ends of a scale—that is, encoding that the item in question exemplifies the property in question more than any other item it is being compared with. As noted by Ultan (1972), these express “absolute disparity” (shown through the occurrence of *the* as the accompanying article). These include *-est* and its suppletive variants, as in (25).

- (25) ____ *-est* [“biggest,” “most intelligent,” etc.]
best [= good + *-est*]
worst [= bad + *-est*]

The proper identification of X as the entity with the highest degree of presence of some property entails (at least an implicit) comparison of the level of the property in that entity with every other entity. In this regard, the superlative is similar in use to words like *favorite*, *top*, *bottom*, *first*, *last*. This makes a superlative, in the adult language, a “specialized” comparative, and this is reflected in the fact that across languages, superlatives are generally more marked than comparatives (Ultan, 1972) (e.g., superlative degree markers are often derived from comparative markers in languages, but not vice-versa). However, because superlatives usually refer to items that show extreme presence of a property, the more complex processing involved in multiple comparisons may be “bypassed” at least sometimes when superlatives are used, which may lead ultimately to a simpler processing than for comparatives. This simpler processing results in the common evolution across languages of the superlative form into a form used for INTENSIFICATION, as in (23) above (Ultan, 1972).

RELATIVE POSITION ON A SCALE A number of these forms express the relative position of an entity along a scale or property in relation to either some explicitly specified standard of comparison or one that is implicitly understood from the context. These include *-er*, *too*, *enough*, and *as*. The comparative expresses the relative position of an entity or property X in relation to a standard of comparison, Y, along a scale. Explicit comparatives thus

Establish an ordering between objects *x* and *y* with respect to gradable property *g* using special morphology whose conventional meaning has the consequence that the degree to which *x* is *g* exceeds the degree to which *y* is *g*. (Kennedy, 2005, p. 7)¹³

¹³Note that all gradable predicates, including comparatives “...map objects onto abstract representations of measurement (SCALES) formalized as sets of values (DEGREES) ordered along some dimension (HEIGHT, LENGTH, WEIGHT, etc.)” (Kennedy 2005: 2).

The forms *too X* and *X enough* express the surpassing of an upper limit on a desired range or the surpassing of a lower limit on a desired range, respectively.

The meanings of the negative forms of these constructs are fairly straightforward for *-er* and *enough*: *not...X-er* denies that the item in question surpasses the standard of comparison (and is, therefore, either equal to it or below it in the presence of the property in question); *not...enough* denies that the item in question has passed the lower limit into the desired range of a property.

However, for *too X*, the negative has two separate interpretations. When *too X* is accompanied by a complement, or one is understood from the context—"J is not too old to play Peter Pan"—or when the negation is denying a prior assertion—"J is too old; No, he's not too old"—the interpretation is one in which *not...too X* denies the surpassing of an upper limit on a desired range. However, when *not...too X* is not accompanied by a *to X* or *for X* complement expression, as in (26), the negative form is ambiguous. It often does not mean the denial of a surpassing of an upper limit, but is rather the equivalent of the negation of *very X*, with the resulting meaning "not very X."¹⁴

- (26) *T is not too bright.*
I don't have too many cards left.

The equative form, *as...as*, expresses that X reaches the same level as another entity Y along some scale. An important characteristic of the semantics of *as...as*, as for all scalar predicates (Gazdar, 1979; Horn, 2004; Levinson, 2000) is that it only asserts a lower limit (Horn, 1972), not an upper limit. Note, for example, that *as...as* is not equivalent to *the same...as* in (27) to (32). While in (27), the two appear more or less synonymous, this is not true for the others. In (28), (a) indicates that J is shorter than T, while (b) does not carry that implication. In (29), (a) suggests that J has just made it to T's height, while (b) is more likely to be a sarcastic quip that J and T are not the same height at all. A form like (30a) usually means that J is shorter than T, while (30b) means simply that the two are different heights (and J may be taller). And the forms in (31a) and (32a) are perfectly acceptable, while those in (31b) and (32b) are marginally acceptable, if acceptable at all.

¹⁴I am focusing primarily on internal negation, rather than external negation. Internal negation refers to the normal uses of negation, in which an expression is embedded under a negative term. External negation refers to negation that applies to the choice of expression; it questions the appropriateness of that expression over another. As examples, (iii) presents examples of internal negation, (iv) examples of external negation.

- (iii) a. Today's not a cold day. [i.e., it's warm]
 b. I don't have any sisters. [i.e., I have no female siblings]
 c. Bryn Terfel didn't sing last night. [i.e., no melodious sounds came from his mouth]
 d. This window isn't too big. [i.e., it's not very big]
- (iv) a. Today's not a **cold** day, it's freezing.
 b. I don't have **any** sisters; I have extra special sisters.
 c. Bryn Terfel didn't **sing** last night; he warbled like the angels.
 d. This window isn't **too** big; it fits the opening exactly.

- (27) a. *J is as tall as T.*
 b. *J is the same height as T.*
- (28) a. *J is almost as tall as T.*
 b. *J is almost the same height as T.*
- (29) a. *J is hardly as tall as T.*
 b. *J is hardly the same height as T.*
- (30) a. *J is not as tall as T.*
 b. *J is not the same height as T.*
- (31) a. *J is as tall as T, if not taller.*
 b. **? J is the same height as T, if not a greater height.*
- (32) a. *J is at least as tall as T.*
 b. **? J is at least the same height as T.*

The reason for this discrepancy is that *as...as* asserts meeting the lower limit of a range on a scale (Horn, 1972), with that lower limit specified by the standard of comparison ("T"). This implies a direction on the scale, going from the lower levels to the higher levels. The use of *as...as* conversationally implicates "not more than Y," but this implicature can be overridden, as in (31) and (32), or as in "I'm certainly/at least as old as you (if not older, in fact older...)" (Horn, 1972). I shall return to this below.

One final form that should be mentioned in relation to relative position on a scale is the interrogative use of *how*. *How X* ("How many do you want?" "How blue are his eyes?" "How deep is your love?") questions the relative position of an entity along some property or quantity—thus, asking where along a scale this particular item falls. Some noninterrogative uses also relate to the relative position on a scale, as in, *Let's see how many beads we have*, or *The inspector wants to know how clean the restaurant is*. This scalar use of *how*, questioning the relative placement of some item along the scale in question, stands alongside the intensifier use discussed in relation to (21) and (22) above.

Complexities Involved

Polysemy of Forms One notable aspect of these forms is that they frequently exemplify polysemous uses.¹⁵ Take, for example, *as*. In addition to its equative/degree marking use, *as* has a number of other meanings. Some of these uses are quite frequent, as exemplified by the written texts examined above: Out of 510 uses of *as* in the written texts, we find the following distribution of uses:

- as* = degree marker (discussed above): 5.3%
as = "like"/"same as": *as it is in Grade 5; as in Miami* [16.1%]

¹⁵They can also exemplify homonymic uses—e.g., *-er* of the comparative vs. agentive *-er*. But most of the uses discussed here are taken to be cases of polysemy, unless otherwise noted, so I will use the term *polysemy* throughout.

- as* = "categorized as": *he worked as a chef; regarded as prestigious; treated as a variable* [32.2%]
as = "according to": *as measured by, as explained by* [10.8%]
as = "during" or "because": *as he was leaving; as she had heard the news* [10.4%]

In addition, there are many idiomatic and semi-idiomatic uses, including *as well (as)* [8.2%]; *(such) as* [5.9%]; *as a result (of)* [1.8%]; *as a whole* [1.6%]; *as opposed to* [1.9%]; and, less frequently, *as much as + Number, as long as* [= "provided"], *as follows, as an example, as a consequence of, as compared to/with, as if, as such, as to/for* [= "about"], *insofar as, as of* [these latter uses about 5.9% all together].

Many of the other forms are similarly polysemous: e.g., *so* [intensifier (*so big*), "thus" (*it was dark, so she turned on the light*), place holder (*he did so*), etc.],¹⁶ *too* [affirmative *too big* versus negative *not too big*; (homonymic?) conjunction *too*; etc.], and *very*, mentioned above. (This is also true of some of the other relevant forms as well; e.g., *some*—see below.) It is not known to what extent such polysemy may affect acquisition. Do all children acquire the same meanings for a form in the same order (i.e., for the same submeanings first, second, etc.)? Does acquisition of one meaning deter the acquisition of another for the same form? Does polysemous use make the meaning of a form opaque? For example, is it harder for English-speaking children to learn the superlative meaning of *-est* than the comparative meaning of *-er* because of the polysemous use of *-est* for both the superlative and intensification? Is it harder for Spanish-speaking children to discover the comparative meaning of *más*—*más grande* 'bigger,' than it is for English-speaking children to discover the comparative meaning of *-er* because of the frequent polysemous use of *más* as an intensifier in constructs such as *¡Qué niño más grande!* 'What a big boy!'

Semantic Modification Given the semantic content of these forms, we can return to a consideration of those Deg forms that allow for multiple modification. It will be recalled that only *-er* and *too* can occur as Deg₂, allowing modification such as *so much bigger, a lot taller, way too tall*, and so forth. We can now relate this to the semantics of these forms: The two forms *-er* and *too* express the relative position of an item on some scale, either in relation to a standard of comparison (in the case of *-er*) or in relation to some desired range on a scale (in the case of *too*). The multiple modification allowed with them expresses the quantification of

¹⁶Out of 85 uses of *so* in the written texts discussed earlier, the following meanings were in evidence:

- so* = intensifier [23.5%]
so = "thus": *it was dark outside, so she entered the house* [28.2%]
so = "in order that": *he coughed so she would know he was there* [9.4%]
so = place holder: *do/did/done so; and so on; especially so; and so forth* [25.9%]
so = "also," "and": *...and so did she* [3.5%]
 and many idiomatic uses [about 9.4%], such as *so far* [= "up to now"], *or so* [= "more or less"/"something like that"], *so* = "in this way" ["so selected"], *so much/many X* [= "a certain amount/number of X"], *even so*.

the distance of the item being compared from that standard of comparison or the desired upper limit—*much taller, this much too tall*.

It is not surprising, perhaps, that multiple modification is not allowed, then, in cases in which other semantic notions do not involve such a comparison—as in the cases of those expressing INTENSIFICATION or EXTREME ENDS. However, there are some other forms that, like *-er* and *too*, express relative position on a scale, but that nevertheless do not allow expression of modification through multiple modifications. In particular, one cannot use multiple modification with *as* or with *enough*: **T is this much as tall as J*, **T is way tall enough for the part*, **T is as much tall enough for the part as J is*.

Another semantic anomaly concerns limitations on the choice of forms as Deg₁ - Q₁ modifiers that can occur with the two possible Deg₂ forms: While *-er* and *too* can both appear as Deg₂ with many forms (*much bigger, much too big; 5 feet bigger, 5 feet too big*), not all constructs are equally acceptable with *-er* and *too* as Deg₂ (*a lot bigger, *a lot too big, so much bigger, *so much too big*).

These anomalies can be seen as gaps in the system, insofar as not every Deg₂ element meeting the semantic requirements for multiple modification is acceptable within the adult system. How do such gaps affect the acquisition of these forms? Does the semantics of multiple modification guide syntactic development, or vice-versa (or is there an interaction of the two)? If semantics guides development, we might expect that when children first begin using multiple modification, they will use it for *-er* and *too*, but also overgeneralize it (only) to *as* and *enough* (*this (much) as big, so (much) big enough*). If syntax guides semantics, we might expect children to use multiple modification initially with Deg₂ - Q₂ forms that express wider notions than allowed semantically—producing, for example, *this (much) so big, so (much) biggest*.

Semantic/Cognitive Complexity? Finally, it appears that the semantic content of the forms in question can be ranked or compared in terms of the cognitive complexity that may be associated with understanding their full import.

Some forms—the intensifiers—express the presence of a property in one item. Others entail the assessment and comparison of the same property in two or more referents (*X-er, X-est* [in its full superlative meaning]). In terms of cumulative cognitive complexity, we can expect the latter types to be more complex than the former:

Intensification: Judge extent of A in X.

Comparative and Superlative: Judge extent of A in X and of A in Y, and compare those extents.

Still other forms (*too, enough*) demand the assessment of a property in some entity and a comparison of that extent to some desired range, whether that desired range is explicitly or implicitly specified. Again, in terms of cumulative cognitive complexity, we can expect these to be more complex than those expressing a simple specification of the extent of A in X:

Intensification: Judge extent of A in X.

Too and *enough*: Judge extent of A in X, and compare this with the limits on a desired range of that property A.

Finally, some of these expressions entail a direction of the range of a property on a scale. Thus, *-er*, *as*, *enough*, for example, express the assertion of meeting or surpassing some limit from below that limit. Their negation expresses that they have not met or have not surpassed that limit, again coming from the lower end of the scale upward. Thus, *J isn't taller than M* does not usually mean that J is shorter, just that he is either the same height or shorter; *J isn't as tall as M* does not usually mean that J might be taller than M, just usually that he is shorter; and so forth. Cognitively, the understanding of such forms, including the representation of a directional scale, is necessarily more complex than understanding forms that do not imply a direction on a scale and only specify whether a given point on a scale is met (e.g., *the same X*, *not the same X*).

Furthermore, these forms that involve an upward perspective on a scale generally carry the conversational implicature that a higher level on the scale does not apply. Thus, for example, *J is as tall as M* generally implies that J is not taller than M. This implicature is a default interpretation of scalar predicates and is not an absolute, as the implicature can be denied—*J is [at least] as tall as M; in fact, he's about a foot taller* (see Papafragou, 2003b; Papafragou & Musolino, 2003 for discussions). One can predict that the complex pragmatic signals that govern the licensing or denial of the implicature may demand cognitive abilities that go beyond the assertional aspects of these structures and will need to build on such understanding. As such, the child's facility with the pragmatics of implicature can be expected to be acquired after the semantic aspects of reference are in place.

Challenges for the Child These semantic aspects, like the syntactic aspects above, highlight some of the major challenges facing children acquiring the meanings of these constructs. These include:

- Many of the lexical items are polysemous: *very* (intensification, absolute, etc.), *-est* (superlative/extreme ends, intensification), *as*, *so*, *too X* vs. *not too X*, and so forth. How does the child discover the meanings associated with such forms, and does their polysemous nature affect acquisition?
- There are restrictions on semantic modification in multiple modification:
 - Only some Deg₂ meanings are modifiable through multiple modification—these have to do with relative position on a scale (*-er*, *too*); but not all forms expressing relative position on a scale can be modified in this way (e.g., *as*, *enough*, even *-est*). Do children attempt to express multiple modification for such forms?
 - While *-er* and *too* can both appear as Deg₂ with many Deg₁ - Q₁ forms, not all Deg - Q options are equally acceptable with *-er* and *too* as Deg₂. Again, do such gaps in the system pose significant challenges for children?

- Semantic/cognitive complexity:
 - While some forms entail the assessment of the presence of a property in one item (e.g., intensifiers—*very X, so X*), others entail the assessment and comparison of the same property in two or more referents (*X-er, X-est, as X as*).
 - Some forms (*too X, X enough*) entail the assessment of the presence of a property for some (often unexpressed) desired purpose, which entails a desired range of the property.
 - The proper use of some forms requires an understanding that their use implies a direction on the scale (e.g., *as X as, X enough*).
 - The proper interpretation of such forms further requires an understanding and control of the conversational implicatures associated with their use (i.e., understanding that a default interpretation implies that a stronger predicate on the same scale does not apply, but also that such an implicature can be modified—denied or asserted explicitly).¹⁷

Do these differences in semantic/cognitive complexity affect the development of these forms in children's speech—especially their order of acquisition and any immature uses?

As with the syntactic complexities, all of these semantic factors play roles in the development of these forms. While it is, again, impossible to address all of these questions thoroughly here, the data presented will provide some insights into possible answers.

SNAPSHOT OF ACQUISITION FROM PREVIOUS RESEARCH

A great deal of work has focused on children's acquisition of some aspects of these structures. Most prominent among these is work on the acquisition of the comparative and superlative and work on the acquisition of the mass/count distinction; some recent work has also begun to address the acquisition of conversational implicature. There are also some suggestions of how children develop the syntax of multiply modified constructs. I will briefly outline some of this background literature before turning to the data at hand.

Comparative, Superlative, and Related Forms

There is a considerable body of literature suggesting that children's very early uses of several of these forms, in particular *A-er, too A, A-est*, express simply "X" or "very X" (Carey, 1978b; Clark, 1970; Donaldson & Wales, 1970; Ehri, 1976;

¹⁷Even beyond this, children will have to learn the direction of the implications attached to scalar predicates, as they do not always involve upward inferences, but sometimes downward orientation, as, for example, with *barely* (Horn, 1997).

Gathercole, 1979b, 1983; Townsend, 1976). Some examples of such "absolute" or "intensive" uses from my own data are as in (33).

- (33) J 3;3 Put it **too close**. [requesting candy be moved closer]
- R 3;6 I'm **too high**, Daddy [standing on table to reach light switch, can barely reach; proud of how high she is]
- R 3;6 Don't make this **tighter**. It's **tighter!** [trying to open jar lid; finds she can't open it]
- MO 3;0 **Too many** ronis. [re: macaroni on his plate. MO then proceeds to eat all his macaroni and go get and eat another helping] (Gathercole, 1979b, p. 312).
- Saul 3;3.26 You can carry me 'cause you're **too heavy**.... [i.e., "you're very strong"] I'm little and you're heavy.
- Saul 4;3.15
- Saul: Sadie's sweet, and I'm sweeter than her, and you're sweeter than me, and Daddy's sweeter than you.
- M: Wow! I just thought we were all sweet.
- Saul: We are! Didn't you hear what I was saying? We're all **sweeter!**

At the same time, it is clear that these forms don't quite mean "X," "very X" for the child—at least their use is not limited to such meanings. In fact, their use appears to be based on either stored prototypical uses of these forms or stored haphazard examples (Gathercole, 1979b, 1983). This is because at the same time as children are using *X-er*, *X-est*, and *too X* for "(very) X," they also use the forms appropriately (see (34)), and for other uses that appear to have their source in the correct uses—e.g., using the comparative to compare two things that are alike or different (see (35)).

- (34) R 3;6
- R: Are you done?
- M: Mhm. I'm in the clean plate club.
- R: Then I eat slower. I'm little. You're **bigger than me**, right?
- J: 3;9 [carrying large coloring book:]
This is **too big for my pocket**, right? My pocket's for little things, right? My fireman's little. It's little for my pocket, right? My hand's little for my pocket, right? [fireman = 1½ in. peg doll]
- (35) R 3;6.14 [R comparing lengths of two sticks in picture—refers to the same two sticks with:]
shorter [vs.] longest; **longer** [vs.] **shorter**
- R: 3;6.29 [R asking to have crackers after supper; none in sight:]
Two big ones. Two **bigger** ones. Two big ones.
- R: 3;7.1 I don't get **better** gloves, but you do. [When asked further, R asserted that mine were better because they're black.]

I have argued (Gathercole, 1979b, 1983) that the range of usage for these forms arises through complexive extensions of the forms from the prototypical or stored examples of usage. That is, the child picks up early uses of these forms in appropriate contexts, but then extends their use to contexts that share only a subset of the characteristics of those appropriate contexts (Bowerman, 1978; Carey, 1978a).

The ability to use comparatives beyond absolute or intensive uses develops during the preschool years, and perhaps well into the school age years (Ehri & Ammon, 1974; Gobbo & Agnoli, 1985; Kallio, 1988). Their interpretation by young children is complicated by the child's developing understanding of the adjectives on which they are built. The fact that some adjectives themselves involve relative degrees of the presence of properties (*big, tall*, etc.), and that their application depends on the type of referent (cf. *big ant* vs. *big elephant*) (see, e.g., Kennedy 2005), as well as the fact that some adjectives refer to positive ends of scales (e.g., unmarked adjectives, like *big, tall*) while others to negative ends (e.g., marked adjectives like *little, short*) affect the relative ease with which the structures built on them are acquired (Ehri & Ammon, 1974; Gobbo & Agnoli, 1985; Nelson & Benedict, 1974; Ryalls, 2000; Syrett, Bradley, Kennedy, & Lidz, 2005).

Among the relevant research is work suggesting a strong link between the development of linguistic forms like the comparative and the development of cognitive skills such as seriation and conservation (e.g., Ehri, 1976; Shaffer & Ehri, 1980). Given the semantic notions encoded through the structures of interest here, we might predict that we will find similar links between linguistic and cognitive development with even a broader range of these structures.

Acquisition of More and Less

A great deal of research has also focused on the acquisition of just the two words *more* and *less* (see review in Gathercole, 1979a). It is clear that children's understanding and usage of these words develop over a long stretch of time before all of the meanings and uses are incorporated into children's linguistic system. The initial uses of *more*, in the one- and two-word periods, tend to be for "recurrence" [*more bottle, more tickle*, etc.] (Bloom, 1970, 1973). Children's understanding of *more* as referring to the greater of two amounts begins to take hold around 3½ years of age, and may go through a period in which *more* means "additional amount" in the same referent (Gitterman & Johnston, 1983; Hudson, Guthrie, & Santilli, 1982). But children's full appreciation that *more* can refer to the greater of two distinct amounts, and to a difference *either* in mass or in number does not develop fully until around 5 years of age (Gathercole, 1985b, 1986) or later (e.g., Arendasy, Sommer, Ponocny, 2005) (see example of the conflict this can pose for children in (36)). Children's understanding of *less* appears to come in only after they have gained a relatively full understanding of *more* (around age 4½ to 5 years) and can appreciate the relationship between *more* and *less* (Carey, 1978b; Gathercole, 1979a; Gordon, 1978).

(36) Saul 4;11.12

- S: You have 10 fingers and I have 10.
 M: So who has more?
 S: You.
 M: I have more?
 S: Yes, because yours are bigger. I mean just look at them!

Children's use of *more* as a marker for comparative forms of adjectives (*more interesting*, *more difficult*) also takes a long time to develop. Children's abilities with this use of *more* appear to come in at around 4½ years of age, long after extensive use of the *-er* marking for comparatives (Gathercole, 1985b). It is also at about this age that children begin using extensive double marking on adjectives ("more bigger"), suggesting that they have brought the two modifiers together semantically and/or syntactically—they have come to "bump up against each other's territories," in Bowerman's sense (1978, p. 391).

Mass and Count

The development of the linguistic mass–count distinction has also been the subject of extensive research (e.g., Gathercole, 1985a, 1986; Gordon, 1982; Soja, Carey, & Spelke, 1991). There is a wide range of constructs that participate in the mass–count distinction in English (e.g., *a/some*, categorization of nouns into one group or another, *much/many*, *more* for comparative of *much* vs. for comparative of *many*). Children's development across these forms again appears to be protracted and to come in piece by piece. Thus, children learn early that *a X* refers to a (single) object, while *some X* refers to a substance (Gathercole, Cramer, Somerville, & Jansen op de Haar, 1995; Soja, 1992; Soja et al., 1991). Children learn early that some nouns can be quantified by numbers, while others cannot (Gordon, 1982, 1988; see Bloom, 1994; Carey, 1994 for discussion). But children take a very long time to sort out where *much* has to be used and where *many* is used (Gathercole, 1985a, 1986). We will see below that this may have to do in part with the distinct developmental trajectories for *much* and *many*.

Qs and Numbers

There is a considerable body of research on children's understanding of quantifiers, especially in relation to universal quantification (*all*, *every*, *each*), but also *some*, *many*, *most*, and to the scope of operators, beginning with work by Donaldson and colleagues in the 1970s (e.g., Donaldson & McGarrigle, 1973) and continuing through to the present (see reviews in Brooks, Braine, Jia, & Dias, 2001; Drozd, 2001). Without going into details of this work, it is worth noting here that the quantifiers themselves and their semantic interpretations are fraught with complexities (e.g., Horn, 1997, 2000 for the interpretation of *all*, *some*, *every*, and *any*) and that the interpretation of quantifiers is highly influenced at young ages by contextual

factors, including nonlinguistic factors (Brooks, Braine, Jia, & Dias 2001; Drozd 1996), linguistic factors (Brooks et al., 2001; Philip, 1995; Takahashi, 1991), and pragmatic factors (Brinkman, Drozd, & Krämer 1996; Crain et al., 1996). Furthermore, their semantics is developing co-temporaneously with the development of number concepts, which may be related (see debate in Bloom & Wynn, 1997; Briars & Siegler, 1984; Carey, 2001, 2004; Cordes & Gelman, 2005; Fuson, 1988; Gelman & Butterworth, 2005; Hurewitz, Papafragou, Gleitman, & Gelman, 2006; Mix, Huttenlocher, & Levine, 2002; Pollmann, 2003; Rips, Asmuth, & Bloomfield, 2006; Sarnecka & Gelman, 2004).

Apart from this possible relationship, the conceptual underpinnings of numbers and their acquisition may be relevant to the structures examined here, and to their acquisition. Of note is the set of concepts that Gelman and colleagues (e.g., Gelman, 1978; Gelman & Gallistel, 1978; Gelman, Meck, & Merkin, 1986; Greeno, Riley, & Gelman, 1984) have proposed are essential to the understanding of number. They have outlined five distinct principles:

1. *One-to-One Principle*: Each item in an array receives one and only one "tick." This involves *partitioning*, grouping the items into those that have been counted and those that have not, and *tagging*, assigning distinct tags to the items that have been ticked.
2. *Stable-Ordering Principle*: The tags assigned to items in an array are produced in a stable, repeatable order.
3. *Cardinal Principle*: The final tag assigned has special significance—it labels the quantity of the array.
4. *Abstraction Principle*: Any type of items can be counted.
5. *Order-Irrelevance Principle*: It does not matter which order items are counted in; one will still end up with the same cardinal number.

These principles are relevant in that they indicate—especially Principles 2 and 3—that central to the acquisition of number is the understanding that numbers lie along and represent distinct points on a scale. The timing of the acquisition of these principles is also relevant: Gelman argues that children observe the first three principles, at least with small numbers (up to three), by age 3 (Gelman, 1978, p. 235), and with sets up to size seven by age 5 (Gelman, 1978, p. 233; see also Gelman, 1993). Understanding of number is not complete, however, by age 5; it continues to develop beyond these ages (Gelman, 1978, p. 239; Skwarchuk & Anglin, 2002; Sophian & McCorgay, 1994).

As scalar predicates involve "domains that are partially ordered according to some property that permits grading" (Matushansky, 2002, p. 244), the conceptual basis underpinning Gelman's Principles 2 and 3 is also relevant to scalar predicates. To what extent do the development of numbers and (other) scalar predicates go hand in hand? The data below will suggest that children's understanding of the scalarity of predicates may be facilitated through their understanding of number. (See Carey (2001, 2004) for a somewhat different perspective.)

Scalarity and Conversational Implicature

A number of studies have also begun examining children's understanding of conversational implicatures associated with scalar predicates. Several studies have reported that preschoolers and school-age children are insensitive to such conversational implicatures. That is, children do not infer from the use of a scalar predicate lower on a scale (e.g., *some*) that a predicate higher on the scale (*all*) does not apply. For example, Noveck (2001) found that children aged 7 to 9 treated *might* as compatible with *must*, and children aged 8 to 10 treated *some* as compatible with *all*; Hurewitz, Papafragou, Gleitman, and Gelman (2006) and Papafragou and Musolino (2003) found that 3-, 4-, and 5-year-olds interpreted *some* as meaning "at least some, possibly all" (Hurewitz et al. 2006, p. 88); Papafragou (2003b) and Papafragou and Musolino (2003) found that Greek 5-year-olds failed to interpret the words for 'begin,' 'start,' and 'half' as implicating 'not finish' and 'not all'; Papafragou and Schwarz (2006) report similar findings for 4-, 7-, and 10-year-old children's interpretation of *most*.¹⁸ (See also Chierchia, Crain, Guasti, Gualmini, & Meroni, 2001; Gualmini, Crain, Meroni, Chierchia, & Guasti, 2001; Lidz & Musolino, 2002.)

However, there are some qualifications to this insensitivity. First, it depends on the predicate involved. Papafragou (2003a, 2003b), Papafragou and Musolino (2003), and Papafragou and Schwarz (2006) report that 5-year-olds were more successful in interpreting *half*, *two*, and *three* as implicating "not all" than in interpreting *begin*, *start* as "not finish" and than treating *most* as "not all." (These researchers have argued that there may be some difference in implicature interpretations for numbers (or their vagueness) in comparison with other types of scalar predicates at these ages.) In addition, contextual factors influence interpretations (Musolino, 2004; Papafragou, 2003a, 2003b, 2006; Papafragou & Musolino, 2003, Papafragou & Tantalou, 2004).

It may be of significance that many of these studies involve the quantifier *some*, in its use in contrast to *all*. One important aspect of *some* is that it is polysemous: The quantifier *some*, as in (37), is different from the determiner *some*, as in (38) (Lyons, 1977).

- (37) A: *Did all your family go to the party?*
B: *Well, some went.*

- (38) A: *Who came to the door?*
B: *Some children selling chocolate bars.*

In the first, *some* the quantifier lies on a scale with *all* at the extreme end. This quantifier *some* is often used in a partitive construction: *some of my family went*. As a scalar form, this quantifier *some* conversationally implicates "not all." In the second case, *some* acts as the plural equivalent of singular *a*—*a child came selling chocolate bars*. This *some* is not the quantifier but an indefinite determiner. This

¹⁸These authors note, importantly, that their youngest group, 4-year-olds, had not yet acquired the semantics of the two quantifiers studied, *half* and *most*.

some does not usually occur in a partitive constructions. Critically, determiner *some* does not carry any conversational implicature about set size.

Most of the studies examining children's interpretation of implicatures with *some* have assumed that children are treating *some* as the quantifier *some*. However, they may have been interpreting it as determiner *some*, which is perfectly compatible with an "all" reading. This polysemy of *some* raises questions regarding the interpretation of results concerning children's understanding of conversational implicature. Are we sure that children know the (relevant) meanings of the forms tested? What evidence is there regarding children's acquisition of conversational implicature in the case of forms whose semantic content we know that children understand? The data below suggest that the acquisition of scalar predicates and their conversational implicature entails several distinct components of development—acquiring the semantics of the form, placement of the form on the appropriate scale with competing terms, and viewing the scale in the proper (upward) direction. I will argue that these all must be in place before the conversational implicatures can be understood.

Multiple Modification

Not much is known about how children develop the whole system of degree-marking elements, including multiple modification. In an initial examination of this issue, I analyzed data from 12 children who were observed in groups of four children of the same age on four occasions (Gathercole, 1979b, CHILDES data bank). From this cross-section of data, it appeared that children seem initially to use a given Deg either only with A or only with or as Q, not both. It is only with time that children learn to extend the use of each Deg to use with the other form (Gathercole, 1979b).

The data from this cross-section of children revealed the following pattern:

- a. Initially (around 3 to 4½ years of age), the Degr were restricted as follows:
very, so, how, as/ ___ A
more, this, that, enough, much, most/ with or as Q
- b. At an intermediate age (around 4½ to 5½), children began associating forms initially restricted to use with As to use with Qs: *very, so, how/* ___ Q
- c. At a still more advanced age (around 5½ to 6½), forms initially restricted to use with or as Qs migrated to use with As: *more, this, that, enough, much/* ___ A

However, it should be noted that the numbers of occurrences of these forms overall were small, so any conclusions drawn from that initial set of data had to be tentative. But we will see parallel developments in the data below.

What We Do Not Know

Beyond these, there is little known about a number of issues related to the acquisition of these forms:

- Beyond the study mentioned above, little is known about the acquisition of multiple modification.
- Little is known about the development *within* each structure. How do uses of each form—*very, too, as, than, more, many, etc.*—change with time and experience?
- Little is known about how development *across* the whole range of structures evolves. How do the developments of *as...as, -er...than, X enough, too X* interact?
- Not much is known about individual differences in the acquisition of these forms across children.
- Further work is needed regarding the acquisition of language versus the acquisition of cognitive understanding.
- Very little is known still about children's understanding of scalar predicates, such as *as...as, too X, X enough*, especially in relation to the understanding that they involve the assertion of meeting a lower limit and viewing the scale from below upward.

The research reported here was conducted with the hope of helping to answer some of these open questions. In particular, the data can provide further insight into the developments of individual lexical structures; into the development of links between structures and of the whole linguistic system; into the influences of cognitive, semantic, and syntactic aspects on the course of acquisition; and into the range of individual differences and range of commonalities in the acquisition of these structures.

METHOD

The data reported here come primarily from two children—my daughter, Rachel, and her daughter, Sadie. These data are supplemented, where appropriate, with data from my son, Jaime, and Rachel's son, Saul, and with occasional data from other children. The data from my own and Rachel's children consist primarily of error¹⁹ and nonerror data collected by myself, for both Rachel and Sadie (and Jaime and Saul), and by Rachel, for Sadie (and Saul).

¹⁹Please note: The term *error* is used here to refer to uses by children that deviate from the adult norm. I do not mean to imply that these forms are "errors" in any sense with regard to the child's own developing system, nor that the "errors" constitute a regression or lapse on the child's part. Indeed, as we will see, the "errors" are usually indicative of children's linguistic advances (see, e.g., Bowerman 1982).

For the data from Rachel (and Jaime), any errors uttered, regardless of type of error (i.e., even outside the structures of interest here), were collected, by writing down the utterances and as much of the conversational exchange as possible immediately following the utterance. Because utterances containing errors in one realm include correct forms in another, the data include both correct and incorrect utterances involving the structures of interest here. For data from Sadie (and Saul), both errors and correct uses of the structures of interest here were targeted, similarly by writing down the utterances and as much of the conversational exchange as possible immediately following the utterances. In the case of Sadie (as well as Saul), Rachel spent virtually 24 hours a day, 7 days a week with her, so the data can be considered extremely representative.

The data reported here span primarily the ages from birth until 4;0 for Sadie and from 1;0 to 6;00 for Rachel. The data from Sadie and Rachel will first be laid out separately. This will be followed by a summary of the shared aspects of development in the two children and the differences between them.

The immediate goals in the examination of the data from these children were the following:

1. To trace each child's development of the full range of structures of interest here.
2. To uncover commonalities and differences across the development of the structures and across the children.
3. To examine how and if children develop a full system. What are the roles of form, of semantic content, of cognitive underpinnings, of syntactic complexity?

In all of what follows, key criteria for judging the child's knowledge of the structures in question involved (1) the order and timing of emergence of forms, (2) the contexts of utterances, (3) the nature of errors, and (4) gaps or missed opportunities in the child's interpretation of others' uses of forms or in their own use of forms available in their own repertoire.

The data are then examined in the Discussion with regard to the larger questions posed at the outset:

- To what extent do children approach these structures on the basis of broad syntactic categories and structures? That is, does knowledge of syntactic structure guide children's acquisition of these forms, or do the syntactic structures emerge out of the children's experience with the forms?
- Are the developments in the syntactic and semantic (and cognitive) realms autonomous, or do developments in one area influence developments in another?
- Do children follow a common trajectory in the development of these systems, or is the developmental path followed idiosyncratic and distinct across children?
- Does language lead cognitive development, cognitive development lead language, or a mixture of these two?

SADIE

The data from Sadie are taken from approximately 900 utterances and exchanges containing relevant forms between birth and 4;0. The examination of the data will focus on three major types of developments: developments with adjectives, developments with quantifiers, and developments with phrases and their elaboration in multiple modification.

Earliest Ages: By 1;7.6

By the age of 1;7, Sadie had 176 words, and she was beginning to produce two-word utterances. By this time, her vocabulary included the following adjectives and quantifiers (exhaustive list):

Adjectives

stinky
naked [in relation to self, when she had diaper off]
heavy
yucky
wet
tired
ready

Quantifiers

more [when requesting more of something]
first
two [Note: up until 1;8, used for anything more than one—“lots,” plural?]

Earliest Ages: 1;7–3;0

In the following period, Sadie's development was as follows:

Adjectives Sadie begins to use modifiers of adjectives during this period:

Ages 1;8–2;2: INTENSIFICATION Her earliest modification of adjectives consists of the use of *so*, *very*, *quite*, *all*, *really*, and reduplication of *very* and *really*, all used to express INTENSIFICATION (see Table 11.1A). In addition to these forms, she uses *-er* once, in *later* (reminiscent of the *later* frequently used by Abe's parents, above), and *too* A several times, in apparently appropriate contexts (see Table 11.1B). Later misuses of *too* X, however, suggest perhaps that these earliest uses (“too big,” “too tired”) are “rote learned” or prototypical uses learned in context, as suggested in Gathercole (1983).

Ages 2;4–3;0: Later Modification for INTENSIFICATION By 2;4, Sadie continues to express INTENSIFICATION through these early means. She also begins adding other intensifying modifiers to her repertoire, such as *way*, *freezing*, *heck-out*, and,

notably, *how*. The use of these forms goes beyond acceptable use in adult speech, as in "heck-out dirty water," "freezing tired" (see Table 11.1C).

At this same time, she also begins to generalize the use of reduplication for intensification beyond *very* and *really* to adjectives themselves, to verbs, and to adverbials, as in "this large, large thing," "waiting and waiting and waiting and waiting and waiting." "I've been waiting for a while and a while." Further, she also begins using other lexical forms expressing intensification, such as *love*, *full*, and *like crazy* (see Table 11.1C).

The expansion of intensification beyond adult usage in these multiple ways suggests that Sadie has discovered that INTENSIFICATION is a notion that can be expressed, and she draws on multiple sources in the input to be able to express this notion.

Ages 2;3-2;6: EXTREME ENDS: At this same time, Sadie begins to use multiple lexical forms to express extreme ends. These include *favorite*, *first*, *last*, *best* (see Table 11.1D).

Ages 2;4-2;6: LIKE: Similarly, during this time, Sadie begins to use lexical forms to express "likeness." These include *same*, *match*, *like*, as well as *this A* ("this big"—"big like this"), as in Table 11.1D.

Ages: 2;4-3;0: Comparative Forms -er and than: At this age, Sadie also begins using the modifier *-er* as well as the standard marker *than*, as shown in Tables 11.1E and 11.1F. Some of the uses of these forms appear appropriate semantically, but some are clearly inappropriate. For example, at 2;5.10, in reference to sockets in the wall, Sadie says that she herself is "...very little **than** these. [R: What's very little than those?] Me! I'm very little **than** these"; she appears to mean "little like these." She does not appear to respect the link between *-er* and *than*, as the latter appears often with simple adjective forms or forms with other modifiers—"very little than," "so fast than," "perfect than." At least sometimes, *than* in such forms appears to mean "like" (see also Gathercole, 1979b, 1983). The emergence of these comparative forms (*-er* and *than*), and their use for likeness/comparisons at the same time as the emergence of lexical forms to mean "like" (*same*, *match*, etc.) suggests that their use coincides with a discovery of the fact that LIKENESS can be encoded semantically.

Quantifiers

Ages 1;8-2;2: By 2;2, Sadie uses a number of quantifiers, *a lot*, *a little bit*, in addition to the earlier *first*, *two*, *more*. See Table 11.2A.

Q Modification: X + more: The very earliest instances of any type of Q modification occur with *more*, beginning around 1;11: *a lot more*, *a little bit more*, *no more*, *any more*. Note that these are all appropriate in form (see Table 11.2B).

Ages 2;2-2;6: At a slightly later age (about 2;4), Sadie begins using *all* and *a few*, in addition to the earlier Qs (see Table 11.2C). Note that the earliest use of *few* does not respect mass/count co-occurrence restrictions: "That's a few toilet paper." (2;4.22)

TABLE 11.1 Adjectives Sadie 1;7-3;0

Table 11.1A Early Adjective Modification—INTENSIFICATION

so

- S: **So funny!**
 M: What's so funny?
 S: That box. 1;11.29

very

- F: Don't touch that. [re: something hot in kitchen]
 S: Hot.
 F: Yes, it's hot.
 S: **Very hot.**
 F: Yes.
 S: **Very very hot.** 1;8.14

Very very very hot. [re: pancakes] 1;8.15

Very very heavy. [S trying to pick up phone book. Can't pick it up.] 1;9.10

Put it [re: cup] on your big hand. I'm gonna put Kaysie's cup on **my very big little hand.** 2;1.17

quite

It's **quite hurting.** [describing a hurt she has] 2;1.27

all

All clean! [during bath] 1;9.22

Reduplication of *very, really*

That hurts **very very hurting.** 2;1.9

- M: Do you like wrestling?
 S: Yes. But it hurts me **very very very bad.**
 M: Then why do you like it?
 S: Because right now! 2;1.12

I like to eat **really really really really really spicy** sausage! 2;1.28

Table 11.1B Early Adjective Modification, Beyond INTENSIFICATION

-er

- S: Can I eat this?
 M: No.
 S: Can I eat it **later?** 2;0.1

too

Too big. [re: something that doesn't fit] 1;9.13

Saul: Hey, Sadie, do you want a bite of ice cream?

Sadie: No thanks. I'm **too tired** to bite ice cream. 2;0.17

I'm **too tired** to play cups. 2;0.29

Table 11.1C Later Expressions of INTENSIFICATION

Continued use of above forms

I closed it. It's **very hard** to open. [re: a book that snaps shut with a snap] 2;5.6

Very scary. 2;5.10

Toasted bagels are **so good!** 2;5.15

That pencil you're sharpening is **so small!** 2;5.15

I was **very fast.** [re: her running] I got **so fast** than Saul! 2;6.4

I'm **all filthed** with milk. (i.e., dirty with spilled milk—"all filthy") 2;9.18

Table 11.1C (continued) Later Expressions of INTENSIFICATION**Additional modifiers for INTENSIFICATION**

The cows are **way far** than me. [i.e., far away from me] 2;4.29

S: I'm gonna be a **great big grown-up!**

M: When?

S: When I turn six! 2;5.12

They kept going and going and going until they were **freezing tired**. [i.e., as in "freezing cold"] 3;0.11

That is **heck-out dirty** water! 2;9.18

Look **how tall** I am! [Sad standing on an upside-down bowl] 2;5.15

I want you to watch me **how fast** I can go! I **jump and jump how fast** I can go! 2;6.5

Reduplication of very, really and beyond

Look! Big! [re: a French fry] **Very very long!** 2;4.26

Saul **waited and waited and waited** for bagels! And I was hungry. And Daddy bought bagels for us! **Two** bagels. [F had bought two bags of six bagels.] And **more and more and more bagels**.

They might be **really really yummy**. They smell yummy. 2;5.3

I've been **waiting and waiting and waiting and waiting and waiting** to read this book for a while!

I've been waiting **for a while and a while!** 2;4.10

Look at **this large, large thing**. [re: a one inch by one inch piece of onion in her soup] 2;4.24

Hey, Saul! Look! A **little tiny** baby pencil! [re: a colored pencil that has been worn down because of use] 2;4.25

I do this **every every** time. [re: roll the toilet paper a certain way] Why do you do that **every every** time? [re: M rinsing her mouth every time she brushes her teeth] 2;4.26

[Sad has been waiting for F to get up and read her books. Sad sees F:] Oh! I was **asking and asking** to read those books for a while! 2;5.4

S: Did you hear that noise?

M: Yep, I sure did.

S: Do you want to **hear it and hear it and hear it** again? 2;5.6

They kept **going and going and going** until they were freezing tired. [i.e., as in "freezing cold"] 3;0.11

Other INTENSIFICATION

I'm going to make you a beautiful castle. Do you **love** castles? 2;5.12

Look at my rocks **full** of the net. [carrying fishing net full of pebbles] [Said several times.] [i.e., "my net full of rocks"] 2;6.9

M: Sadie, you're taking the cake! [i.e., getting lots of pairs in Memory game]

S: Yeah! Actually, it's cards.

[later:]

S: I think I'm going to **clean up the cake!** [i.e., win all the pairs in Memory] 2;10.5

Achoo! Whew! I blessed **like crazy!** [i.e., "I sneezed ..."] 3;0.14*

[*Note: Sadie used *bless* often to mean "sneeze." Note that this means that she has interpreted "bless you" as involving "you" as the post-verbal (!) subject.]

Table 11.1D Other Notions Expressed**EXTREME ENDS**

This is my **favorite** song! 2;3.6

[Sad is taking pieces of toilet paper off roll]

M: No more toilet paper.

S: One more **last**, please? 2;4.20

M: Do you want me to help you write more sentences?

S: Yeah. I want to erase it **first**. 2;4.17

M: I'm going to make you a taco salad.

S: A taco salad! Mmm! That's my **best!** I want a taco salad! 2;4.19

Table 11.1D (continued) Other Notions Expressed

My **favorite** candy is tic tacs. 2;5.19

M: Put away the balloons now, please.

S: I want one **last**.

M: Nope, no more.

S: Okay. 2;5.28

I have one **last** of this. I want you to have it. 2;6.4

LIKE

S: Can I do the napkins?

M: Yes. Pick three that are the same as each other.

S: [Sad holding up two:] Are these **sames**? 2;4.2

These are **same**! [re: a racket and its reflection in the glass door] 2;4.24

I'm a kitty and a dog **same** times. [i.e., at the same time] 2;4.26

[M has given Sad more water in her cup than usual.]

S: What full water!

M: Are you saying that because there's so much in the cup?

S: Yeah. I almost got two cups...at the **same** time!

M: Two cups in one cup? 2;5.9

S: I want to hear "So-so," Mommy.

M: You want to hear "So-so"?

S: It's a CD song **like** I once heard.

M: I'm sorry, I don't know what song it is.

S: It's a CD song. 2;4.25

S: Will you read me this book?

M: That book is scary.

S: Oh. Is it Daddy's?

M: No, it's for kids, but it's for big kids.

S: For not my **matching** baby? Big little **matching** baby? Very scary.
[appears to mean "not for a baby like me, a big little baby like me?"] 2;5.10

S: They have "Green Eggs and Ham" **like** we have "Green Eggs and Ham"! [re: the book] We **match**!

M: You and Andrea?

S: You and Andrea. [re: Andrea is the mother of some friends of Saul and Sadie's] 2;5.14

I want a piece of cheese. **This** big of cheese! [showing M with her fingers] 2;5.16

Table 11.1E Use of Comparative Form *-er*

I don't like peanut butter on top of my jelly, but I like jelly **better** than peanut butter. 2;4.13

S: Can I have some of yours? [re: fruit leather; Sad and M each have a fruit leather of different flavors]

M: Some of mine?

S: It's even **better**. [i.e., even better than mine] 2;4.25

I'm gonna go it **faster** than I can go **it faster**! Because I can go **it faster**! [making rocking horse go faster—means "I'm gonna make it go really fast like I can make it go fast"?] 2;6.4

Table 11.1F Standard Marker *than*

I don't like peanut butter on top of my jelly, but I like jelly better **than** peanut butter. 2;4.13

The cows are way far **than** me. [i.e., far away from me] 2;4.29

Table 11.1F (continued) Standard Marker *than*

S:	...very little than these.
M:	What's very little than those?
S:	Me! I'm very little than these.
	[re: sockets in the wall—appears to mean "I'm very little like these"] 2;5.10
	This is more lighty than the kitchen's more lighty. [i.e., brighter] 2;5.20
	I was very fast. [re: her running] I got so fast than Saul! [means "faster than Saul"? "very fast like Saul"?] 2;6.4
	I'm gonna go it faster than I can go it faster! Because I can go it faster! [making rocking horse go faster—means "I'm gonna make it go really fast like I can make it go fast"?] 2;6.4
M:	The one in your hand is perfect. Use that one. [re: spatula in S's hand]
S:	But that's perfect than this one. ["that"=a different spatula—it's "more perfect" than the first?] 2;9.23

Q Modification: Q + Q: In this period, starting around 2;3, Sadie extends modification of *more* to not only the appropriately formed "a lot more," "a little bit more," "no more," and "any more," but also to "yes more," "one more," and "some more."²⁰ She also begins other (inappropriately formed) Q + Q combinations, "a little bit some," "a lot of three" (see Tables 11.2D and 11.2E).

Q Modification: Deg + much: At precisely the same time (2;3), Sadie begins using the quantifier *much*, always occurring with some Deg modifier—*very much*, *how much*, *so much* (and at least once, *a much*); see Table 11.2E. Note that these are the first uses of *very*, *so*, *how* in relation to a quantifier; these were previously restricted to use with adjectives. Since these early uses of *much* always occur with Degr that largely carry the same semantic import of INTENSIFICATION as they had already expressed with adjectives, these structures may serve to "invite" the child to broaden the structural options within these constructs, bringing Degrs previously linked only with As into Q expressions. (Note also that this step in development is consistent with step (b) discussed in the introduction in relation to the data from the cross-section of children in Gathercole (1979b).)

Q+A/Deg: Around 2;5 or 2;6, slightly (about two months) after the introduction of new quantifiers modifying *more*, of some Q + Q forms, and of some Degrs linked with *much*, Sadie starts using some Qs, previously occurring as isolated Qs, as modifiers in adjectival constructions, and as modifiers of Degrs in other (verb) constructions: "a-little-bit-loose diaper," "all that fast," "a lot salty pretzels," "some-what better," "a lot similar," "a lot so love you" (see Table 11.2F). (Again note that this is parallel to the sequence observed in Gathercole (1979b).)

²⁰Rachel, at a similar age, similarly made a connection between *no* and *yes* in adjective modification:

- (v) R: That's **no good**.
 M: That's no good?
 R: That's **yes good**.
 [R pointing to light in study—changed her mind.] 2;8.5

TABLE 11.2 Quantifiers Sadie 1;7-3;0

1;7 - 2;2

Table 11.2A Early Uses of Qs

*more***more** cheese [requesting more] 1;9.22**more. more** water. [wanting M to turn water back on so she can get more water on her toothbrush] 1;9.28

M: I will read these books to you.

Sadie: Read myself.

[S sits down with books to read through herself.]

[S telling story to herself.]

S: Winnie plays ball. Winnie wakes up. Annie wakes up. Winnie's happy. Annie... Mommy... Daddy fell. Uh-oh! Annie let her out. Mommy, Annie, Daddy... Winnie barks **more**. Barks **a lot more**. Winnie plays ball. Hu-Dokey ate it. ["Hu-Dokey" = "Hunky Dorey"] Winnie barks **more** 1;11.28(I want) **more** of your cereals! 2;1.5I want **more** eggs. I want **more** big eggs. [i.e., I want another big bite of eggs] 2;1.14I want **more** bite. I want **more** bites of your eggs. Give me some bites. I'm gonna feed me bites. [=I'm going to feed myself bites] 2;1.14*a lot (of)*

Saul: What is Sadie doing [re: with the toilet paper] ?

Sadie: Wiping myself!

Sadie: **A lot!** [admiring the toilet paper she has put in the toilet] 2;0.6

Saul: What do you want, Sadie?

Sadie: I want a bananas. I want bananas.

Saul: How many?

Sadie: Just one two three four five!

[Saul gives Sadie bananas]:

Saul: What do you want now, Sadie?

Sadie: Maybe **a lot** of prunes! 2;1.16Feed me **a lot** of bites. [M feeds Sad a tiny bite of cereal.] No! Not that little. 2;1.23*a little bit (of)*Can I drink **this a little bit** of milk? [i.e., this (a little bit of milk)] 2;2.4Table 11.2B Modification of Q *more*[S telling story to herself.] Winnie plays ball. Winnie wakes up. Annie wakes up. Winnie's happy. Annie... Mommy... Daddy fell. Uh-oh! Annie let her out. Mommy, Annie, Daddy... Winnie barks **more**. Barks **a lot more**. Winnie plays ball. Hu-Dokey ate it. ["Hu-Dokey" = "Hunky Dorey"] Winnie barks **more** 1;11.28

S: 'Nother one.

M: No.

S: **No more pieces?** 2;0.6

M: Can I have the rest of your cereal or are you going to eat it?

S: Mommy's eating it. I'm drinking your milk. Mmm! That's good milk. You try it.

[M drinks some.]

S: It's all gone?

M: No.

S: There's **a little bit more?** 2;1.5I cannot wear these **any more**. 2;1.21I'm gonna not bite you **any more**. 2;1.28

TABLE 11.2 (continued) Quantifiers Sadie 1;7-3;0

2;2-2;6

Table 11.2C Later Uses of Qs***a lot (of)***I ate **a lot** of crackers! 2;3.22There's a squirrel! In some leaves! **A lot** of leaves! 2;4.15

M: Do you want to make another one? [re: S's on paper]

S: Yeah. **A lot** of them! 2;4.17

[Sad carrying pile of books:]

S: Would you read me these books?

F: I'll read one or two of them.

S: No, would you read **a lot** of them! Read **all** of them! 2;4.17***all (of)***

[Sad carrying pile of books:]

S: Would you read me these books?

F: I'll read one or two of them.

S: No, would you read a lot of them! Read **all** of them! 2;4.17***a few***

M: Uh-oh, there's no toilet paper left.

S: [Sad pointing to almost empty roll:] That's **a few** toilet paper....There's other toilet paper in the other bathroom.

M: Let's go get some of that.

S: So it doesn't keep wasting. 2;4.22

Table 11.2D Modification of *more*I want **yes more** baguette. I want **yes more** cheese! I forgot I already **had** baguette! 2;3.7Some are fixed and some are broken. [re: bubbles to pop in bubble wrap] Let me see **some more** bubbles 2;4.11

[Sadie is taking pieces of toilet paper off roll]

M: No more toilet paper.

S: **One more** last, please? 2;4.20

M: That's the last one (re: piece of silverware to put in the dishwasher)

S: Is there **no more**?

M: Yes, there's no more.

S: [Sadie pointing to empty detergent container/receptacle in dishwasher:] There's **no more**. 2;4.17I want water! [i.e., to drink] [Sadie holding up almost empty water jug:] Is there **no more** water? 2;4.17[Sadie has just eaten sliced-up pieces of kiwi] Zach, is there **any more** kiwi? 2;4.17I don't want **any more** deviled eggs. 2;5.6

S: Daddy's not sleeping!

M: No, he's not, is he?

S: Did Daddy sleep?

M: Yes.

S: Did Saul sleep?

M: Yes.

S: Did I sleep?

M: Yep.

S: Did not anybody slept **any more**? [i.e., is nobody still asleep?]

M: Everybody's awake!

[re: In morning, when Sad awoke to discover F and Saul awake in the living room. She is confused as to whether anybody has slept, and whether everyone is now awake.] 2;5.8

Table 11.2D (continued) Modification of *more*

There is **no more** bag of cups! 2;5.14

No more room. [re: paper with stickers] **No more** room. **Yes more** room. [deciding there's room after all] 2;6.9

Table 11.2E Other Q Modification**Q modifying Q**

Sadie: May I share-chair-io, Saul? [i.e., may I share your chair--with hi-ho the dairy-oh song]

Saul: Sure.

Sadie: Can I draw?

Saul: Yes, at your drawing station.

Sadie: All right. I'm gonna be back soon to share-chair-io.

Saul: Okay.

Sadie: May I borrow a pencil, Saul?

Saul: Sure.

Sadie: Okay. I'm gonna borrow two pencils. But not three pencils.

Saul: It's okay, Sadie. You can borrow three pencils.

Sadie: Okay. Can I borrow **a lot of three** pencils?

Saul: You can borrow as many as you want.

Sadie: Okay! These are a lot! Can I borrow my crayons?

Saul: Of course, Sadie. They're your crayons!

Sadie: Okay. 2;3.12

I need **a little bit some** space. [Sad about to set rocks out on seat of chair.] 2;6.9

Modification of *much*

I don't like rocks **very much**. 2;3.3

[to Saul:] **How much** I love you! Look **how much** I love you! 2;4.27

Oh, **how much** I love you, Saul! 2;4.27

Woah! I have **so much** balls! [Sad carrying five or six balls] 2;5.7

S: This is **a much** applesauce.

M: This is what?

S: Much applesauce. 2;5.7

I liked and loved Saul's castle **very much**. 2;5.12

I don't like it **very much**. 2;6.4

That's **so much** I want. [F has just put pile of rice on Sad's plate] [means "the (large) amount I want"?] 2;6.9

I petted Cumquat **so much** days. [re: dog named Cumquat, i.e., so many days] 2;6.9

I like the purple dress **not very much** as that. [means she likes the purple dress more] 2;10.4

Table 11.2F Q Modifying A/Deg

I **a lot so** love you. 2;5.19

A nice, new, clean, **a-little-bit-loose** diaper. 2;5.23

I can go **all that fast**. [re: riding on a play horse] 2;6.4

They're **a lot salty** pretzels. 2;6.9

My toe is looking **somewhat better**. [re: a wound that is healing] 2;9.17

P and Ds look **a lot similar**. 2;11.21

Summary, Early Uses, Sadie

We can summarize these early developments as follows:

- *Semantic encoding*: The semantics expressed through these early morphological forms for modification primarily revolve around the notions of INTENSIFICATION, EXTREME ENDS, and LIKENESS.
- *Form*:
 - Forms of As: The early modification of Adjectives is primarily carried out with intensifiers, including *so*, *very*, *real(ly)*, *-er*, and reduplication.
 - Forms of Qs: *much* enters Sadie's speech always linked with a Deg modifier; these constructs might be considered the germ of Deg + Q forms, but in which the only Q participating is *much*.
 - Elaborated Q forms:
 - Beginning expression of modification of Qs:
Sadie begins (around 2;0) with some appropriately formed X + *more* constructs: *a little bit*, *a lot*, *no + more*
 - Elaboration of X + *more*:
 - These early uses are followed approximately three months later (around 2;3) by the extension of these forms in two ways:
 - First, Sadie introduces related forms into the pre-*more* slot: *some*, *any*, *yes + more*.
 - Second, she introduces other Qs into the slot occupied by *more*: *a little bit*, *a lot of / _some*, 3.
 - It is exactly at this same time that Sadie begins using expressions containing a Deg and *much*: *so*, *very*, *how + much*.
 - Further elaboration of forms:
 - Approximately two months later (around 2;5), she introduces some Quantifier modifiers into adjectival phrases: *a little bit*, *a lot*, *all*, *somewhat / _ (Deg) A*. In some cases, the Q occurs directly before an A ("a little bit loose," "a lot salty," "a lot similar"), in other cases, the Q occurs before a Deg + A ("all that fast," "somewhat better"). (In one case, Sadie uses Q + Deg + Verb: "I a lot so love you.")

I have expressed these developments in terms of "Deg," "Q," and "A," but it is likely that Sadie did not initially have such broad categories. The evidence supporting this is twofold: first, her initial usage of a number of forms was clearly restricted, and, second, subsequent stages can be seen as clearly emergent from earlier stages.

First, her initial uses of any modification of these forms were limited to the use of intensifiers (*so*, *very*, *quite*, *really*, *all*) with adjectives, on the one hand, and the forms *any*, *no*, *a lot*, and *a little bit* with *more*, on the other. The first step beyond these initially restricted forms is that the presence of (legitimate/heard) X + *more* in her speech appears to have opened up a "slot" to be filled preceding *more*; this slot was then filled with other forms related to those already filling that slot (e.g.,

no more → *yes more*; *a lot more*, *a little bit more* → *some more*, *one more*). This in turn seems to have opened up the possibility of inserting elements similar in meaning to *more* (*some*, 3) into the same position as *more*, leading to expansion to “a little bit some,” and so forth (see Drozd, 2002 for an alternative view).

Similarly, the introduction of Deg-like elements into quantifier modification was initially restricted to cases of *much* modification. The fact that the form *much* entered Sadie’s speech at exactly the same time as the introduction of *yes more*, *a little bit some*, and the like, and that it was always accompanied by an intensifier (of the Deg variety) also suggest that these may all have taken a form modifier + Q. (And note that the modifiers expressed a variety of notions, suggesting that this abstract modifier + Q form had a syntactic, not a semantic, base.) The subsequent (and fairly rapid) expansion to the use of *a little bit*, *a lot* as modifiers of adjectives suggests the beginning of the emergence of a modifier + modified structure at that point (although subsequent developments, to be outlined below for 3;0 to 4;0, indicate that she has not yet arrived at a fully general structure). The concurrent flowering of means of expressing other types of modification—additional lexical intensifiers for adjectives, such as *way A*, *freezing A*, *heck-out A*, as well as a proliferation of reduplication on As, Qs, and Vs—at exactly this same time supports this suggestion.

Thus, the early germs of the emergence of these structures appear to have come from two source routes: Intensifier + Adjective, on the one hand, and Modifier + *more* on the other. These separate routes become linked through (a) the expansion of X + *more* in two ways—through elaboration of what “X” can be and through extension to quantifiers like *more*—and (b) the introduction of Deg + *much* structures, involving Deg forms already being used in A modification. These together seem to lead to the expansion to a broader structure involving *a lot*, *a little bit*, *very*, *how*, *so* + X, where X is indiscriminately a quantifier, an adjective, or another modifier.

What Is Missing in This Early Period? The forms that are missing from Sadie’s speech during this early period are as instructive as those that are present. Up to age 3;0, the following elements seem lacking:

1. Despite some limited very early uses, there is overall little use of *too X*, *-er*, *this X*, and *that X*, and no uses of *as...as* or *enough* in these A and Q constructions. Note that all of these involve, in adult usage, the expression of the presence of a property or quantity along a scale.
2. There are occasional instances in which Sadie either misses opportunities to use one of these forms or misinterprets others’ use of them or other scalar expressions (see, for example, Table 11.3A). In one case, she misses the opportunity to use *too A* and uses *A* alone [“It was dirty to eat”]; in other cases she misinterprets her mother’s use of *as A as*, *too much*, and *until*, which expresses a point on a scale of an imaginary time line. For example, on one occasion, when her mother is pretending to be Ernie,

Ernie says, "It's twice as big as I am!" and Sadie responds "No, you're little."

3. During this period, she is developing a rudimentary understanding of the numbers *one* and *two* (Table 11.3B), but her understanding beyond this is limited, and she shows confusion of the link between numbers versus names in relation to questions regarding age and name (see Table 11.3C).
4. There is no evidence of respect for a mass/count distinction in the use of *much* and *few*; for example, there are many co-occurrence restriction errors, such as "I have so much balls!" "I petted Cumquat so much days." "That's a few toilet paper."
5. Despite ending this period with structures allowing for a quantifier modifying an A ("a lot salty pretzels"), there are no instances of *more* used in A modification during this period.

Intermediate Ages: By 3;0–4;0

INTENSIFICATION During the next period, Sadie shows continued use of forms for INTENSIFICATION, and she adds *quite* as a modifier (see Tables 11.4A and 11.4B). But she also increases her use of *so* for intensification with verbs (seen already once at 2;5.19: "I a lot so love you") as well ("I so need...") (see Table 11.4C).²¹ She also adds to her repertoire new lexical items expressing INTENSIFICATION, such as *galore*, used to modify a verb ("Mommy, he's been drawing **galore!**") and *gallon* (to mean "lots"; see Table 11.4D). Beyond this expansion of the expression of INTENSIFICATION, we see several new developments in Sadie's use of the relevant forms.

Adjectives First, with Adjectives, she continues using forms that have already entered her speech (*-er*), but now with more appropriate meanings, and begins using new modifiers that encode meanings beyond INTENSIFICATION. These forms include *how*, *too*, *-est*, *as...as*, and *enough* (see Table 11.5). However, in many cases, the forms are still used inappropriately; for example, Sadie associates *how old* with the spelling of her name: "**How old** I am is S-A-D-I-E. My name is S-A-D-I-E," and her use of *too old* occurs sometimes where *very old* appears intended.

On other occasions, the forms appear to be used with appropriate semantic content; for example, Sadie's use of the superlative. Note that the superlative is used with double marking on a number of occasions (see below), and the superlative is used with the standard markers *out of the world* and *of the world*.

Of particular note are the forms that for the adult encode specification of a property along some scale—particularly *too*, *enough*, and *as...as*. While on a few occasions their use appears inappropriate and perhaps even involving the wrong

²¹It is interesting that it is the Deg.*so* that is brought into these verbal constructions. There may be some influence of the fact that there is a homophonous/polysemous form *so* that is used with verbs in, for example, *and so does she*, etc.

TABLE 11.3 Missing Sadie 1;7-3;0

Table 11.3A Missed Opportunities for Use of Modifiers or Misinterpretations of Another's Utterance

[M and S playing; M pretending to be "Ernie" (= "Little Buddy");]

S: I not eated my sandwich, Little Buddy.

Ernie: Why not?

S: It was **dirty to eat**, Little Buddy.

{missing "too..."; i.e., "it was too dirty..."} 2;1.27

[M "talking for" Ernie, a doll that is about 5 inches tall:]

Ernie: I can't write anything with that pen. It's **twice as big as I am!**

S: **No, you're little.**

E: I know.

S: I'm little too.

[S has misinterpreted Ernie's utterance as saying that Ernie is big.] 2;4.17

M: There's **too much** stuff on the counter, isn't there?

S: Yeah! There's **many** stuff, like ___ and ___ and ___ and ____... 3;1.30

S: You might have to help me. [re: putting blocks into a tub]

M: Actually, we'll have to wait **until Daddy says the tub is (clean and) ready for us to use.**

S: Okay. **Until the tub's clean**, you might have to help me. [means "...when..."; not scalar] 2;9.18

Table 11.3B Number Concepts

M: How many kisses do you have for me?

S: **Two** kisses!

[S sometimes says "Three kisses"] 1;9.22

Sadie: May I share-chair-io, Saul? [i.e., may I share your chair—with hi-ho the dairy-oh song]

Saul: Sure.

Sadie: Can I draw?

Saul: Yes, at your drawing station.

Sadie: All right. I'm gonna be back soon to share-chair-io.

Saul: Okay.

Sadie: May I borrow a pencil, Saul?

Saul: Sure.

Sadie: Okay. I'm gonna borrow two pencils. But not three pencils.

Saul: It's okay, Sadie. You can borrow three pencils.

Sadie: Okay. Can I borrow **a lot of three pencils?**

Saul: You can borrow as many as you want.

Sadie: Okay! These are **a lot!** Can I borrow my crayons?

Saul: Of course, Sadie. They're your crayons!

Sadie: Okay. 2;3.12

Sadie: I'm back to share-chair-io. Can I draw on your paper?

Saul: No, but you can draw at your drawing station.

Sadie: Okay. Can I borrow **one of your pencils?**

Saul: Yes.

Sadie: Okay. I'm gonna borrow **two**. And a marker. 2;3.12

Table 11.3B (continued) Number Concepts

I'm gonna borrow **one** of these. 2;3.12

Saul: Take one of these cushions.

Sadie: **One** of these cushions?

Saul: Yeah. Any cushion. 2;4.13

[Sadie is taking pieces of toilet paper off roll]

M: No more toilet paper.

S: **One** more last, please? 2;4.20

There's **one** chair. There's not **two** chairs! [i.e., like there usually are] 2;4.20

Saul waited and waited and waited for bagels! And I was hungry. And Daddy bought bagels for us!

Two bagels. [F had bought two bags of six bagels.] And more and more and more bagels. They might be really really yummy. They smell yummy. 2;5.3

I have a crayon! And I have **two** bagels! Peanut butter on my bagel and no peanut butter on my bagel. Just nothing—only bread! [One half-bagel is plain and one half-bagel has peanut butter on it.] 2;5.4

[M has given Sadie more water in her cup than usual.]

S: What full water!

M: Are you saying that because there's so much in the cup?

S: Yeah. I almost got **two** cups...at the same time!

M: Two cups in one cup? 2;5.9

M: Put away the balloons now, please.

S: I want **one** last.

M: Nope, no more.

S: Okay. 2;5.28

I have **one** last of this. I want you to have it. 2;6.4

I'm carrying **both** of us! [Sad coming into room carrying Ernie doll and Barney doll--both of them]

2;1.17 [cf: 1;11.28: Look at us! [re: pair of shoes in picture]]

That is **both** mine and Saul's. 2;2.15

Table 11.3C Immature Number Concepts

[M and Sadie playing. M pretending to be "Elmo":]

S: I'm two.

E: Wow! Elmo is excited to hear that!

S: Guess what.

E: What?

S: 'Sat thing? [= "what's that thing?"] Guess what, Elmo.

E: What?

S: Saul's name.

E: I don't know. **What is Saul's name?**

S: **Six, seven, eight.** [Saul is 6.]

E: Oh.

S: I'm two. 2;0.0

F: Did we see that one time or two times? [re: Bojangles restaurant]

S: **Eleven** times! [comment: it was actually twice.] 2;4.24

There's **one two three four five** soap! [Sad counting pieces of soap in bathtub; but there are only three in reality] 2;5.3

I'm gonna be a grown-up when I get **six.** [Her brother is 6.] 2;5.4

TABLE 11.4 Sadie 3;0–4;0 Continued Use of Forms for INTENSIFICATION**Table 11.4A** Adjectives (& Adverbs)

This is {my/like/a} ice skating (rink). It moves me **very well**. * [Sad sliding feet along bathtub top.] 3;9.24

I have something **very cool**. [re: new swimming pool she's getting for her birthday; squirts water up through middle] 3;11.30

Actually, even though I'm 3 1/2, I'm **quite little**. 3;9.27

Table 11.4B Quantifiers

so

[V sent Sad package full of hair clips at Halloween time. Sad mentioning how much fun it was to open up the package:] It was **so much fun**. It was **20 fun**! [Sadie then counts to 20, showing how long it takes to get to 20.] It takes a long time to get to 20. 3;4.8

Reduplication of Q

V: [on phone] Did you put up a Christmas tree?

S: No. We put a tree in the house.

V: Did you decorate it yet?

S: It has **lots and lots** of lights. 3;5.26

Table 11.4C Beyond As and Qs

so / ___ V

Oh! I **so need** to poop! 3;1.21

S: I **so wish** we could get that thing out of my butt!

M: The poop?

S: Yeah! 3;1.21

I **so missed** you, Saul! 3;1.22

Table 11.4D Additional Lexical Items for INTENSIFICATION

[Saul has drawings lying all over the table.] Mommy, he's been drawing **galore**! 3;8.4

[Sadie on toilet:] I think I'm gonna use up a **gallon** of that toilet paper! 4;2.2

* This is a nice utterance to add to Melissa's causative verb error repertoire: i.e., it CAUSES me to MOVE very well.

direction on a scale ("I'm tired enough...means I'm not too tired"), on others, they seem quite appropriate; for example, "If I was brave enough for me to get buy-en..." [i.e., "If I was brave enough to let myself get bought..."]; "Is everybody as tired as I am?"

Quantifiers

Q: First, two new quantifiers enter Sadie's speech early in her fourth year—*many* and *enough*—and *a little* is now in evidence alongside *a little bit* (see Table 11.6A). Her use of *many* clearly does not respect mass/count co-occurrence restrictions ("many stuff"). Her use of *enough* appears appropriate. Interestingly, all uses of *enough*, either as a Q or with an A, occur with a complement, "for..." or "to"

Deg + Q: We saw that up until 3;0, the only Deg + Q combinations were ones involving *much* modified by intensifiers *how*, *very*, and *so*. Table 11.6B shows Sadie's further development of Deg + Q expressions. First, Table 11.6B1 shows her further use of Deg + *much*: her use of *how much* goes beyond intensification; she also adds *too* and *as* as Deg modifiers of *much* during this period—both of these

TABLE 11.5 Adjectives Sadie 3;0-4;0

Table 11.5A Initial Uses of Forms Beyond INTENSIFICATION

how

How old I am is S-A-D-I-E. My name is S-A-D-I-E. 3;2.14

-er

Doesn't it look **even nicer** this way? [Sad taking egg out of second pot of dye] 3;9.26

M: Sadie, you get to pick which one [bowl of rice] you want.

Sadie: I'm gonna have the a **lotter** one.

M: The a lotter one?

Sadie: The **lotter** one. The **fuller** one. 3;11.25

too

When I get **too big** for it, and it gets **too small** for me, I could ride any of those. But I could get a new one. [re: rocking horse: "when I get too big for it....I couldn't ride any of those..."] 3;7.30

[Sad had taken a break from shucking 4 ears of corn; is now ready to help out again:]

S: I'm tired enough to do some corn.

V: You're tired enough?

S: Yeah. That means I'm **not too tired**.

[use of "not too tired" appears appropriate; use of "tired enough" appears to specify wrong direction on scale?] 3;9.24

Saul to M: I can't believe you're 30!

Sadie: Yeah, and she's **not too old!**

M: Too old for what?

Sadie: You know, to walk and stuff!

[Sadie appears to mean something like "not very old."] 3;9.25

F: Are you in your pajamas?

Saul and Sadie: Yeah!

F: Are you two ready to spin?

Sadie: I'm **not too ready!** 3;10.14

-est

[Sad had been talking about which superheroes she liked most.]

M: Superman is the best one?

S: Mm hmm. [= "yes"] But Superman is **my bestest**. 3;7.27

[Sad has just put on a sparkly head band]

V: The sparkly girl!

S: **Most sparkliest** out of the world! 3;9.24

V: That's a pretty necklace, Sadie.

S: I'm **fanciest** of the world. 3;9.24

enough

[Sad had taken a break from shucking 4 ears of corn]

S: I'm **tired enough** to do some corn.

V: You're tired enough?

S: Yeah. That means I'm not too tired. 3;9.24

[Sad put price tag on belly. V told her she cost 50 cents. She said she couldn't be bought because she came out of Mommy's tummy.] If I was **brave enough** for me to get buy-en.... [=...for me to get bought... i.e., "If I was brave enough to let myself be sold"] 3;9.25

as...as

Is everybody **as tired as** I am? I'm 150 tired...I'm 199 tired. 3;9.22

modifiers that in the adult language express specification on a scale. (Note that her use of *as* occurs with complement *as*—both here and in the case of the use of *as* with an adjective.)

We also see for the first time, from 3;8 on, uses of *much* without a Deg—in all cases, “(not) much of (a) N.” Sadie also begins during this time to use other Quantifiers with Deg modifiers—“quite a little,” “quite a bit,” “-er + a lot” (see Table 11.6B2). And in one case (Table 11.6B3), we see her struggling to put together the appropriate Deg + Q expression—“too little,” but she finally gives up and substitutes “not enough.”

Q + (Deg) A: We saw in the previous period for Sadie the beginning of constructions involving Q + (Deg) + A (e.g., “a little bit loose”). The Qs that previously occurred in such constructs were appropriate for English: *a little bit, all, a lot, somewhat*. During this next period, we see further use of Q + A and Q + Deg + A, first with filling in more Qs from this same set—*any, some* (Table 11.6C1, 11.6C2):

Q + A: “a bit spicy,” “any spicy,” “little bit tie-dyed,” “some good,”
Q + Deg + A: “any too tight,”

but also Qs from a distinct set, that of numbers (Table 11.6C3):

Q + A: “20 fun!” “150 tired,” “199 tired,” “20 hundred and 750 lucky.”

Other Q/Deg combinations: We also see during this time a proliferation of other Q and Deg combinations (see Table 11.6D):

Deg + Deg + Q: “**quittest bit**”
Deg + Deg + A: “**very too** small”
Q + Q: “Not even 2. Not even 3. Not even 4. Not even **5....bit.**”
Q + Q + Deg + A: “**once less braver**”
Q + Q + Deg + Deg + A: “**much lesser braver**”

These combinations suggest that Sadie has discovered that there are multiple ways in which Degs and Qs can be combined, and she extends the combinations indiscriminately, as far as form is concerned. (They do, however, seem to be constrained semantically—whenever a Deg₂ is modified, it appears to express *too*, *-er*, or *-est*.) There is no evidence of her establishing any internal phrase structure to these combinations; rather, they appear to be placed together by concatenation. Sadie’s response to her father with isolated “How?” in the following supports this suggestion (see note 12):

(39) F: Do you know how many times he asked a \$64,000 question?
S: **How?** [with falling intonation] 3;9.23

It is worth commenting as well that it is during this time that Sadie uses Double Marking on superlative forms and comparative forms—*most sparkliest, less braver, lesser braver*. These may be produced, at least in part, as a result of these developments allowing liberal concatenation of Q and Deg forms.

DEVELOPMENT OF SCALARITY During this year of development, we can see that scalar expressions have been seeping into Sadie’s speech, but they are not always

TABLE 11.6 Quantifiers Sadie 3;0-4;0**Table 11.6A** Additional Qs*many*

- M: There's too much stuff on the counter, isn't there?
 S: Yeah! There's **many stuff**, like ___ and ___ and ___ and ___... 3;1.30

enough

- [Sadie explaining to V on phone that there was not enough snow to make a snowman or snowballs-- there was too little snow:] 'Cause there was too-- there was only a little bit. There was too-- There was **not enough** snow to make snow balls. 3;5.18

a little (of)

- S: I'm going to pour myself **a little** of water.
 M: You're going to pour yourself a little of water?
 S: I'm going to pour myself **a little bit** of water. I'm going to pour myself **a little** water. 3;6.10

Table 11.6B1 Deg + Q*Deg + much**how*

- How much** are you tired? [to F, then to M] 3;9.21
 F: Do you know how many times he asked a 64,000 dollar question?
 S: **How?** [with falling intonation] 3;9.23

too

- M: There's **too much stuff** on the counter, isn't there?
 S: Yeah! There's **many stuff**, like ___ and ___ and ___ and ___... 3;1.30 [Sadie misinterprets M's "too much stuff" as "a lot of stuff".]

Look...it's **too much**. [re: water] He's barely sinking in it... [i.e., he's practically drowning or sinking in the water; barely means "almost"] 3;10.24

as...as

I'm gonna get **as much stuff as** I can. 3;2.3

0 + much

- S: We have quite a little soap.
 M: We have quite a little soap?
 S: Yeah. Like we have **not much of soap**. 3;8.2

That wasn't **much of a sneeze**. That was **much of a cough!** 3;10.12

Table 11.6B2 Deg + Q, other Qs*quite + a little, quite + a bit*

- S: We have **quite a little soap**.
 M: We have quite a little soap?
 S: Yeah. Like we have not much of soap. 3;8.2

[S telling V on phone that Saul has built a maze. V has asked S if it's hard to find the way through:] It's **quite a bit** of dead ends. And you know what **quite a bit** means! 4;0.3

-er + a lot

- M: Sadie, you get to pick which one [bowl of rice] you want.
 S: I'm gonna have the **a lotter** one.
 M: The a lotter one?
 S: The **lotter** one. The fuller one. 3;11.25

TABLE 11.6 (continued) Quantifiers Sadie 3;0-4;0**Table 11.6B3** Missing: *too/ ___ little*

[Sadie explaining to V on phone that there was not enough snow to make a snowman or snowballs—there was too little snow:] ‘Cause there was **too**—there was only a little bit. There was **too**—There was not enough snow to make snow balls. [wanted to say “too little snow”] 3;5.18

Table 11.6C Q + (Deg) + A**Table 11.6C1** Q + A

Is it a **bit spicy**? Is it **any spicy**? [re: food V has made, Thai food—S wants to know if it’s spicy before she tries it] 3;9.22

I like my **little bit tie-dyed** paper towel. [Sadie holding up paper towel which had been used to tie-dye eggs] 3;9.26

That’s **some good**. [re: color of egg—dyeing eggs for Easter] 3;9.26

It doesn’t look **any green**. [Sadie making sure some food isn’t moldy] 3;9.27

It doesn’t feel **any cold** or **any hot**; it just feels **normal**. **Just right**. [re: temperature outside] 3;9.28

Table 11.6C2 Q + Deg + A

They’re **any too tight** to put on myself. [re: clothes] 3;9.26

Table 11.6C3 Number + A

[V sent Sadie package full of hair clips at Halloween time. Sadie mentioning how much fun it was to open up the package:] It was so much fun. It was **20 fun!** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20. It takes a long time to get to 20. 3;4.8

Is everybody as tired as I am? I’m **150 tired**...I’m **199 tired**. 3;9.22

You’re very lucky. You’re **20 hundred and 750 lucky**. 3;9.24

Table 11.6D Other Deg/Q Combinations**Deg + Deg + Q**

F: Is this your egg in the blue?

S: Yes.

F: Are you sure?

S: I’m sure **the quietest bit**. 3;9.26

Deg + Deg + A

[Sadie holding little pretzel up on nose] How do you like my glasses? **Very too small** for me! 3;9.25

Q + Q

[V and Sadie discussing how Sadie was “lost” at a park one time:]

V: But Sadie wasn’t worried. Not one teensy bit.

S: **Not even 2. Not even 3. Not even 4. Not even 5...bit**. 3;9.24

Q + Q + Deg + A

I’m like **once less braver** than Saul. I’m much lesser braver than Saul. I’m much less braver than Saul. 3;11.27

Q + Q + Deg + Deg + A

I’m like once less braver than Saul. I’m **much lesser braver** than Saul. I’m much less braver than Saul. 3;11.27

TABLE 11.7 Immature Scalar Understanding

By then, my hair was always hanging in my eyes. [i.e., before V sent S package full of barrettes] 3;9.23

[V and S talking on phone and mentioning that V is going to be visiting S's house soon—will be there for S's M's 30th b-day and for Easter]

V: I haven't been there for a long time.

S: Yeah, **Until** Easter! [pauses as if trying to rephrase:] And you weren't here when Easter came.

V: What?

S: I'm sure you weren't here when Easter came.

V: No, I wasn't.

S: And me and Saul hid eggs. 3;7.0

Remember that time...I think you were not in our house **by then**. 3;9.23

S: I can **barely** jump off of roller coasters. I can't really.

V: Does barely mean you can or you can't?

S: Barely means "half way". 3;9.21

[Saul going across swing set that has various swings on it without touching ground. Sadie is on a horse swing at the end where he is headed. Saul wants her to get off.]

Saul: Sadie, can you get off?

Sadie: OK. You're **barely** there. [Saul is on 3rd-last item--2 away from Sadie] 3;9.21

You're **barely** done, Grandma Ginny! [i.e., almost done, getting dressed] 3;9.23

Look...it's too much [i.e., water]. He's **barely** sinking in it... [i.e., he's practically/almost drowning or sinking in the water] 3;10.24

used appropriately with scalar import. When they are not used for scalar meanings, they are sometimes used to express INTENSIFICATION, as in her utterance "she's not too old" to mean "not very old," sometimes to express the wrong direction on the scale, as in "I'm tired enough to do some corn" to express that she could now continue helping with shucking corn (Table 11.5A).

There is supporting evidence outside of these structures that Sadie's understanding of scalarity is still immature. Some examples are shown in Table 11.7, involving the use of *by then*, *barely*, *until*, and *catch up with*. All of these in the adult usage encode positioning on a scale, viewed from a lower level upward, and Sadie's usage lacks this scalar meaning. She uses *by then* to mean "at that time," *barely* to mean (perhaps) "half way," *until* to mean "at" [point in time], "when."²² For example:

- (40) **By then**, my hair was always hanging in my eyes.
[i.e., before V sent S package full of barrettes] 3;9.23

²²We will see similar examples from Rachel later. But examples from other children using *until* to mean "when" or "at" are:

(vi) You have to see it **till** it's done. [J putting together train tracks.] (J 3;10.6)

(vii) Aunt Virginia got up **till** ten o'clock. No, Aunt Virginia got up **till** eleven o'clock. (Laura 5;3)

- (41) [V and S talking on phone and mentioning that V is going to be visiting S's house soon—will be there for S's M's 30th birthday and for Easter, a holiday for which V has not previously been present.]
 V: I haven't been there for a long time.
 S: Yeah. **Until** Easter! [pauses as if trying to rephrase:] And you weren't here when Easter came.
 V: What?
 S: I'm sure you weren't here when Easter came.
 V: No, I wasn't.
 S: And me and Saul hid eggs.
 3;7.0 [S appears to mean "At Easter"—i.e., you haven't been here at Easter time.]

One interesting development, noted above, is the introduction of numbers into the constructs of interest. We have seen in Table 11.6C3 that numbers are introduced as modifiers of adjectives, in positions where other quantifiers would occur.²³ However, there is further evidence beyond these that there may be an association of scalar expressions with number. Forms such as *very A*, *how much...*, and *as X as* are often tied with numbers, often outlandishly high numbers; for example, "You're very lucky. You're **20 hundred and 750 lucky**" (3;9.24). See further examples in Table 11.8. It is as if Sadie's growing understanding of number and relative size related to number is tied integrally with her growing understanding of these scalar

²³The introduction of numbers into such adjectival modification (and quantifier phrases), or to more generally express scalar concepts, is not uncommon among English-speaking children. Two examples come from a (nonlinguist) colleague of mine who protested, when I showed him some of the utterances I was analyzing, that these children must be somehow unusual. The very next two days he sent me two examples from his own son, E:

- (viii) [E had done something wrong.]
 F: How much remorse do you have?
 E: **Five remorse.** (E 3;6.3)
 (ix) [E was talking about how BIG a building in the distance was. His father asked him how big it was, and first he used his hands to show it. Then his father asked him to use words to describe how big it was and he said:]
 It's **a millions big.** (E 3;6.4)

Further examples will be given below from Rachel. Some examples from Saul are the following:

- (x) I like it **30 bits!** (Saul, 4;9.28) [cf.: I don't like it one bit!]
 (xi) She is **infinity nice** Grandma! (Saul, 5;4.29)

And some examples from adults:

- (xii) [Mother to daughter:] I love you **a million** Swedish fish.
 [Daughter to mother:] I love you **a million** red M&Ms.

In an interview with Jonathan Aitken on June 27, 2004, on BBC2 radio, the interviewer asks if Jonathan Aitken thinks he has a lot in common with Richard Nixon. He says,

- (xiii) Actually, he was a much greater politician than me by **many hundreds of miles.**
 Finally, a caller on BBC2's "Sunday Love Songs" asks that a song be dedicated to his loved one:
 (xiv) We love you **infinity plus one.**

TABLE 11.8 Association of Scalarity with Number

M: Sadie, do you know how much I love you?
 S: **An a million dollars!** 2;9.23

[V sent Sad package full of hair clips at Halloween time. Sad mentioning how much fun it was to open up the package:] It was so much fun. It was **20 fun!** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20. It takes a long time to get to 20. 3;4.8
 That doesn't make **any sense**. Not **one single** {sent/cent}. 3;8.24
 Is everybody as tired as I am? I'm **150 tired**...I'm **199 tired**. 3;9.22
 You're very lucky. You're **20 hundred and 750 lucky**. 3;9.24

[V and Sad discussing how Sadie was "lost" at a park one time:]
 V: But Sadie wasn't worried. Not one teensy bit.
 S: **Not even 2. Not even 3. Not even 4. Not even 5...bit.** 3;9.24

Actually, even though I'm **3 1/2**, I'm quite little. 3;9.27
 I'm like **once** less braver than Saul. I'm much lesser braver than Saul. I'm much less braver than Saul. 3;11.27

predicates. In one telling occasion, Sadie even makes this association explicit, taking the time to count from 1 to 20 to exemplify how vast 20 is, and, hence, how vast the "fun" is that she wants to express:

- (42) [V sent Sadie package full of hair clips. Sadie mentioning how much fun it was to open up the package:]
 Sadie: It was so much fun. It was **20 fun!** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20. It takes a long time to get to 20. 3;4.8.

The question arises as to why numbers are brought into these structures. From the acquisition of number literature, we can surmise that this is a critical period in children's developing understanding of number. The fact that Sadie can count well—at least clearly up to 20—and that she associates the counting with the amount of time it takes to get through that counting suggests that her understanding of number—at least with regard to cardinality and the stable ordering principle—is fairly well formed. So several possible explanations for this development present themselves:

First, it is possible that the central understanding of scales—especially the stable ordering principle—comes through an understanding of number and perhaps through the understanding that a number represents a position in a sequence (Gelman et al., 1986; see introduction). The introduction of numbers into these adjectival structures may be an attempt to gain a firm grasp of scalarity through a metaphorical extension of the number scale to nonnumerical quantities.

A second possibility, however, is that numbers are brought into these structures as a result of bringing other quantifiers—*a little bit, all, a lot, any*—into adjectival phrases. The introduction of numbers may be a simple overextension of that development. It may be that the language is "inviting" the child to make such an extension.

A third possibility, of course, is that both of these may be operating. It may be that the language invites the child to introduce numbers into adjectival scalar expressions, and that children's growing understanding of number goes hand in hand with their growing understanding of nonnumerical scales.

Summary, Intermediate Uses, Sadie

We can summarize these intermediate developments as follows:

- *Semantic Encoding*: The semantics expressed during this period still involve INTENSIFICATION, EXTREME ENDS, and LIKENESS, but Sadie now also begins to use expressions that go beyond these. However, there appears to be quite a bit of instability in the semantics associated with the forms that in the adult language encode scalarity. Scalar modifiers are sometimes used appropriately, sometimes in an immature fashion. In addition, Sadie begins making explicit remarks linking numbers with scalarity. This suggests that the understanding of scalar predicates may be facilitated by this association with number, or alternatively that number is introduced into adjectival constructs on the basis of linguistic overgeneralization, or perhaps some composite of these—that the development of the understanding and formation of scalar predicates evolves hand in hand with an understanding of number relations.
- *Forms*:
 - Forms of As: The modification of adjectives during this period expands to include *quite*, *how* beyond INTENSIFICATION, *too*, and *enough*, plus use of superlative forms.
 - Forms of Qs: *enough* enters as well as a quantifier; *many* and *most* enter, but the latter is only used in Double Marking of the superlative. Also, *much*, previously tied with Deg modifiers, is used for the first time without a Deg during this period.
 - Elaborated Q forms:
 - Deg + Q: Previously, Sadie used Deg + *much*, and we see this extended in two ways:
 - First, Sadie adds additional Deg forms to those she uses with *much*: *how* with nonintensification meaning, *too*, and *as...as*.
 - Second, she uses other Deg + Q combinations more extensively: *quite a lot*, *quite a bit*, *the a lotter* [= (-er + a lot)] *one*.
 - Q + (Deg) A: Previously, Sadie had some expressions in which *a little bit*, *a lot*, *somewhat*, and *all that* preceded adjectives.
 - She now adds *a bit*, *any*, and *some* as preadjectival forms, plus uses *any too* A.
 - Furthermore, she begins using other non-Q quantifiers—numbers—as adjectival modifiers: *20 fun*, *10 tired*, etc.

- Other Q and Deg combinations: During this time, Sadie also continues to form apparently indiscriminate combinations of Qs and Degs, including:
 - Deg + Deg + Q: "quittest bit"
 - Deg + Deg + A: "very too small"
 - Q + Q: "Not even 2. Not even 3. Not even 4. Not even 5...bit."
 - Q + Q + Deg + A: "once less braver," "much lesser braver"

The Deg, Q, and A combinations Sadie uses are still apparently combined without any clear overarching syntactic structure (although there may be the constraint that the only Deg₂'s that can be modified are *too*, *-er*, and *-est*).

Finally, it is worth noting that all uses of *enough* and *as* during this period occur with explicit complements (*enough...for*, *as...as*).

What Is Missing During This Intermediate Period? While Sadie has begun using scalar markers (comparative, *as...as*, *too X*, *enough*), their use is not always appropriate—instead of expressing scalarity, they are sometimes used immaturely. Scalar uses are still relatively rare, and immature, during this period.

There is still no evidence of respecting a mass/count distinction in the quantifiers.

And there is still no evidence of the use of *more* in A modification.²⁴

Finally, there is an apparent lack of any imposition of phrase-structure onto these multiply modified forms as they enter Sadie's speech. Instead, their collocation appears governed more, initially, by lexically specific formulas, which, with time, get expanded to a fuller set of possibilities that appear constructed on the basis of concatenation.

RACHEL

The data from Rachel are from birth until approximately 6;0. The data consist of approximately 3,000 utterances involving relevant structures, collected on the spot in normal conversational interactions.

²⁴There is only one early use of *more* with a possible adjective, *lighty*, but it is not clear what word class *lighty* is:

(xv) This is more lighty **than** the kitchen's more lighty. [i.e., brighter] 2;5.20

At a somewhat later age, beyond those examined here, we begin to see double marking of comparatives, in which *more* is used with *A-er*, in Sadie's speech:

(xvi) I want to get **some more higher**. [F lifting Sadie up on his lap.] (4;7.9)

(xvii) [Sadie trying to throw a bag into the garbage and coming up short:]

I should throw it **more harder** next time. [S throws it again] That was even worse!
(4;6.16)

Earliest Ages: Up to 3;0

Let us first look at Rachel's use of adjectival and quantifier forms during the earliest period, up to 3;0.

Adjectives As with Sadie, the earliest modified adjectival forms appear on the whole to express INTENSIFICATION. These include uses of reduplication and *really* (although *really* may instead, or in part, be connected with the expression of reality) (see examples in Table 11.9A). In contrast to Sadie, Rachel used *-er* and *-est* quite extensively for absolute uses (to mean "X") and for INTENSIFICATION; see further examples in Table 11.9A.

Like Sadie, Rachel also talked about EXTREME ENDS, using lexical forms like *first* and *favorite*, and she used *same* to express LIKENESS (see Tables 11.9B and 11.9C). She also showed early attention to expressing CONTRAST, as in Table 11.9D, mostly with contrasting use of lexical opposites: *little* vs. *up*; *little* vs. *long*.

Finally, at this early age, Rachel also used *too*, but mostly in the expressions *too late* and *too heavy*, used extensively to express impossible situations, or "can't" (or in one case, the last example, possibly "can"). See examples in Table 11.9E.

TABLE 11.9 Adjectives Rachel Up to 3;0

Table 11.9A Early Adjective Modification—INTENSIFICATION

Reduplication

Look, he has **long, long, long, long** feet. [R looking at ad for panty hose--only legs showing.] 2;7.10

really

I'm not a **really monster**. 2;10.15

***-er* used for "X" or "very X"**

Not **too faster** [R closed refrigerator door fast.] 2;2.23

Look—I'm **bigger than** Jaime. I'm tallest than Jaime. I'm **taller**. [R standing on tip-toes. J is two years older. Appears that R probably means "big like."] 2;9.3

My hand's **taller than** yours. [R holding her arm out next to M's. Her arm's "longer than"? "the same length as"? M's.] 2;9.3

R: I'm not **stronger** to do that.

J: If you were stronger, you could do it, Rachel.

[Re: cracking walnuts. R trying, but not able to crack them. J is 5;1.] 2;9.27

I'm the **stronger** one who can lick this. [R licking pie turner.] 2;10.7

See. I was **stronger** to put that comb up. [R has put comb up on chest of drawers.] 2;10.13

than* without *-er

That's **orange than** my room. [R pointing to a card that is about the same shade of orange as the wall in R's room. Means "orange like"?] 2;10.0

***-est* used for "X" or "very X"**

Look at that towel. It's **highest**. [re: towel hanging from shower door bar. No other towels in vicinity.] 2;7.25

I got the **prettiest** that you got. [context not clear] 2;8.9

Look—I'm bigger than Jaime. I'm **tallest** (than) Jaime. I'm taller. [R standing on tip-toes.] 2;9.3

TABLE 11.9 (continued) Adjectives Rachel Up to 3;0**Table 11.9B** Early expression of EXTREME ENDS[ə mɪwk fəʊts] [=“[I want] milk **first**”] 1;10.15

[M asking if R's favorite food is hot dogs.]

M: Rachel's favorite?

R: [āin] **favorite**. 2;1.22**Table 11.9C** Expression of LIKEThese are the **same** ones, right? [re: R's pockets on her pants are the same. [i.e., match]] 2;10.27**Table 11.9D** CONTRAST

My other fork's dirty—'cause I need to use this one. [i.e., "...so..."] 2;7.16

She's little, and she's up. [1st "she"=doll without legs—little; 2nd "she"=doll with legs—up; R standing them both by potty she's sitting on.] 2;7.23

[āi] little before you. [i.e., "I'm littler than you"] 2;8.4

[R referred to baby potty as:] "little potty" [and then the toilet as] "up potty." 2;8.13

That's my little finger. That's my little finger, and that's my up finger. 2;8.13

F: She's only little. [re: R]

R: And you guys are long. 2;10.4

Mommy, yours is little and mine is long. [M's cereal and R's cereal boxes standing on table—R's is taller than M's.] 2;10.19

Table 11.9E Immature Uses of *too A***Earliest uses, with *late* and *heavy* for "can't"****too late** [used for impossible situations, e.g., R had brought M a right shoe to put on her left foot.

M told her it wouldn't fit. R responds with "too late."] 1;11.16

that **too late** 2;0.13

M: You put on your socks.

R: I [nasalized: [āi]] **too heavy** [i.e., to put socks on--means "I can't"; R wanting M to put socks on her.] 2;6.27You're **too heavy**. [M carrying R to get PJ's; R has to bend far down to reach them. i.e., M "can't"?] 2;7.16I need to throw them in, don't my. 'Cause I'm **too heavy** for them. [R threw PJ's into crib. i.e., "I can't"?] 2;8.11**Uncertain meaning—"so X"?**Not **too faster** [R closed refrigerator door fast.] 2;2.23

Quantifiers As in Sadie's case, one of the earliest quantifier forms to be used is *more*, initially used for requesting recurrence. But toward the end of this period, just before turning 3, Rachel seems to take *more* to mean something like "amount" (see Table 11.10A).

In addition, Rachel used *many* and *much* early, but both of these were highly restricted. First, *many* was used only in relation to age: "This is the many I'm gonna be. I'm gonna be three in a minute" (2;11.6; more below on this). And in the case of *much*, as with Sadie, the earliest use was tied with a Deg, in Rachel's case *too* (see Tables 11.10B and 11.10C).

Finally, as in Sadie's case, we see the early use of some modifiers with *more* in Rachel's speech, at 2;7: *any more* and *no more*.

TABLE 11.10 Quantifiers Rachel Up to 3;0**Table 11.10A** Early Uses of *more*—Recurrence, Amount

- more** [used when bringing toys to MOT; going to get more]. 1;6.27
more [R looking at empty glass in bathroom - wanting water]. 1;6.11
mo poon [Imitation] [R picking up spoons off floor; R repeated "more spoons."] 1;6.13
mo mo ba ba [i.e., "more bottle"] [R holding out bottle for more milk.] 1;7.6
 oh **mo** down [R dropped toy cat, then dropped bottle.] 1;8.6
 /ay gat may luwdo/ ["I got my noodle"] [R holding noodle.] /**mor** nuwdoz/ ["more noodles"] [R wanting more noodles.] 2;0.8
 /**mor** mɛəd/ [= "more bread"]. 2;1
 [aĩə] **more** cracker of Jaime's. [i.e., "I want more cracker of Jaime's"] [R wants more of the kind of crackers that J is eating—J's kind.] 2;2.30
 It's long sugar. Long **more** sugar. [R had taken a heaping teaspoon of sugar for cereal. Means something like "a huge amount of sugar"] 2;9.11
 I slept a long **more**. [i.e., "...a long amount," "...a long time"] 2;10.13

Table 11.10B *many* [Connected with AGE]

This is **the many** I'm gonna be. I'm gonna be three in a minute. [R holding up three fingers; i.e. "I'm gonna be three soon."] 2;11.6

Table 11.10C *much*

There was **too much** toys in my purse. [R's purse is full of toys; toy "Cookie Monster" fell out.] 2;11.21

Table 11.10D *X + more*

- R: **Any more!** Mommy **any more**.
 M: Any more what, Rachel?
 R: I don't want **any more**. No more. **No more** milk. 2;7.10

Summary, Early Uses, Rachel

These developments are entirely consistent with those we observed early on for Sadie.

- *Semantic Encoding*: The semantics expressed through these early morphological forms for modification primarily revolve around the notions of INTENSIFICATION, EXTREME ENDS, and LIKENESS. Rachel adds as well the notion of CONTRAST, the flip side of the coin to LIKENESS.
- *Forms*:
 - Forms of As: The early modification of Adjectives primarily is carried out with reduplication and suffixes. While Sadie at these ages primarily used pre-adjectival forms *so*, *very*, *real(ly)*, and reduplication for the purposes of expressing intensification, Rachel used reduplication and the suffixes *-er*, *-est*.

Rachel also used the forms *too late* and *too heavy* extensively. However, their semantics was related to impossible situations or the expression of "can't." They in no way carried the semantic import that these would have in adult speech.

- Forms of Qs: Rachel, like Sadie, used *more* early on for recurrence, but then later for "amount." Rachel, like Sadie, used *much* fairly early, but, also like Sadie, *much* was linked with a Deg modifying it.
 - In addition to these quantifiers, Rachel used *many*, but only in relation to age.
- Elaborated Q forms:
 - Beginning expression of modification of Qs: Rachel begins (around 2;7) with some appropriately formed X + *more* constructs: *any*, *no* + *more*.
 - It is slightly later (2;11) that we have evidence of the first expression containing a Deg and *much*: *too* + *much*.

As in the case of Sadie, I have expressed these developments in terms of "Deg," "Q," and "A," but there is no evidence that Rachel had any broad categories governing these forms as she was expanding these possibilities. Instead, there is clear evidence of early limited knowledge; for example, restriction of *too* for adjective modification to *late* and *heavy*; early restricted modification of *more*, with *any* and *no*; restriction of *much* to use with a Degree marker, *too*; and the early use of *many* restricted to age.

What Is Missing in This Early Period? The forms that are missing from Rachel's speech during this early period are as instructive as those that are present. Up to age 3;0, the following elements seem lacking:

1. Despite prolific inappropriate early uses of *-er*, *-est*, and *too*, there is little evidence of appropriate semantics associated with these forms. Furthermore, like Sadie at this age, there is no use of *as...as*, *enough*, *that X*, *this X* in these A and Q constructions. Note again that all of these involve the expression of the presence of a property or quantity along a scale.
2. It is worthy of note that Rachel's use of *than* is not restricted to use with *-er*, but is also used with bare adjectives; for example, "That's orange than my room" (2;10.0). Furthermore, the standard of comparison with *-er* is not always introduced with *than*, but sometimes with other, inappropriate standard markers—"stronger...to do that," "the stronger one who can lick this," "stronger to put that comb up." This indicates that Rachel has not yet grasped the necessary link between *-er* and *than*. In addition, the meaning of *than* seems to be taken as "like" in many cases.
3. As in Sadie's case, there is no evidence of respect for a mass/count distinction in the use of *much*; for example, her one attested use of *much* is in the utterance, "There was too much toys...."

Intermediate Ages: 3;0–4;0

INTENSIFICATION, LIKENESS, CONTRAST, etc. During the next period, Rachel shows continued use of forms for INTENSIFICATION, adding several new modifiers

to her repertoire, especially in the first half of this year. These include *very* and *real*, in addition to continuing use of reduplication, *-er*, and *-est* to express INTENSIFICATION. She also adds *enough* and *too*. The last of these now occurs with spatial adjectives, and not just in *too late* and *too heavy*. But these early expanded uses of *too A* appear to be largely for INTENSIFICATION (see Table 11.11A).

We also see continued expression of LIKENESS and CONTRAST, as shown in Table 11.11B and 11.11C. And we see continued use, at least in the first few months, of *too heavy* to mean "can't," shown in Table 11.11D.

Beyond these forms and uses, we see several new developments in Rachel's use of the relevant forms:

Adjectives First, with the forms already in her speech—especially *-er* and *-est*, she begins showing apparently appropriate uses; they seem to start coming in for *-er* around 3;5 or 3;6 and for *-est* around 3;8; see examples in Table 11.11E. It is of note that for both *-er* and *-est*, when Rachel uses a standard of comparison at these later ages, she uses an appropriate form: *than* with *-er*, and *in the whole wide world* or *that we never ever saw* with *-est*.²⁵

In the case of *too*, around 3;3, Rachel begins using *too* with adjectives other than *late* and *heavy*, and, as already noted, at first the dominant meaning seems to be in relation to INTENSIFICATION, as in the examples in Table 11.11A. Around 3;6, however, there are some possibly appropriate uses of *too A* emerging (see Table 11.11E).

Also at approximately the same age, Rachel begins using *how* with *old* (and only *old*), for the specification of age. Finally, we see an initial attempt at using *as*, shown in Table 11.11E, but the form is inappropriate—*as bigger than*—and the semantic import is very unclear ("as big as," "bigger than," "big like"?).

Before leaving the adjectival forms, there is further evidence in the first half of this year that Rachel has trouble interpreting the linguistic forms that have scalar meanings. Some examples are evident in the examples in Table 11.11; for example, the exchange at 3;6:

(43) R: Can you reach it?

M: No.

R: Are you **too little**?

M: Yeah.

R: Are you **too big**? You're not **too little**! Look at you.

[R wanting R or M to get pitcher up high on cabinet. First *too little* appropriate. Second *too little* as if R has heard what she has said, and reinterprets it as "very little."] 3;6.30

Other examples come from Rachel's interpretation of spatial scalar adjectives; for example, on one occasion we were playing with eight graduated rings, and we began talking about which ring(s) were *biggest*, *largest*, *smallest*, and so forth:

²⁵I will not concern myself here with the negative in *that we never ever saw*, even though it is interesting in that it is consistent with the form that would be expected in some languages other than English; for example, Spanish: *Es lo más grande que nunca he visto* 'It is the biggest that I have never seen.'

TABLE 11.11 Adjectives Rachel 3;0-4;0

Table 11.11A Continued Modifications Expressing INTENSIFICATION

very

I'm gonna be **very short** with my beans. 3;5.8

Reduplication

It's gonna be for a **long, long** time. [i.e., R's going to take a long time to finish cereal.] 3;4.26

You know what I like...**real real**?...Milk. 3;6.17

Here's a **long, long, longer** noodle. [R placing noodle out straight on table. No comparison apparent.] 3;7.19

real

You know what I like...**real real**?...Milk. 3;6.17

The milk goes out **real** fast, doesn't it. [R talking about milk when poured from pitcher... "comes out"...Pitcher just standing on table in front of R.] 3;8.7

X-er used for "X" or "very X"

R: His hat's **bigger**.

M: It's bigger than what?

R: His hat's **bigger than** my coats.

[R referring to inflated Santa Claus's hat. Santa is standing in R's room, and his hat reaches as high as the coats that are hanging in her closet. R apparently means something like "big (high) like my coats."] 3;0.19

R: My shoes are **littler than** my feet.

M: Are they gonna fit your feet?

R: Yeah.

[In discussion, R kept to her contention that her shoes were "littler than" her feet and would fit her feet. Apparently means "little like" her feet.] 3;1.28

I'm as **bigger than** her. [R standing up to compare herself with photo of herself. Meaning might be "I'm the same size as her" or "I'm bigger than her."] 3;4.26

I get the **littler** spoon. [R went and got one of the baby spoons out of the drawer; R setting table, or about to eat.] 3;5.0

Don't make this **tighter**. [R trying to open pickle jar lid. She finds she can't open it.] It's **tighter!** 3;6.14

Hey! I got two **prettier** shirts! [R has taken one of her favorite shirts out of her drawer to put it on. When asked about "two" R referred to a shirt that she wore home from school, after getting her other clothes wet at school.] 3;6.23

Two big ones. Two **bigger** ones. Two big ones. [R asking to have crackers after supper; none in sight.] 3;6.29

I don't get **better** gloves, but you do. [As M gets out R's and M's gloves. When questioned, R asserts that M's are black, makes no reference to her own.] 3;7

X-est used for "X" or "very X"

If we have a **biggest** mouth, we have to put a **biggest** popsicle in it. [M getting popsicles out for children.] 3;2.28

too X used for "X" "very X"

Put that in my place 'cause it's **too little**. [R getting out spoons for dinner. Handing M a very little spoon that she chose for her own use.] 3;3.14

Your hands are **too big**. [context?] 3;6

I'm **too high**, Daddy. [R standing on table to turn light on, can barely reach light switch; proud of how high she is.] 3;6.6

Table 11.11A (continued) Continued Modifications Expressing INTENSIFICATION

J: Look how long our train is.
 R: It's **too long**, right?
 [Both J and R eager to make the train they are putting together as long as possible.] 3;6.8
 Look how high it is. **Too high**. **Too high** means too tall. 3;6.23

enough

R: We came home **fast enough**.
 F: Fast enough for what?
 R: We came home in the car **fast enough**.
 [R doesn't understand why F asked her the question; rephrases her statement.] 3;7.15

Table 11.11B Continued Expression of LIKE**same**

R: Big swimming suit is the **same** and big undershirt is the **same**.
 M: The same as what?
 R: They're **the same together... They're the same**.
 [R apparently referring to the fact that swimming suit and undershirt have **same** kind of straps.] 3;6.21
 They're both the **same** amount. They're half. They fit. They both fit. They're the **same** amount. [R holding two lids of same size of her toy dishes together—inside to inside.] 3;6.23

R: C'mere—I got **the same socks**.
 M: What do you mean "you got the same socks"?
 R: I got two socks.
 [i.e., two socks that match; R found pair of socks in drawer to put on.] 3;6.23

Table 11.11C Continued Expression of CONTRAST

M: They're too little. [re: pair of shoes R has outgrown.]
 R: When I grow **big**, then I can have them on....Do shoes grow? 3;4.28
 ...when I grow **back** to a baby **down**. [...then R will go on an airplane again. R & M had been talking about the fact that R had gone on an airplane when she was a baby.] 3;5.2
 Jasmine's **the little** Amy's dog. Jasmine's **the little** dog that's Amy's. [Amy has 2 dogs; Jasmine is the smaller of the 2.] 3;5.11

[F asked R if there were two Terry's at R's school, and R said "yes," then:]
 R: **One is different, and one isn't**.
 M: Which one is different?
 R: Terry L___ is different.
 [Terry L taught there last year, not this year.—R perhaps referring to this.] 3;7.18

Table 11.11D Continued Use of *too heavy* for "can't"

M: You're not too heavy for me.
 R: I'm **too heavy** to pick you up. [i.e., "I can't pick you up."] 3;0.25
 M: Only daddy can go up there.
 R: I'm **too heavy**.
 [R wanting to climb on piano to get to attic.] 3;2 to 3;4

TABLE 11.11 (continued) Adjectives Rachel 3;0–4;0

Table 11.11E Beyond INTENSIFICATION

-er possibly used appropriately

M: That dress is too big.

R: I'll get a **littler** one. ["little" "littler" "very little"]

[M dressing R.] 3;1.28

You're **prettier** than me, 'cause I smile **not harder** than you. [R referring to the fact that M hadn't bought R's school pictures because R wasn't smiling in the picture. Second clause means either "I don't smile hard like you" or "I smile less hard than you".] 3;5.5

[R and M eating. M has cleaned the plate; R still has food on hers.]

R: Are you done?

M: Mhm. I'm in the clean plate club. [At school, children who finish their food are in a "clean plate club."]

R: Then I eat **slower**. I'm little. You're **bigger than** me, right? 3;6.29

When the water gets **littler**, then I don't need to be careful of the glass. [R then pours out some water]. The water got **littler**. 3;6.30

-est used for Superlative

Look what sharpest knife this is. It's the **sharpest** knife **in the whole wide world**. 3;8.4

I want yellow. 'Cause yellow's my **best**. I like yellow **best**. [R picking yellow gingerbread man out of four men in game.] 3;8.13

Some people say "**favorest**," right? Not **favorest**. Yeah, **favorest**. 3;11.0

M: What did you see at the museum, Rachel?

R: The **biggest** dinosaur **that we never ever saw**.

[R, J, and F just got back from natural history museum.] 3;11.4

I'll still be a big kid—a big kid **in the whole wide world**. [R standing on toes with hands way up high.] 3;11.17

too used appropriately

R: Can you reach it?

M: No.

R: Are you **too little**?

M: Yeah.

R: Are you **too big**? You're not **too little**! Look at you.

[R wanting R or M to get pitcher up high on cabinet. First *too little* appropriate. Second *too little* as if R has heard what she has said, reinterprets it as "very little."] 3;6.30

I'm **too big**...to drop through that hole—to drop through my pretend babies' hole. [R holding hands together, interlacing fingers except pinkies, with which she is forming a "hole."] 3;6.30

This is real soft to carry for me. I'm **too tired** to carry this. 4;0.12

how / ___ old connected with AGE

I'm gonna tell them **how old** they are. "**How old** are you guys?" [R pretending to talk to her aunt and uncle on telephone.] 3;7.28

as

I'm **as bigger than** her. [R standing up to compare herself with photo of herself. Meaning might be "I'm the same size as her" or "I'm bigger than her."] 3;4.26

- (44) [R and M are playing with eight graduated rings; M puts them in a line from largest to smallest:]
 M: Which is the biggest?
 R: This the biggest [picking the biggest].
 R: These three are the biggest [pointing to three largest]. These are the littlest [picking up the other five].... Which is the largest?
 M: Which?
 R: **I don't know.**
 [M separates rings, spreads them around randomly.]
 M: Which one's the smallest?
 R: That's the tiniest [pointing to littlest].
 M: Which is largest?
 [R chooses third smallest]
 R: Let's see if it fits on there.... [setting that ring on other, larger ring; etc.]
 [M tells R to put tiny toy baby bottle on "biggest" ring; R places it on biggest; M tells R to put bottle on "smallest" ring; R places it on second smallest; then:]
 R: Do you want me to put it on the tiniest?
 [R then puts bottle on smallest ring.]
 [M places rings in line.]
 R: All those are larger [re: biggest six rings]. Those two are smaller [re: smallest two rings].
 M: Which one's littler than this [M pointing to fourth smallest ring, in line]?
 R: These are littler [pointing to smallest three].
 M: Which one's bigger than this [M pointing to same fourth smallest ring]?
 R: These are bigger [pointing to largest four rings].
 M: **Which one's littler than this** [pointing to third largest ring]?
 R: **That's big!**
 R: These are **littler** [pointing to smallest three], and these are **bigger** [pointing to other five].
 M: Which one's the **largest**?
 [R points to **third largest**]. 3;6.30

It seems that Rachel is, first, more or less overlooking the *-er* and *-est* endings on the adjectives and seems to be trying to understand the adjectives *tiny*, *small*, *little*, *large*, *big*. She seems to be attempting to locate these adjectives in a line from *tiniest*, at the extreme end, to *smallest* to *largest* to *biggest*, with *littlest* somewhere in between. But her difficulty in applying a scalar distribution of the terms, attempting to fit them into a sequence (to which they do not fit) appears to leave her stumped. The application of each term and where it fits relative to the others,

especially in combination with *-er* and *-est*, poses a tricky challenge when scalarity and the meanings of *-er* and *-est* are still somewhat shaky.

On another occasion, at 3;8.27, Rachel corrects my choice of *little* to *tiny*:

- (45) [M and R are doing a puzzle. M tells R to look for a piece with brown, blue,...:]
 M: ...and a little bit of yellow.
 R: a **tiny** yellow, you mean.

Quantifiers Earlier, before 3;0, Rachel already had *more* in her speech, but, as noted, she seemed to use *more* to mean something like “amount.” By 3;11, Rachel’s use of *more* seems to refer appropriately to comparative amount (see Table 11.12A).

Between 3;0 and 4;0, there are also uses of *a lot*, *much*, and *most* (see Table 11.12B). Both *a lot* and *much* are inappropriately linked with *than*. Both combinations appear to be used with a comparative import (“more...than”) at a time when *more* was being used for some less mature meaning (“some”). There are also a few late use of *most* (note, not as an adjectival modifier).

Quantifier Modification Rachel continues to modify *more* with *any* (see Table 11.12C). The primary uses of *much* and *many* occur with modifiers—*too much/too many*, *that much*, and *how many* (Table 11.12C). While the semantics of *too many* is not clear, the semantics of *too much* and *that much* appear to be appropriate, and these occur at about the same time as the appropriate uses of *A-er*, *A-est*, and *too A* also begin to occur. The use of *how many* (as was the case for *the many* and *how A—how old*) encodes reference to age.²⁶

What Is Missing? As in Sadie’s case, with regard to form, there is very little (or in some cases, no) use of a number of forms: *as...as*, *enough*, *that X*, and *this X*. Unlike Sadie, Rachel does use many early *-er*, *-est*, and *too A* forms, but mostly with meanings of INTENSIFICATION until around 3;6, when more appropriate uses appear to be emerging. Rachel does not use *very A* or *how X* very much, except for the use of *how X* in a couple of references to age with “how old” and “how many.”

As noted above, Rachel’s inappropriate uses of these forms are missing notions of scalarity; for example, in her use of *fast enough*, in (46), she appears to mean “very fast”:

²⁶This association of *many* and *how many* with age is not unusual. Some examples from other children:

- (xviii) ...what old will I be? **How many** will I be when it be’s my birthday?... I’ll be **this many** when it’s my birthday [holding up five fingers]. Because that means older. (Jaime 4;0.23)
- (xix) Tracey (3 yrs): That’s **how many** I am. [holding up three fingers]
 Jaime (7;4.1): “Here’s how much I am,” she should have said.

TABLE 11.12 Quantifiers Rachel 3;0–4;0**Table 11.12A** *more*

more time today, right? [R drinking tea w/ spoon; M isn't? R had commented that we can drink tea w/ spoon. meaning not clear.] 3;6.21

Can I touch the table **any more**? [R asking if she can touch table which M had painted yesterday, so yesterday R couldn't touch it 'cause it was wet.] 3;7.9

This one gots **more**—most. [R holding two packs of paper, one thin, one fat.] 3;11.0

Table 11.12B Other Quantifiers*a lot*

I want **a lot** of noodles **than** this. [i.e., "...more..." M had put some noodles on R's plate.] 3;2.19

much

Daddy gots **much** milk **than** me....Daddy gets **too much**. 3;6.21

most

They were **most** bad and not **most** good. [R's dolls have to sit on chairs because they were naughty; i.e. they were "mostly bad."] 3;9.2

This one gots more—**most**. [R holding two packs of paper, one thin, one fat.] 3;11.0

Table 11.12C Modification of Qs*more*

Can I touch the table **any more**? [R asking if she can touch table which M painted yesterday, so yesterday R couldn't touch it 'cause it was wet.] 3;7.9

much

Daddy gots **much** milk **than** me....Daddy gets **too much**. 3;6.21

Are my gonna carry **that much** plates? It's **too much**. It's **too much** plates. One, two, three, four, five. Five plates. 3;9.16

Three things. My tummy can't take **that much** things. [i.e., cookies, crackers, candy.] 3;10.10

many

And there was a little boy that told me **how many** I am. [i.e., "...that asked me how old I am"] 3;0.26

(There's) **too many** people (in the swimming pool). [R pretending cheerios in milk are people; not clear if means "a lot."] 3;6.21

(46) R: We came home **fast enough**.

F: Fast enough for what?

R: We came home in the car **fast enough**.

[R doesn't understand why F asked her the question; rephrases her statement.] 3;7.15

As in Sadie's case, there are indications outside of these forms—for example, in the realm of time expressions—that support the claim that Rachel lacks an appreciation of scalarity:

(47) R: (When we got our clothes off) we'll **still** be cold.

M: Are you cold now, Rachel?

R: No, 'cause I got my PJ's on.

[means "we'll be cold then"] [R's interpretation is not scalar, but punctual] 3;8.28

TABLE 11.13 Problems with Scalarity

R: (When we got our clothes off) we'll **still** be cold.
M: Are you cold now, Rachel?
R: No, 'cause I got my PJs on.
[means "we'll be cold then"] [R's interpretation is not scalar, but punctual] 3;8.28

You get it **until** I get my clothes. [F should get tea for R after she gets her clothes on. R means "you get it...when...I get my clothes"] [R's interpretation is not scalar, but punctual] 2;10.24

He's gonna get up **till** night-time. [J going to take a nap—idea: will sleep a long time—will get up "at" night-time.] [not scalar, but punctual] 3; 5.12

I won't eat it **until** I don't have any salt on it. [R won't eat supper till she can put salt on it. "I will eat it ...when...?"] 3;7.7

No wonder we can have a birthday **till** Christmas. [R was asking M when her, J's, M's birthdays were. M's birthday is on Christmas day. [till = ..."at"...?] not scalar] 3;8.5

- (48) He's gonna get up **till** nighttime. [J going to take a nap—idea: will sleep a long time—will get up "at" night-time.] [not scalar] 3;5.12

See further examples with *until* and *still* in Table 11.13. Both *still* and *until*, in their appropriate adult usage, encode a relation between positions on a time scale viewed from below upwards until a cut-off point; that is, both scalarity and direction on the scale are encoded. Rachel uses *still* and *until* with a punctual import, to mean something more like "when" or "then."

Summary, Intermediate Uses, Rachel

During the first half of this year, Rachel's understanding of the comparative and the superlative appears to be still very immature, with uses for "X" and "very X." Around halfway through this year, nonintensifying uses of these forms and of *how*, *too*, and *enough* also begin to emerge. But Rachel's understanding of scalarity is still immature.

With regard to form, at about the same time as appropriate semantics for *A-er* and *too X* begin to emerge, Rachel seems to more consistently link *-er* with *than* complements. During this period, *much* also enters her speech as the second element in *too much* and *that much*.

Subsequent Advances: 4;0–5;0

Adjectives

INTENSIFICATION: During the next period, first, Rachel shows continued use and expansion of forms for INTENSIFICATION. This includes reduplication, *very*, *real(ly)* [and *real* is also used for "authentic"], *so*, and *pretty*. These are shown in Table 11.14A. During this time, around 4;6, another use of *very*, to mean "absolute" becomes very prominent, as seen in Table 11.14B. And her use of *how* with adjectives also expands beyond exclusive use with *old*. The semantic import

of these utterances is sometimes not clear. But at least some of the uses appear to be for INTENSIFICATION.

- (49) Look **how big** I got this. [R pulled off big lump of shell from Easter egg; she apparently means something like "Look what a big piece came off."] 4;11.12

At other times, the import seems to be more scalar. This seems most evident in utterances like the following at 4;11, in which she is comparing bigness in two things, implying some placement of the two relative to each other on a scale.

- (50) R: Look **how bigger** the ladder is from you.
M: What?
R: Look **how big** the ladder is from you.
[R and M in back yard; ladder taller than M.] 4;11.4

A-er: Her use of *A-er* during this time confirms semantic solidification prior to 4;0. There is no evidence of further uses of *A-er* to mean "A" or "very A" (see Table 11.14D, which shows unmodified uses of *A-er*). Her knowledge that *-er* is linked with *than*, when a standard of comparison is expressed, also continues to show solidification by this time; she no longer uses alternative standard markers with the comparative.

Interestingly, at 4;9.24 Rachel produces one use of *less A* ("less cold"), shown in Table 11.14E. But we will see below, in the next period, a serious struggle with the expressions of forms encoding negative ends or direction on a scale.

A-est: She also uses *A-est* extensively during this period. Uses of *A-est* that are not modified are shown in Table 11.14F. As is true for the uses of *A-er*, the semantics of *A-est* shows solidification also prior to 4;0, with no further uses to mean "A" or "very A."

It is worth noting, before going into further modifications of the adjectival forms, a few developments in relation to the form of the simple superlative. First, Rachel shows some clear struggling with the form of the superlative: While in the adult language, the superlative virtually always occurs with *the*, Rachel sometimes uses *my*, sometimes *the* before *A-est*. This is perhaps a carry-over from *my favorite* [*favorite* has been in Rachel's speech from the earliest stages], as well as her clear association of *favorite* with *best*, as in:

- (51) I'll tell you what's **my best** Kool Aid—pink. [F, M, J, R talking about "Country Time" lemonade being like yellow Kool-Aid.] 4;4.27
- What is **your best book** of mine? [= "what book of mine is your favorite?"] 4;10.25
- Purple is Nicole's favorite color—**best** color. 4;10.26
- Daddy, here is **my best** part—"21 on none." [in book—21 people on no bike.] 4;11.4

That's **my best** song in the whole wide world. 4;11.14

R: That's **my best** thing.

M: That's your best thing?

R: Uhu. [= yes] ... I mean that's **the** [= /ðə/] **best** thing. 4;11.19

Oh, that's **my best** part! [R in kitchen—hears song on Sesame Street that she likes; then runs into living room to watch; song: "People in Your Neighborhood"] 5;0.11

(Note her self-correction to *the* in the second-to-last example.) She even uses *best* as the degree marker at this same time:

(52) R: Wonder Woman is **the best great** of all.

J: No, Green Goblin.

R: Green Goblin is **the best great** of all.

[R and J playing wrestling; R is W.W., J is G.G.] 4;9.29

She also shows some overextensions to *marveloust*, *differentest* (and *favorest* just prior to this period, at 3;11). And toward the end of this period, around 4;10 onward, she shows double marking (*the most A-est*) on superlatives (Table 11.14G).

The second aspect of the form of the superlative that is developing during this time is the standard of comparison. For Rachel, the clear favorite form is *in the (whole wide) world*, as shown in the examples in Table 11.14H. But, like her early use, around age 3, of *than* phrases outside of *A-er* phrases, Rachel's use of *in the (whole wide) world* at this age, at age 4½ to 5, extends beyond the superlative (and takes on a superlative type import in those phrases). Furthermore, she eventually turns this expression into *world's*, used preadjectivally as a superlative marker, also shown in Table 11.14H—e.g., in:

(53) The greatest **world's** mommy. [R being affectionate.] 4;11.0

This association of *in the world* with *world's* is quite explicit in the following utterance:

(54) [R is reporting to M a dream she had:]

R: [R says she dreamt about:] the **world('s)** stealer.

M: Does he steal the world, Rachel?

R: No, he steals everything he finds. 4;11.17

Finally, during this time, we also see greater use of scalar modifiers. She uses *too A/enough A*, shown in Table 11.14I, even in self-correction from what appears to be an initial use of *too A* to mean "very A" to a more appropriate *A enough*. There are many more occurrences of *as A as*, shown in Table 11.14J. It is clear that the semantics of these uses of *as...as* is deficient, however. In most cases, Rachel appears to mean "the same X as," so *as big as* means "the same size as," and so

TABLE 11.14 Adjectives Rachel 4;0-5;0**Table 11.14A** For INTENSIFICATION:**Reduplication**There's a **big, big, big, long** dinosaur. [R drew a tall, skinny ghost-like shape.] 4;6.7

R: They're way so down

M: What?

R: I mean they're way so far down they look like **tiny, tiny** ants.

[R looking at people outside 4th floor window, down on ground through window.] 5;0.24

That is a busy street—**busy, busy, busy** street. [re: main street through town] 5;0.30**very**

R: That's littler and that's taller. [re: two glasses almost exactly same height, but very different in diameter; first = juice glass, second = mug]

[M writes this down; R then asked M what she wrote and M read it; R corrects:]

R: **very tall.**

M: And is that very little?

R: Yea, and that's **very taller.** Look how big that is. Can you see how tall it is? 4;6.25

M: Why don't you use one of your purses for your crayons?

R: No, I have a **very better** idea.

[R collecting up crayons; R then goes to get one of her dishes to put crayons in.] 4;11.3

Ronald McDonald is littler than Saasha—**very littler.** [re: R.McD. hand puppet] 4;11.6**real**

M: They don't like babies at my school.

R: Unless they're **real ones** that belong to mommies and daddies.

[R asking M if M will take her doll baby to university.] 4;10.8

R: Keep your foot hard to the ground.

M: What?

R: Keep it to the ground **real hard.**

[R wants to "crack" M's toes; M has to hold foot back.] 5;0.23

reallyThe jug is **really filled** with milk. 4;11.29**so**Yea, because I was **so busy.** Except I'm gonna be so busier this time. [J wants to lie in M's bed w/ M for nap, then told R she could, since she hadn't done it on a previous occasion.] 4;9.0**pretty**This is **pretty hard** to show up. [R trying to write her name on book; the name is hard to see.] 4;10.16**Table 11.14B** *very* for "absolute"The **very next** top drawer. I mean, the very third drawer. [R telling M that she found item she was looking for in 3rd from top drawer in kitchen] 4;6.24I can even do the **very back** one. [R snapping PJ top to bottom—there is 1 snap in the middle of the back.] 4;9.18

J: Rachel, where's your PJ drawer?

R: On the **very bottom.**

[J putting R's PJs away; J doesn't know which drawer to use.] 4;10.4

Table 11.14B (continued) *very* for "absolute"

- R: What day's just before—the **very before** Easter?
 M: What?
 R: What day's right before Easter? 4;11.0
- You made me have to do the **very rest**. [M waited for R to let M wash R's face; R washed all dirt off and M told R M didn't need to wipe R's face since it was all clean; then R wiped forehead and said above.] 4;11.26
- That's because the blocks were at the way—on the **very bottom**. [re: R moved top toy bins to get to bottom one which had blocks in it --was way at the bottom.] 5;0.18

Table 11.14C *how*

- Do you wanna see **how big** their fingers are? [i.e. the "daddy" forks—the tongs of big forks.] 4;3.13
- R: That's littler and that's taller. [re: two glasses almost exactly same height, but very different in diameter; first = juice glass, second = mug]
 [M writes this down; R then asked M what she wrote and M read it; R corrects:]
 R: very tall.
 M: And is that very little?
 R: Yea, and that's very taller. Look **how big** that is. Can you see **how tall** it is? 4;6.25
- R: Look **how bigger** the ladder is from you.
 M: What?
 R: Look **how big** the ladder is from you.
 [R and M in back yard; ladder taller than M] 4;11.4
- Look **how big** I got this. [R pulled off big lump of shell from Easter egg; she apparently means something like "look what a big piece came off."] 4;11.12
- Look **how big** daddy gave me a bowl. Look **how big** of a bowl daddy gave me. [re: bowl for egg shells.] 4;11.12
- R: Look **how big** my mouth is.
 F: Wow, what if I fell in there?
 R: You wouldn't, because it's not so little ... I mean, so big.
 [R showing F her mouth with it wide open.] 5;0.6

Table 11.14D *A-er*

- M: Who's bigger than me, Rachel?
 R: Daddy.
 M: Who's littler than me?
 R: Jaime.
 M: Who's the littlest, Rachel?
 R: Jaime and me. 4;0.7
- [A girl and a boy on Sesame Street help each other put smocks on. The girl is shorter than the boy.]
 The little girl is **littler**, just like me...[R looks at J] is **littler than** Jaime! 4;4.6
- F: Whose sandwich is this?
 R: Ann said she'd leave it for me unless I want it **later**. [i.e., "...in case I want it later"]
 [F has found sandwich in the refrigerator.] 4;8.6
- I'm **bigger than** anyone in the world. [R standing on table.] 4;10.6
- Higher, higher**. [i.e., louder, music on radio; R wants M to turn up radio.] 4;10.15
 (Do you know why I got back here?) Because it's **the warmer** place. [R behind sofa] 4;10.27

Table 11.14D (continued) *A-er*

- J: I like 'em better.
 R: He said "I like 'em better."
 F: What's he supposed to say?
 R: I like 'em **better than** that. (4;11.7)

This can't be coffee 'cause it tastes so good—how'd they take the **better** taste—the best taste out.
 [R singing commercial; real words: "How'd they take the bitter taste out?"] 4;11.9

It helps your bones get strong/**stronger** unless the hammer's too heavy for you. [re: milk. J had said milk was good for nails (referring to fingernails); R picks up on this, thinking he was referring to nails for hammering. She means "It helps your bones get strong/stronger in case the hammer's too heavy for you."] 4;11.18

Table 11.14E *less A*

Sherbet is **less cold than** this snow ice cream. [R thinks snow ice cream is colder.] 4;9.24

Table 11.14F *A-est*

Black is **my terriblest** color. 4;1.0

- R: I wish I was Jaime.
 M: Why?
 R: 'Cause Jaime gets to do **the funnest than** me.
 [R, M, J talking about J's tumbling class and R doing dancing class] 4;1.24

- R: Which finger do you think **is the heaviest** for this?
 M: I don't know.
 R: This finger.

[R holding small piece of curled crayon paper in 1 hand, picks it up by inserting ring finger of other hand and lifting it w/ it wrapped around finger. "heavy" = "strong"?] 4;2.18

I'll tell you what's **my best** Kool-Aid—pink. [F, M, J, and R talking about "Country Time" lemonade being like yellow Kool-Aid.] 4;4.27

Mommy, here's some paper unless you hear someone say **the darndest**. [R handing M pack of 3 X 5's. We call these utterances "the darndest things." R means "... in case you hear..."] 4;8.26

I like those **best** the same amount. [in book, it says to circle the box you think is the prettiest; R first circled 1 box, then decided she liked another just as much.] 4;8.30

I'll tell you which one of those toothbrushes are **smallest**. [R and J in bathroom.] 4;9.21

Whoever be's **the quietest** gets the prize. [R and J playing wrestling; M in audience.] 4;9.29

OK—here's the prizes for whoever be's **the quietest**. [R bringing prizes after wrestling match between R and J.] 4;9.29

(Don't let anybody see the prizes) until they be **the quietest** and we give it to 'em. 4;9.29

... give to **the most best** person that be's **quietest**. 4;9.29

R: Wonder Woman is **the best great** of all.

J: No, Green Goblin.

R: Green Goblin is **the best great** of all.

[R and J playing wrestling; R is W.W., J is G.G.] 4;9.29

My pants are **the wettest** I have on. [R has just taken off long pants which got all wet from melting snow.] 4;10.10

Are red or yellow apples **the juiciest**? [R has just gotten red apple out for herself; M eating yellow apple.] 4;10.12

R: Put those over there unless someone can't reach it.

[R telling F to put cheerios in middle of table. F then read above out loud.]

R: That isn't a **darndest thing**! 4;10.14

Table 11.14F (continued) *A-est*

- I don't like anybody 'cept you **the best**. [R to M; R mad at J and F.] 4:10.15
The marveloust mommy in the world. [R thinking out loud.] 4:10.18
 What is **your best book** of mine? [= "what book of mine is your favorite?"] 4:10.25
 Purple is Nicole's favorite color—**best** color. 4:10.26
 This one is the different of all. This is **the differentest** I ever had. [R just got new purse in mail.] 4:10.27
The greatest world's mommy. [R being affectionate.] 4:11.0
 I'll get you something unless somebody says some **darndest** things. [R handing M pad of paper.] 4:11.3
 Daddy, here is **my best** part—"twenty one on none." [in book—21 people on no bike.] 4:11.4
 That's **my best** song in the whole wide world. 4:11.14
 R: That's **my best** thing.
 M: That's your best thing?
 R: Uhu. [= "yes"] ... I mean that's **the** [= /ðə/] **best** thing. 4:11.19
 Oh, that's **my best** part! [R in kitchen -- hears song on Sesame Street that she likes; then runs into living room to watch; song: "People in Your Neighborhood"] 5:0.11

Table 11.14G Double Marking: *the most A-est*

- ... give to **the most best** person that be's quietest. 4:9.29
 I told you it would be **the most funniest** world's champion. [R and J playing wrestling.] 4:9.29
The most biggest one is that. [R pointing to biggest leaf on rubber plant; R, J, and F discussing its new leaves, etc.] 4:11.9
 Here comes **the most beautifulst** thing. [M putting J's cover on his bed, as M makes bed.] 4:11.11

Table 11.14H ...in the (whole wide) world**A-est** ____ :

- The marveloust mommy **in the world**. [R thinking out loud.] 4:10.18
 That's my best song **in the whole wide world**. 4:11.14

A ____ or other context:

- I wish my tummy was empty of everything **in the world**. 4:8.28
 I like both of you **in the whole wide world**. [R to F and M.] 4:11.1

in the world → *the world's*:

- I told you it would be the most funniest **world's** champion. [R and J playing wrestling.] 4:9.29
 The greatest **world's** mommy. [R being affectionate.] 4:11.0
 [R is reporting to M a dream she had:]
 R: (I dreamt about) the **world(s)** stealer.
 M: Does he steal the world, Rachel?
 R: No, he steals everything he finds. 4:11.17

Table 11.14I *too A/A enough*

- I was **too strong** to open it. I was **strong enough** to open it. 4:2.7
 She [rc: R's doll] said she's sweating **too hot**. 4:10.27

Table 11.14J *as A as*

- They're about **as old as me**—five. [= "they're about the same age as me"; R pretending cheerios are kids; R is four; M then asks R if she's five; R says "no, they are."] [not scalar; wrong direction on scale?] 4:4.11.
 Except they're not **as big as** each other. [R, J, F saying that two girls down the street are twins, then above (the girls are not really twins).] 4:6.5

Table 11.14J (continued) *as A as*

As long as I move the table over here. [= "as soon as..."; R asked for milk; M told her to come in kitchen; R wants her table in living room] [cf. "long" for time?—as long as it takes me to...] 4;8.25

Maybe that's **as far as** he can throw. [M found newspaper up by front door; paperboy usually throws paper onto front lawn, nearer street; M said boy put it by the door, then above.] [has wrong implicature—no further than that] 4;8.28

That's about **as warm**—that's about **so warm that** we could go to the lake. [R had called time and temp.; temp. is 64°.] [means "warm enough"] [stops w/ **as**..., since she'd have to continue with **as** ...?] 4;11.25

M: Are you **as cold as** I am, Rachel?

R: No, I'm **colder**, **not as cold!**

[re: a chilly morning] 5;0.25

Table 11.14K *that A*

How could it be **that little** when it's mommy's. [F holding up R's coat asked "Is this yours or is it mommy's?" R means "...if it's mommy's."] 4;11.3

[R asked M to open her bedroom door at bed time, after M put R to sleep; M opened door a little, and R said:] I don't mean **that far**. [R then got up and opened the door even more. Wrong direction on scale] 5;0.8

forth. This indicates that she is not using *as...as* strictly as a scalar predicate, with a direction from below upward on the scale, but more as indicating a point on a scale. And many of her utterances clearly lack the appropriate semantics that such a scalar understanding would entail. For example, on one occasion, I had found our newspaper up right by our front door, not where the paperboy usually threw our paper—onto the front lawn, nearer the street. I made a comment about the fact that the boy put our newspaper by the door, and Rachel says:

(55) Maybe that's **as far as** he can throw. 4;8.28

This use of *as...as* is odd, because it does not carry the normal implicature "up to that point and no further." Rachel seems to be saying "Maybe he can throw that distance."

The same can be said for her uses of *that A* at the same time (see Table 11.14K). She uses *not that far*, for example, to mean "not that distance," lacking the scalar encoding of movement up the scale. Thus, her statement at 5;0.8, when she chides me for the amount that I have left her bedroom door open, does not carry the appropriate implicature, and entails the wrong direction on the scale:

(56) [R asked M to open her bedroom door at bedtime, after M put R to sleep; M opened door a little, and R said:]
I don't mean **that far**.
[R then got up and opened the door even more.] 5;0.8

Finally, it is of note that Rachel's uses of *as...as*, like Sadie's at an earlier age, invariably have both the appropriate degree marker and the standard marker, linked from the start (more on this below).

These developments with adjectives reveal the following advances during this period:

- First, R's use of the comparative appears to be semantically correct by age 4.
- R's use of the superlative appears to be semantically correct by this same age.
- R's realization that the simple *-er* comparative is linked with the standard marker *than* appears to be solidified by this period.
- R's formation of the simple *-est* superlative, however, appears to be in a protracted period of transition during which she has not settled on the correct degree marker, alternating *-est* with *best*, and using *the* and *my*. She also uses *in the (whole wide) world* as the dominant standard of comparison, and she has a period during which this phrase alternates with preadjectival *world's*.
- In addition to these developments within simple comparative and superlative forms, Rachel begins during this time to use *how* with spatial adjectives, sometimes to encode INTENSIFICATION, and sometimes apparently with a scalar sense. She also uses *A enough* in an appropriate sense.
- Finally, she begins using the scalar modifier *as...as*, but semantically, it appears to mean "the same ... as," rather than to be strictly scalar. That is, the interpretation has to do with a more punctual assessment of the degree of presence of a property, and to lack a scalar interpretation of asserting a lower limit, moving from low on the scale upwards. The use of these forms, thus, lacks in many cases the appropriate semantics and implicature for these expressions.

Quantifiers

Q: There are very few cases of isolated quantifiers in the data, as most quantifiers during this period are used in combination with other modifiers (see Table 11.15A).

Q + more: In the previous periods, Rachel used *any more* and *no more*; here she adds other quantifiers preceding *more*: *three more*, *a lot more* (see Table 11.15B).

X/Deg? + much (many): Rachel also was already using *too much* and *that much*, and she continues to do so, and she adds other modifiers to the repertoire preceding *much* (and occasionally *many*): *so*, *how*, *as* (see Table 11.15C).

As much/many (as) is of particular note: At the same time as Rachel begins using *as...as* with adjectives, Rachel begins using *as...(as)* with *much* and *many*, indicating a shared syntactic/semantic source. Examples are given in Table 11.15D. While the adjectival forms showed a link between the use of both the degree marker and the standard marker *as* from 4;4, the quantifier forms show consistent use of both markers from just before 4;10. She corrects herself at 4;9.30 from "get

as many glasses out you want" to "get as many glasses out as you want." This may be one case in which there is evidence of transferring what has been learned in one domain (*as...as* with As) to another domain (*as...as* with Qs).

With regard to semantic content, many of these utterances, just as those for *as A as* and *that A*, still reveal an immature understanding of the scalar semantics associated with these forms. For example, Rachel uses *that much* for the wrong direction on the scale at 4;10.25:

- (57) How come you have **that much** and I don't? [to F, who had almost finished his bowl of cereal; R had just started hers.] 4:10.25

At the same time, she shows, as Sadie did, an emergent association of scalarity with number, as in:

- (58) You know **how many** times I love you? I love you **one hundred times**.
4;10.7

[R comparing amount she's sweating and amount she's tired:]
I'm **sweating three times**, and I'm **tired two times**.
[i.e., sweating at a value of 3 and tired at a value of 2.] 4;11.25

Interestingly, the adult form in the first of the utterances in (58) would have used *how much*. Utterances in, for example, Table 11.15C make it clear that Rachel still does not respect the mass/count distinction for *much* and *many*, usually overusing *much* where *many* should be used. But Rachel's choice of *many* in this utterance, which was previously associated with numbers connected with age, and her association of the magnitude of her feeling with a (high) number (... *one hundred times*), is consistent with Sadie's association of scalarity with numbers, as in the examples in Table 11.15H. We will see more of this in Rachel's data for 5;0 to 6;0 below.

X + A-er: Around 4;6, Rachel begins placing modifiers in front of *A-er*: This includes *even*, *enough*, *more*, *so*, *much*, *very*, and *how*. Initially, there is one occurrence of *too much A-er* alternating with *much too A-er* (see Table 11.15E). There are several important aspects concerning these structures:

- All of the modifiers are placed before *A-er*, even *enough*: *enough closer*.
- They seem to emerge fairly co-temporaneously, indicating a probable comparable construction governing them. That is, there is no evidence for any difference in Rachel's composing of, for example, *much + A-er* and that of *how + A-er*, *even + A-er*, *so + A-er*, *very + A-er*.
- This is despite the fact that she has had for some time already in her speech forms like *too much* and *that much*. So, the potential to form expressions such as *too much bigger* and *that much bigger* was clearly available in her repertoire, but the fact that she did not produce such combinations supports the likelihood that she had a simple rule at this time of concatenation: *X + A-er*.
- And, finally, the elements that fall into the category of pre-*A-er* options include *more*. These are the first occurrences of double marking of the

TABLE 11.15 Quantifiers Rachel 4;0–5;0**Table 11.15A** Q*a lot*

A row of O's. When there's **a lot** of O's, you can call it a "row of O's" [R seeing "92,000,000" in phone book.] 4;1.10

more

Ann's came **more than** Janet. [i.e., as babysitter; R says she said "Ann" not "Ann's."] 5;0.5

most

R: There's **most** girl babies **than** boy babies.

M: What?

R: There's **most** girl babies in the world **than** boy babies.

[needs "more," not "most"] 4;11.25

Table 11.15B X + *more*

We better be (finished) hanging all our stuff for Halloween until it's **three more** days. 4;6.14

I need **a lot more** bites ... more than eleven ... to do all of it. [M told R to eat 11 more bites of her supper; she at first said that would be all the rest of the food...] 4;7.1

Table 11.15C X + *much/many*

I can hold **this much** in one blow. [R holding bunch of cookie cutters—"at one time"; J and R picked up "in one blow" from "Seven at a Blow."] 4;2.8

Look **how much** shells you got. [R to F; F eating nuts, putting shells on plate.] 4;8.4

Mommy, look **how much** checkers I got. [R w/ checker game, collected lots of checkers by jumping; R playing w/ herself.] 4;8.11

They have **so much** colors. They have **so much** colors from the paint. [R looking at tree ornaments she made and painted at school.] 4;8.20

Mommy, now there's **so much** people. [in auditorium, waiting for show] 4;8.25

Look **how much** E's I got. [R playing Scrabble (Juniors).] 4;8.26

You're gonna have to put it on unless I put **too much**. [salt on zucchini; "in case I (would) put too much."] 4;8.28

It [re: house] has **so much** windows. 4;9.1

First I gotta count **how much** there are. [R wants to count beads on necklace.] 4;9.28

Let me see **how much** necklaces I have. I have one, two, three, four—[R thinking of the necklaces she has.] 4;9.29

Mommy, do you know **how much** you should give me? [M tearing pieces of tape off roll for R to use; R goes to see how many she needs] 4;9.30

You know **how many** times I love you? I love you one hundred times. 4;10.7

I wanna see **how much** things—no, **how much** pieces....[R cutting cheese into pieces.] 4;10.8

... 'cause I drank **so much** things and ate **so much** things. [That's why R has to go potty.] 4;10.23

How come you have **that much** and I don't? [to F, who had almost finished his bowl of cereal; R had just started hers.] [wrong direction on scale] 4;10.25

You cut this part of my bangs **too much** [= "too short"]. 4;11.20

I'm not so hungry for soup—soup is **too much**. [R wanting cracker for snack, not hungry enough for soup she left from lunch.] 5;0.20

Table 11.15D *as + much/many (+ as)*

That's **as much** I took. [J putting ketchup on his plate—as much as R took.] 4;6.27

Can I taste **as many** cookies I want? [re: Xmas cookies.] 4;8.4

Daddy, get **as many** glasses out you want. [F did not understand and R repeated:] Daddy, get **as many** glasses out **as** you want. 4;9.30

You can have **as many** pieces **as** you want. [R offered F some of apple she has cut up.] 4;10.12

That's **as much as** I could only get out. [R getting grapefruit out of skin—having a hard time; "I could only get out that little" R showing M how little there is in bowl, wrong direction on scale? problem of scope?] 4;11.25

Table 11.15D (continued) *as + much/many (+ as)*

- F: They're **as much** Henderson's and mine **as** anybody else's.
 R: **Much** Hendersons! There's only one Henderson.
 [misunderstood "as much...as"; also, her link of *much* with *Hendersons* reveals lack of respect of mass/count distributional restrictions—*much* + singular] 5;0.26
 [R says she wants to give M...]
As many hugs and kisses you are ... **as many** years old you are.
 [R was going to say "as many hugs and kisses you are old," but then put in "...as" and got convoluted] 5;0.27

Table 11.15E *X + A-er*

- Angie's **much too bigger than** me. I'll tell you who's **too much bigger than** me. You're **much too bigger than** me. 4;6.10
 Why didn't you get **enough closer** to the door? [R asking M why M didn't answer R knocking on front door; M told R that M didn't hear her knocking.] 4;6.16
 R: I did it **even bigger than** that.
 M: I know, and I want you to do it smaller.
 R: I mean I did it littler.
 [R picking up glob of cranberry littler than F said she had.] 4;7.20
 That chair's **more funner than** any other chair. [first double marking. AFTER other *X + A-er* forms] 4;8.2
 This feels **more better** up here. [R feeling velvet on top part of chair.] 4;8.25
 Yea, because I was so busy. Except I'm gonna be **so busier** this time. [J wants to lie in M's bed w/ M, then told R she could, since she hadn't done it the last time.] 4;9.0
 There, I made the hole **much bigger**. [R made opening to cheerios package bigger.] 4;10.20
 M: Why don't you use one of your purses for your crayons?
 R: No, I have a **very better** idea.
 [R collecting up crayons; R then goes to get one of her dishes to put crayons in.] 4;11.3
 R: Look **how bigger** the ladder is **from** you.
 M: What?
 R: Look how big the ladder is from you.
 [R and M in back yard; ladder taller than M.] 4;11.4
 Ronald McDonald is **littler than** Saasha—**very littler**. [R.McD. hand puppet.] 4;11.6
 Scoot the chair **more farther**. [R wants M to scoot chair closer to cabinet so she can reach can opener; R on chair.] 4;11.19
 Hail! That would be **even badder than** hard snow. [i.e., if it fell on umbrella.] 5;0.29
- Table 11.15F** *even/much more A-er*
- I have something that's **even more better**. [To J; J and R playing in R's room.] 4;10.15
 I'll have to get **much more bigger** before I can wear his yellow raincoat. [i.e., J's raincoat.] 4;10.25
 I'll have to grow **much more bigger** until I can wear this. 4;10.25
 The kid's **much more older than** the baby. [R said she's going to take her kid for a ride; F asked her if the kid was the same as her baby, which R had previously said had died today.] 4;10.26
 I'm **much more bigger than** my door. 4;11.15
 This is **even more better than** D.Q. [R eating ice cream cone from supermarket; D.Q. = Dairy Queen.] 5;0.27
 A snake would be **much more bigger than** that was. [re: Play-Do mold for a worm: R couldn't remember if it was a worm or a snake, decided it was a worm.] 5;0.28

TABLE 11.15 (continued) Quantifiers Rachel 4;0-5;0

Table 11.15G Problems with Scalarity

We better be (finished) hanging all our stuff for Halloween **until** it's three more days. 4;6.14
 I'm [=/*ãĩn*/] just gonna get one out **until** I'm [*ãĩn*] done eatin' this one. [R getting nut out of bowl
 and setting it on table to wait till she's done eating the one she's just started; i.e., "...for
 when..."] 4;8.5

Table 11.15H Association of Scalarity with Number

You know **how many times** I love you? I love you **one hundred times**. 4;10.7

[R comparing amount she's sweating and amount she's tired:]

I'm sweating **three times**, and I'm tired **two times**.

[i.e., sweating at a value of 3 and tired at a value of 2.] 4;11.25

comparative in Rachel's speech. It is not clear if there is any possibility that *more A-er* forms prompted her to expand to a larger rule of *X + A-er*, or whether *more A-er* simply fell into line along with other *X + A-er* constructs. The timing of the emergence of *more A-er*, however, suggests that it is simply one type of the *X + A-er* constructs, as the first examples of doubly marked comparatives appeared about two months after the first *X + A-er* constructions.

- The conclusion that the doubly marked comparatives grew, at least in part, out of the availability of *X + A-er* constructs is supported with the subsequent development of these constructs, below, as well as the timing of the doubly marked superlative constructs, which emerged approximately two months after the doubly marked comparative forms. Thus, *X + A-er* forms emerged around 4;6, doubly marked comparatives emerged around 4;8 (possibly as a development of the *X+A-er* forms), and doubly marked superlatives emerged around 4;10 (Table 11.14G).

even/much more A-er: About half a month after the emergence of doubly marked superlatives, and after the *X + A-er* forms had been in Rachel's speech for about four months, she began to produce constructs of the form *even/much more A-er* (Table 11.15F). There are a number of important aspects of these structures:

- First, the initial modifier always occurs with *more A-er*, never simply *A-er*, and never with any of the other *X + A-er* forms in Rachel's speech (e.g., never *much so bigger*, *much very bigger*, etc.).
- Second, the initial modifiers in evidence were only *even* and *much*. Again, while Rachel clearly had forms like *too much* and *that much* in her repertoire, she did not produce forms like *how much better*, *that much closer*, *too much bigger*, or even *that much more bigger*.

More Elaborated Structures There is also evidence during this time that Rachel begins to develop longer structures involving these forms:

Standard of comparison: First, as we have seen, Rachel appears to have established prior to this age that when the standard of comparison is expressed with

the comparative, *than* is used. With *as*, she seems to link the degree marker *as* from the beginning of its use with the standard marker *as*. Moreover, she seems to conclude by 4;10 that the standard of comparison is *required* in such *as...as* constructs. At 4;9.30, she corrects her own utterance from one without the standard marker to one with the standard marker *as*. Interestingly, it is at exactly this same time that Rachel corrects her (older) brother's use of a comparative without a standard of comparison:

- (59) J: I like 'em better.
 R: He said "I like 'em better." [as if "catching" a mistake]
 F: What's he supposed to say?
 R: I like 'em **better than** that. 4;11.7

If indeed she did conclude that the standard marker *as* (or by extension, *than*) was required, this would be a case of a child drawing up a structure on the basis of positive evidence only. Recall from the examination of the written texts and of Abe's corpora that there is a probable high frequency of co-occurrence between degree marker *as* and standard marker *as* in input to children.

Nominal heads: It is at this time that we also see attempts at constructing more elaborate structures, and Rachel's attempts help highlight some important issues these present.

First, we begin to see problems with constructs that include a nominal head—for example,

- (60) Look **how big** Daddy gave me **a bowl**. Look **how big of a bowl** Daddy gave me. 4;11.12

The appearance of such structures and a closer examination of all of the utterances up to this point reveal a striking fact: Prior to 4;11, the only constructs involving elaborated adjectival forms modifying noun heads are of two types:

First, there are a few forms that would be considered outside of the system in question in the adult language and are often immature sounding:

- Reduplicated forms, such as "There's a **big, big, big, long** dinosaur." [R, 4;6.7]
- Forms with *real(ly)*, when these mean "authentic," such as in (61), and forms in which *very* is used to mean "absolute," such as in (62).

- (61) I'm not **a really monster**. 2;10.15

M: They don't like babies at my school.

R: Unless they're **real ones** that belong to mommies and daddies.
 [R asking M if M will take her doll baby to university.] 4;10.8

- (62) R: The **very next top drawer**. I mean, the **very third drawer**.

[R telling M that she found rope lighter in 3rd from top drawer in kitchen]
 4;6.24

R: I can even do the **very back one**.

[R snapping P] top to bottom—there is 1 snap in the middle of the back.] 4;9.18

The second and only other type of structure in which Rachel uses adjectival forms with noun heads prior to 4;11 is superlative structures, such as the following:

(63) Look **what sharpest knife** this is. It's **the sharpest knife** in the whole wide world. 3;8.4

M: What did you see at the museum, Rachel?

R: **The biggest dinosaur** that we never ever saw.

[R, J, and F just got back from natural history museum.] 3;11.4

Black is **my terriblest color**. 4;1.0

I'll tell you what's **my best Kool Aid**—pink. [F, M, J, R talking about "Country Time" lemonade being like yellow Kool-Aid.] 4;4.27

...give to **the most best person** that be's quietest. 4;9.29

The marveloust mommy in the world. [R thinking out loud.] 4;10.18

What is **your best book** of mine? [= "What book of mine is your favorite?"] 4;10.25

As we've already noted, Rachel vacillates in such forms in her choice of determiner, mostly between *the* and a possessive form. And even in such superlative structures, a noun is sometimes curiously missing:

(64) Mommy, here's some paper unless you hear someone say **the darndest**. [R handing M pack of 3 × 5's. We always call these utterances "the darndest things."] 4;8.26

My pants are **the wettest** I have on. [R has just taken off long pants which got all wet from melting snow.] 4;10.10

The first of these is especially odd, since in the family we always referred to these expressions as "the darndest things" (from the old Art Linkletter TV program, on which he had a segment called "Kids Say the Darndest Things" in which he interviewed young children).

Beyond these two types of structures, for all other structures in which elaborated adjectival forms (i.e., other than simple adjectives) occurred, virtually not a single utterance before 4;11 allowed the adjectival form to occur with a nominal head. This includes utterances involving *A-er*, *too A*, *so A*, *real(ly) A* (for intensification), *pretty A*, *how A*, and *X + A-er*.

I say "virtually" because at the earliest uses of *A-er*, in the first half of the year when Rachel was 3, she did use *A-er* forms with nominal heads, as in:

(65) Hey! I got two **prettier shirts!** [R has taken one of her favorite shirts out of her drawer to put it on. When asked about "two" R referred to a shirt that she wore home from school, after getting her other clothes wet at school.] 3;6.23

Two big ones. Two **bigger ones.** Two big ones. [R asking to have crackers after supper; none in sight.] 3;6.29

I don't get **better gloves,** but you do. [As M gets out R's and M's gloves. When questioned, R asserts that M's are black, makes no reference to her own.] 3;7

M: That dress is too big.

R: I'll get a **littler one.** ["little" "littler" "very little"]

[M dressing R.] 3;1.28

It may be highly significant that, as noted above, at this early stage Rachel seems to be using these forms semantically as noncomparative forms, almost like alternants of simple A forms.

Then at 4;11, we begin to see uses of these comparative forms with noun heads:

(66) (Do you know why I got back here?) Because it's **the warmer place.**
[R behind sofa.] 4;10.27

M: Why don't you use one of your purses for your crayons?

R: No, I have **a very better idea.**

[R collecting up crayons; R then goes to get one of her dishes to put crayons in.] 4;11.3

This can't be coffee 'cause it tastes so good—how'd they take **the better taste**—the best taste out. [R singing commercial; real words: "How'd they take the bitter taste out?"] 4;11.9

And it is at exactly this same time that we see Rachel's self-correction from using a possessive determiner for a superlative form to using the definite determiner *the*:

(67) R: That's **my best** thing.

M: That's your best thing?

R: Uhu. [= yes]...I mean that's **the** [= /ðə/] **best** thing. 4;11.19

These developments are highly suggestive that it is not until this time that Rachel begins to construct the more complex phrase structure patterns that will allow for adjectival forms involving degree-marked adjectives within nominal phrases. Whether the late establishment of more complex syntactic structures of this type is due to the fact that the emergence of such constructs is contingent on the prior working out of simpler syntactic details (e.g., the appropriate degree and

standard markers, co-occurrence patterns) or is related to the relatively infrequent occurrence of such forms in the input (as judged by the Abe corpora—only 2 out of 57 utterances had comparatives with nominal heads—see the introduction) is a question that will have to await further study.

Clausal Complements: It is also at the end of this period that we see Rachel begin to attempt complex clausal complements of these structures, such as the following:

(68) [R says she wants to give M...]

as many hugs and kisses you are...**as many years old** you are.

[appears she was going to say "as many hugs and kisses you are old," but then put in "...as" and got convoluted] 5;0.27

There has to be **as many people**... [R hesitates and says she does not know how to say it, then:]

There has to be **as many people**...um...**that as many words** there are.
5;2.15

It may well be that she has been "pushed" into working out these structures, at least in part, as a consequence of her conclusion that the standard of comparison in *as...as* structures must be explicit.

Interpretation of Scalar Forms: As noted, Rachel continues to show immature understanding of scalarity in her uses of *as much* and *that much*. And we similarly see continued misuse of scalar temporal forms like *until*, as in the following (see Table 11.15G):

(69) I'm [= /ãĩn/] just gonna get one out **until** I'm [= /ãĩn/] done eatin' this one. [R getting nut out of bowl and setting it on table to wait till she's done eating the one she's just started; that is, "...for when..."] 4;8.5

Again, she seems to use *until* as if it means "for when," not as encoding position on a temporal scale viewed from below upward.

Summary, Subsequent Advances, Rachel

This period seems to be an important period in Rachel's development of these forms. There are significant advances concerning the semantics of the forms, as well as in their syntactic form.

Semantics First, from the beginning of this period, we have confirmation of Rachel's correct semantic interpretation prior to 4;0 for both the comparative and the superlative. She no longer uses either of them to mean "X" or "very X."

She also begins to use *too*, *enough*, *how*, and *as*, sometimes for emergent encoding of scalarity. *How*, previously used only in *how old* and *how many*, both in relation to age, is now associated with other spatial adjectives and with *much*. However, her understanding/encoding of scalarity is immature during this period,

showing no evidence of an understanding that scalar predicates involve an assertion concerning upward values on a scale.

Finally, *many*, previously linked with age (and, therefore, number) appears more broadly linked with number here, as in her utterance: "You know how many times I love you? I love you one hundred times." 4;10.7

Syntax The syntactic developments during this period appear equally significant. First, her knowledge that *X-er* requires *than* as a standard marker, along with her association from the beginning of degree marker *as* with the standard marker *as*, are important advances. These long-distance links, and especially her evident conclusion that the standard of comparison is required, especially with *as*, may be responsible for prompting her to pay attention to complement clauses and to attempt longer structures involving clausal complements.

At the same time, she is still unsure of the expression of the standard of comparison for superlatives, and is not even sure of its placement pre- or postadjectivally: "the...in the world" vs. "the world's...". It is possible that the preadjectival uses were promoted by expressions such as "world champion boxer."

(70) I told you it would be **the most funniest** world's champion. [R and J playing wrestling.] 4;9.29

Two other very important developments took place during this period: One was the introduction, fairly early in this period, of modifiers before *A-er* constructs: *too*, *so*, *very*, *how*, *even*, *much*, and *more*. Notably, many of these—but, crucially, not all of them—had already been used before *much* in Rachel's speech: *too*, *so*, *very*, *how*—but not *even*, *much*, *more*. This suggests that, even though Rachel had developed constructs allowing *X + much* in her speech, this development of *X + A-er* was not exactly the same development or a straightforward outgrowth from it. However, both of them constitute significant steps in the formation of syntactic constructs governing the formation of degree-marking and multiply modified structures—Deg modification of *much* and *many*, and Deg/Q modification (albeit incorrectly formed) of modified adjectival forms (albeit only *A-er*). The latter also allowed for the introduction of *more* into *A-er* constructs, resulting in the first doubly marked comparative forms, and, by extension, the first association of *more* with adjectives.

A second important development that occurred somewhat later in this period (around 4;11) was the introduction of modified adjectival phrases into nominal constructs. Prior to this period, these had largely occurred as free-standing adjectival phrases, except in the case of superlative constructs.

Finally, near the very end of this period, we see Rachel's initial attempts at expressing much more complex constructs involving clausal standards of comparison. However, her attempts are largely unsuccessful.

Even Greater Advances: 5;0–6;0

During the next year, we see expansion of these developments, as well as some important developments in new directions.

Continuation of Forms Already In Evidence First we see continued use of forms already in evidence. These include modification of As with *very*, *real(ly)*, *so*, and reduplication for INTENSIFICATION (see Table 11.16A). Rachel also continues using *very* for "absolute," *real(ly)* for "authentic," *too A*, *A enough*, *as A as*, *this A*, *how A*, *A-er*, and *A-est* (see Table 11.16B). Note that overextensions of *-er* and *-est* continue [*beautifuler* (5;8.22), *nakeder* (6;4.21), *goodest* (5;3), *favoritest* (5;5), *marevloust* (5;5), *beautifulest* (5;6), *specialest* (5;7)], as do doubly marked superlatives [*the most strongest* (5;1), *the most prettiest* (5;2), *the most beautifulest* (5;2)].

She also continues to use forms such as *any/seven + more*, X (*this*, *that*, *so*, *very*, *too*, *as*, *how*) + *much*, X (*how*, *more*, *even*) + *A-er* (see Table 11.16C). There is also continued prolific use of *much more A-er* (Table 11.16D).

And we see expanded attempts at constructing structures with modified adjectives in structures with nominal heads, shown in Table 11.16E. Many of these attempts result in non-adult-like forms, revealing their immature status in Rachel's system: *the closest one sitting to her* for "the one sitting closest to her," *a too big hand* for "too big a hand," *so greasy of meat* for "such greasy meat." It is of note that *such* emerges at this time, and Rachel seems to struggle regarding the placement of articles relative to these modifiers and nouns and regarding the choice between *so* and *such* ("It's such yukky under there").²⁷ Her utterance involving "peace and quiet" highlights the difficulty of the choice: It is not only a case of word order (*such a long beard* vs. *so long a beard*; *what a long beard* vs. *how long a beard*), but also a problem of identifying the word class (adjective or noun) of the modified word (*so quiet*, *so peaceful*, but *such peace* (and, in fact, *such quiet* is possible)).

(71) R: It's **so quiet**, mommy; it's **so peace and quiet**, isn't it? Isn't it?

M: What?

R: It's **so peace and quiet**.

[re: J has just turned off the television.] 5;7.3

Similarly, attempts at constructing structures in which the standard of comparison is expressed through a clausal complement continue to pose difficulties (see Table 11.16 F).

Some Further Developments

Semantics During this period, Rachel shows great attention and attempts at encoding negation and references to negative ends of scales. But her attempts show she was clearly struggling: For negative comparative and superlative adjectives, she

²⁷ Similar errors occurred in Sadie's speech in the year following those examined here for her:

(xx) "Why do you have **such big of a cape**, Batman?" said Robin. [Sadie making up a Batman and Robin puppet show] (Sadie 4;10.8)

TABLE 11.16 Rachel 5;0-6;0, Continued Development of Forms Already in Evidence**Table 11.16A** A Modification for INTENSIFICATION***very***

You can't see the steam **very well** because it looks so much like the air. 5;5.26

real(ly)

I should've gave you the flourescent crayons. They're **really neat**. [R had given M regular box of crayons.] 6;0.14

But it was **real low**, so I couldn't reach. Was their pool lower than the Municipal Pool? [R remembering when she went to the Bowermans' pool last summer; their pool has no shallow water; *low* = "deep"] 6;1.15

People would think it was **real real hot** for the winter, to be the winter [re: 60 degrees in winter; i.e., if this were the winter]. 6;4.1

so

I can't carry 'em **so heavy**. [M has asked R to take 3 pillows at school back to place where they belong; R trying to carry them, finding it a little difficult.] 5;1.29

R: It's the only thing I painted **so long**. [R going to get a picture she painted.]
[later:]

M: What does this mean, what you said before, "It's the only thing I painted so long"?

R: **So far**. I said **so far**. 5;4.8

It's been **so soft** that I haven't even been knowing that it was there. [R has sore on heel.] 5;4.15
Mommy, that was **so fun** playing 5;4.17

R: It's **so quiet**, mommy; it's **so peace and quiet**, isn't it? Isn't it?

M: What [w/ rising intonation—i.e., I didn't hear you] ?

R: It's **so peace and quiet**.

[re: J has just turned off the television.] 5;7.3

Reduplication:

The stars are **tiny tiny tiny**. But the balloon got tinier than the stars. The balloon got tiny until it disappeared. [re: a helium balloon that escaped] 5;3.21

Table 11.16B Use of Modifiers Beyond INTENSIFICATION***very* for "absolute"**

You can do it in your **very own** yard if you want. [re: camping--M had mentioned that you can't camp in public parks] 5;2.4

***real(ly)* for "authentic," "true/truly"**

A **real** witch would be much more bigger than that was. [re: puppet witch in Hansel and Gretel show]. 5;5.25

I think I'll just cut it unless he **really** wants to see. [F asked R to show him her preschool's way of cutting bananas; F changed his mind; then R decided to cut it anyway; *unless* = "in case."] 5;6.10

too A

Not too much, not **too small**, not too much. Not too much, not **too little**, not too much. [R singing made-up song.] 5;1.4

Oh, oh, we've waiten **too long**. [R holding R's pants up to F; joking that "F's grown too big."] 5;5.8

A enough

They're pretty for the secret club; they're **pretty enough** for the secret club. [R about to put mukluks on to go play. correct use?] 5;2.22

Table 11.16B (continued) Use of Modifiers Beyond INTENSIFICATION

The Osh-Kosh-B'Gosh ones are **cool enough** for a day like today. [R dressing for a hot day; Osh-Kosh B'Gosh pants have been turned into shorts, and will be cool. right direction on scale] 5;2.1

Do you think this hole is **small enough** for this? [context?] 5;7.28

R: They're biggest.

F: What do you mean?

R: They're all big. They're **big enough** to sew.

[F had told R that some pants that were torn should be thrown out rather than fixed; pants are R's; R means they still fit her, so why not fix them.] 6;1.17

as...as

R: Do you know how high he made the motorcycle jump?

M: No.

R: **As high as** birds fly.

[re: acrobat on TV circus] 5;1.28

R: I'm not gonna go **as far as** I can't reach.

M: You mean reach the bottom?

R: I'm not gonna go farther than I can't reach.

[re: swimming; R won't go in water that's too deep. means "I'm not gonna go farther than where I can reach/so far that I can't reach the bottom"] 5;2.19

Ice and ice-cream are both **as cold as** each other. 5;3.3

Five is just **as old as** I am. [pointing to five leaves on a plant she had drawn] 5;5.14

Are you **as tired**—Are you **as waked up as** I am? 5;6.1

On the box it says "makes you clean **as fun as** getting dirty." On the box it says "helps you get clean **as fun as** getting dirty." [re: box of bubble bath; really says "Makes getting clean almost as much fun as getting dirty."] 5;7.19

He's almost tall **as** the ceiling. [R telling friend T about adult, A]. [first use of "as...as" without first "as" ?] 5;8.2

how A

R: **How long** is a week till we next go to school? [Today is Saturday.]

F: I have a question for you. How long is a piece of string?

R: They're all a different size. 5;5.14

It's not thick; it's fat! See **how fat** it is? [R protested when F said the slice of cheese on her cracker was thick.] 5;8.30

A-er

England is **farther than** Chicago. 5;1.21

Ultra Brite toothpaste is **better than** any other toothpaste in the world. [R had seen ad for Crest or some toothpaste on TV; went to bathroom, saw we had U.B. there.] 5;1.28

Baby cats get **tireder than** the daddy cats. 5;2.26

They look **oranger** when they're cooked. [re: baked beans; R had said she likes them better uncooked.] 5;3.0

The stars are tiny tiny tiny. But the balloon got **tinier than** the stars. The balloon got tiny until it disappeared. [re: a helium balloon that escaped] 5;3.21

I should have did the "e" **littler**. [re: R doesn't have room on card for "r" of "Jennifer."] 5;4.5

R: See, at least that's **littler than** the others.

M: It is?

R: Yea—**bigger**.

[re: large brown bowl; M had asked R to find a big brown bowl for salad.] 5;4.26

Table 11.16B (continued) Use of Modifiers Beyond INTENSIFICATION

And I might even get the thing **lower**. [re: tomorrow R might get hole in sand, in tire hole, deeper.] 5;6.10

R: Nobody likes 'em **better**!

M: Than you?

R: Than anyone!

[J had said he probably likes the cupcakes he and R are eating "better" because he ate his fast and R's still eating hers; J obviously means "better than R," but R doesn't react as if this is what he meant.] 5;6.12

No, out there's **the better** [R pointing to front yard]. [re: Out front is better than back yard for Secret Club; M had suggested using back yard.] 5;6.20

R: You're **bigger**.

F: Bigger than what?

R: **Bigger**. Big of all.

[R talking in sleep.] 5;7.2

R: Stephanie was **the prettier than** Mary.

M: What?

R: Stephanie was **the prettier than** Mary. 5;7.15

The pointier it gets, **the bigger** it gets. [re: candy cane, as she licks it. 5;8.11
beautifuler. 5;8.22

A-est

That's **my best one**. That's **the best one**. That's **the one I like best**. [re: board game; Peanut Butter and Jelly game. R correcting self from "my best..." to "the best..."] 5;1.15

Do you wanna know who swam **the best** out of Matthew and Blake? 5;2.8

I get the special spoon....well, this is **the specialest** because [re: pretty little baby spoon]. 5;3.23

You wanna see **the goodest** one I made? [re: R has made some "prints" with a toy "printer" and ink pad] 5;3.27

Who's your **favoritest** clown?... Ronald, Ronald McDonald. [R singing; repeats many times.] 5;5.6

R: Who's **the marveloust** cat in the world?

M: What? [not knowing if there's a /t/ at end]

[R repeats above 2 times].

M: What?

R: Who's the best (marveloust) cat in the world?

[M asks R to say it slowly].

[R says slowly 3 times, last time:]

R: Who is the **mar—ve—lous—t** cat in the world? 5;5.17

They were both funny, except one was **the funniest**. [The librarian read 2 stories to the kids at the library at school today.] 5;5.28

Mommy, choose **your nicest** picture. You choose just ten **nicest** pictures. [R laying all the pictures she has drawn down on the floor.] 5;6.0

I don't like yukky Kleenexes on **my beautifulest** puzzle in the world...which is that, which that is. [R has just handed 2 Kleenexes to M; R cleaning R's room; Kleenexes had been on R's puzzle.] 5;6.14

Table 11.16B (continued) Use of Modifiers Beyond INTENSIFICATION

That was **my favoritest** Halloween thing. [re: witch dress that M has just taken out of wash.] 5;7.1
 ... **your specialest day** on Christmas. You're the only one who has a **specialest, specialest, specialest** day on Christmas. [to M, whose b-day is on Xmas.] 5;7.18

The marveloust mommy in the world. 5;10.18

Which is **the littlest**? [re: two pieces of pizza on supper table] 5;11.4

It is **the best** number. [Of 11 and 19; R has just said that in TV book it says Ses. St. is on 11 and 19; R about to turn on TV] 5;11.19

I get **the tallest** one. [re: of two candles] 5;11.27

Double Marking: most ...-est

[R and M playing: R in blue]

M: [pretending to be a witch:] I like girls with dark blue clothes on, 'cause they're the most delicious.

R: They're **the most strongest**. [R pulling M off chair.] 5;1.9

When I pat your hand, it means you're **the most prettiest** girl in the world. 5;2.30

When I lick your hand, it means you're **the most beautifulest** girl—lady in the whole wide world. 5;2.30

Table 11.16C Continued Use of Q Forms

a lot

M: Remember those ducks at Sunshine Acres [= name of school]?

[R nods, and eyes get big]

R: They've grown up **a lot** so they had to take 'em to the teacher's farm....

[R had been acting like a duck; R hasn't been to S.A. for about 1 ½ months.] 5;1.30

more

I like to look down **more** than I like to look up—I mean sideways. 5;2.4

If daddy haven't come out—If daddy didn't come out, I could have been the waiter **more**. 5;2.10

Nobody can take **more** than that! Unless they have a bigger glass. [re: amount of liquid R has poured into her glass] 5;3.1

a little bit

Every time I drink **a little bit of milk** my ear has a funny feel. 5;9.23

most

I want all colors and **most** pinks. I want **most** strawberry. [re: Neopolitan ice cream:

"...mostly..."] 5;3.23

You're the **most** writer-downer. [to M, re: writing down "darndest things"]. 5;3.25

R: I love you, daddy, but I love mommy **most**.

M: Most of who?

R: You and daddy. 5;6.28

X + more

My pants are choking me. [i.e., they are "too tight" around waste.] Just so it doesn't choke me **any more**. [as M opens button to take pants off.] 5;4.17

Table 11.16C (continued) Continued Use of Q Forms

Number + more

How much do I need? **Seven more**? [re: bites] 5;4.29

X + much**this much**

It makes it be more weight with **this much** people in it. [re: car's weight w/ 8 people in it. note: not "heavier"] 5;1.18

I don't think I can take much sugar on **this much** cereal. [R has very little cereal in bowl. [first "not...much" OK; second "this much"—this amount—wrong direction; should be "this little"] 5;2.24

Do you wanna see how much pictures I've made? [M nods. R goes to get pile of pictures.] **This much**. Do you want to see what they all are? 5;4.24

that much

That's too much. It won't take **that much**. [R had asked M how many bites she had left to eat; M said 9, then above; R thinks there isn't enough food for 9 bitefuls.] 5;2.2

I was waiting about **that much**. I was waiting **that much**. [R holding arms apart-i.e., "that long"; R waited for M at Community Building after art class.] 6;0.14

Why would the stars be out when the sun is **that {much/far/high} up**? 6;2.19

But you could never get **that much** logs! [re: 30 logs for building a sandbox] 6;3.27

so much

If you didn't give me **so much** noodles [i.e., "I wish you hadn't given me so many noodles"] 5;1.30

R: Maybe you should have gave me less strawberries, 'cause with **so much** strawberries...I would take a longer time to finish eating...strawberries.

M: Longer than what?

R: Longer than I would have to sit up at the table than, ...I don't know. 5;2.3

Mommy, how come I have to hold **so much** things? Two in each hand? [R holding 2 cleaning tools in each hand.] 5;3.8

There's **not so much** people in the lake this time, 'cause it's not such a cold day. [re: cheerios in bowl of cereal, R pretending they are people in a lake; "...'cause it is such a cold day"?] 5;3.9

People are giving me **so much** favors. [i.e., asking her to do so many favors; J and M asking R to get toy men for swimming pool and book off floor, respectively.] 5;4.2

Do you know why I'm using **so much** things? [R playing with all her blocks and prickle sticks.] 5;4.2

There's **so much** Jeff's! [R has just read that book R and M are going to read is by Jeffrey—; R comments on Daddy (Geoff) and Jeff at school.] 5;5.12

How come it's freezing **so much**? [re: frozen bread "how come... so frozen"] 5;5.16

You can't see the steam very well because it looks **so much** like the air. 5;5.26

There's **so much** nice things in here. [re: in bowl of Halloween candy.] 5;6.19

(One day I forgot to get the things out of my mailbox at Kindergarten and Raintree) and today I got **so much** things. [J has marveled at how many things R has brought home from school today; asked R where she got so much work.] 5;7.3

That's **not so much** words as him. 5;7.13

I haven't got **so much** left that I can't—that I can hardly get it. [re: little amount of cereal left; = "I've got so little left ..."] 5;10.7

Look at all those toys. You never saw **so much** toys at Grandma's house! 6;5.14

very much

I've certainly not seen **very much** cats around. 5;6.25

Table 11.16C (continued) Continued Use of Q Forms

- R: Look, there's not **very much** left. [re: number of balloons in bag to blow up for party]
 F: Many.
 R: I can say "much" if I want. 5;8.23

too much

Not **too much**, not too small, not **too much**. Not **too much**, not too little, not **too much**. [R singing made-up song.] 5;1.4

- R: Too many windows are open.
 F: There's only two open [or so].
 R: I know. That's **too much!** 5;1.6

Too much. [R had asked M how many bites were left on R's plate for R to eat; M held up 4 fingers for number of bites left; R said "too much" for 4 and 3, agreed that she would need 2 more bites to finish.] 5;1.28

That's **too much**. It won't take that much. [R had asked M how many bites she had left to eat; M said 9, then above; R thinks there isn't enough food for 9 bitfuls.] 5;2.2

- R: Five is **too much**.... Five isn't too much, but it's just the opposite of **too much**.
 M: What is the opposite of too much?
 R: I don't know.
 [means "...too little..."] 5;4.15

You put **too much** pictures for me. [R looking at "baby R" photo book.] 5;4.29
 There's **too much** different stories—too many, I mean. 5;5.15

- R: I got **too much** peach.
 M: You got too many peaches?
 R: Yeah, I got **too much** peach.
 [R sticks with "much" + sing N] 6;4.16

- M: Aren't you gonna write (th)em down, Rach?
 R: There's **too much** numbers.
 [R adding on calculator.] 6;4.20

- R: Do you want **too much** on it, like this? [re: mustard on sandwich]
 M: What, Rach?
 R: Is this enough? 6;5.8

I thought I was writing **too much** "I-s". 6;5.18

as much

- F: [to J:] You must've read that about fifteen times, Jaime.
 R: He hasn't read it **as much times as** me. 5;1.19

It's **not as much as** I wanted. [R complaining that M put too much cheese on her food; wrong direction on scale] 5;2.19

- M: One or two? [offering cookies to R]
 R: **As much as** I can have. 5;3.23

Mommy, I got just **as much as** I want. [R has poured cheerios into bowl; proud of herself that she only put the right amount in bowl.] 5;4.8

how much

Mommy, do ya wanna see **how much** things I have? [R w/ bag of things she made in R's and J's "fun club."] 5;1.2

Table 11.16C (continued) Continued Use of Q Forms

- R: **How much** do you want? Two? [getting cookies for F]
 F: How many do I want [correcting R].
 R: Yea [= "yes"], how many. 5;1.4
- Look **how much** rocks we have. [R and friends M & S each making piles of leaves, rocks, etc.] 5;1.7
- [R first asks M if we can weigh fan; M says "no"; then:]
 R: Can we inch it?
 M: What?
 R: Can we use the ruler to see **how much** it...weighs...inches...**how much** it is? 5;1.7
- Look **how much** O's that is. [re: on Mother Goooooose book.] 5;1.11
- How much** people is there in the house? **How much** people are there in the house? How many people are there in the house? **How much** people is there in the house? [R correcting herself, not sure which form to use. ["much...is," "many.are..."]] 5;1.18
- How much** boxes of presents is there? [R has wrapped toys in boxes for Scott's "1/2 b-day party."] 5;1.18
- R: **How much** (was/were) the balloons we got for my birthday?
 M: What?
 R: **How much** inches were the balloons we got for my birthday?
 [We had bought 4-ft. long balloons for R's birthday.] 5;1.27
- R: **How much** can we have? [re: pieces of choc. candy out of box]
 M: 1.
 R: 2?
 M: 1. 5;2.6
- R: I don't care how many
 M: You don't care how many?
 R: I don't care **how much**—.
 M: Which?
 R: **How much** and many. Both.
 [re: cents—to "pay" for milk R gave M.] 5;2.12
- See **how much** bubbles! [R splashing in tub.] 5;2.17
- Look **how much** people are comin' in one car. Look **how much** people there are in the car. [re: cheerios on R's spoon; R pretending bowl is lake, spoon is car, cheerios are people going to swim in lake; common fantasy of R's.] 5;3.9
- Do you wanna see **how much** pictures I've made? [M nods. R goes to get pile of pictures.] This much. Do you want to see what they all are? 5;4.24
- How much** do I need? Seven more? [re: bites remaining] 5;4.29
- R: **How much** do you think I should take?
 M: How much? [absent-mindedly]
 R: Yea, **how much**. How many. 5;5.6
- Look **how much** are left from yesterday. [R pulling bowl of nuts towards her.] 5;7.9
- When I counted those, **how much** were there? [re: Xmas lights; F has just said there were 100 lights.] 5;7.13
- Look **how much** words, and on this one look **how much** letters. [re: message R has written] 5;8.2
- Mommy, look **how much** things I'm giving Matthew. [R has just made "presents" for M] 5;8.30
- R: How many are there? [re: cheerios in bowl]
 M: Why don't you say "how much are there"?
 R: I could say "**how much** is there!"
 M: What could you say that for?
 R: Cream ... orange juice ... ice cream ... belly buttons, in the whole world.
 M: What else could you say "how many are there" for?
 R: Fingers—5...hands--6...cheerios—I bet 10,000...Rachels-- 3. 5;9.18

Table 11.16C (continued) Continued Use of Q Forms

How much apples are there !? [R seeing lots of apples in refrigerator] 6;1.19
I'm gonna see **how much** you measure. [R holding stick over friend A as A stands against a tree.]
6;5.7

Look **how much** costumes we have for Halloween. 6;5.22

X + A-er

R: Can I see **how bigger** he is?
J (7;9.20): [measuring with hand] I'm this bigger. I'm this much bigger.
[J measuring self to R] 5;6.11

I like red **more better**. [re: 3 pieces of Santa Claus cookie; red and white icing and raisins.] 5;8.8

Lift me up more carefully—**more bigger**. [F lifting R up on his lap; R standing; up high.] 5;9.16

Onions are...kinda like **more flatter** pickles. [re: i.e., not like bean sprouts.] 5;9.18

But I like it **more better** with ice cream—I mean icing. [re: home-made cookies.] 5;9.30

Mommy, **how higher** is the water at the diving board **than** you? 6;1.20

Mine was gigantic—**even giganticer than** Jaime's. [re: balloons.] 6;2.12

Table 11.16D Continued Use of *much more A-er***even/much more A-er**

[Big fan is making a lot of noise:]

R: The other fan is much...

F: quieter.

R: Yes, **much more quieter than** this one. 5;1.11

That is **much more thinner than** ours was. [R to friend M, re: bird feather M has; few days earlier J and R had found feather on our front lawn.] 5;1.18

Much more littler. [context?] 5;2.25

One for grass is **much more bigger**. [re: scissors; M had told J he shouldn't have used the pinking shears for cutting grass because they're not for grass.] 5;3.8

It was **much more louder**. [re: an ambulance R saw a different day had siren on] 5;4.17

A **real** witch would be **much more bigger than** that was. [re: puppet witch in Hansel and Gretel show]. 5;5.25

My pinky's **much more bigger than** this. [R's pinky under magnifying glass is much bigger than pinky away from magnifying glass.] 5;6.4

Before they were **much more longer than** this. [re: mukluks; R having trouble getting them on; her feet have grown.] 5;6.15

... but it's **much more colder**. [re: baby pool at Aunt Betty's, compared to big pool (which was warm when we went swimming in it); R had said that she'd like to go visit Betty again to go in the pools again.] 5;7.0

That's **much more smoother**. [R has stuck her finger under the curling iron sprung holder lengthwise; previously had finger under it crosswise.] 5;7.5

M: Do you know this one, Rach?

R: Yes, that's **much more louder**. This is **much more louder**.

[re: Xmas carol on record.] 5;7.13

Table 11.16E Modified A + N

-er, so, -est, too

Nobody can take more than that! Unless they have a **bigger glass**. [re: amount of liquid R has poured into her glass] 5;3.1

I'm **the closest one** sitting to her [sitting closest to M; R sitting next to M's place at table: "...the one sitting closest to her"] 5;8.4

Table 11.16E (continued) Modified A + N

Don't give me **so greasy meat**. [I think R said this without *of*, but not absolutely sure. Then R repeated:] Don't give me **so greasy of meat**. 5;8.29

What is **your best food** that you can put on sandwiches [to M]? 5;9.0

Mommy, you're **a so funny girl**. 5;9.12

You have **a too big hand**. [M's hand can't fit through hole in R's pants.] 5;10.24

such (a) A N / what A a N

F: We'll go to the lake tomorrow unless it's not such nice weather.

R: We can go if it's **such nice weather**.

[F means "unless the weather's not nice"; today is a nice day. R understood F as "if it's not such nice weather"—then uses "if" herself] 5;1.3

I wanna show you **what big a heap I** got. [R sweeping floor; heap of dirt. Note: cf. "how big a heap" vs. "what a big heap"] 5;3.8

There's not so much people in the lake this time, 'cause it's not **such a cold day**. [re: cheerios in bowl of cereal, pretending they are people in a lake; "... 'cause it is such a cold day"?] 5;3.9

You know what? Nathan doesn't believe out of Santa Claus.... He should believe Santa Claus, because who would have **such a long beard**?... Because who would have a suit like that? 5;4.12

such A

It's **such yukky** under there. [re: under kitchen table—R had gone under and is now out.] 5;4.13

My legs are **such tired**! [re: after sitting on toilet for long time.] 5;4.16

Table 11.16F Attempts at Expressing the Standard of Comparison through a Clausal Complement

R: Maybe you should have gave me less strawberries, 'cause with so much strawberries...I would take a longer time to finish eating...strawberries.

M: Longer than what?

R: **Longer than I would have to sit up at the table than, ...I don't know**. 5;2.3

There has to be as many people... [R says she doesn't know how to say it, then:] There has to be as many people ... um ... **that as many** words there are. 5;2.15

uses *not farther* to mean "less far," *the non-pointiest* to mean "the least pointy," *the last oldest* to mean "the youngest" (see Tables 11.17A, 11.17B).²⁸

For the quantifiers *little* and *the least*, she uses constructions like *the opposite* with the positive quantifier; or *the most littlest*; or *non-* with the positive quantifier, *non-most* (Table 11.17C):

(72) R: Five isn't too much, but it's the **opposite of too much**.

M: What is the opposite of too much?

R: I don't know. 5;4.15

One has the most; one has **the most littlest**.... This is the one that has the **non-most**. (re: milk in glasses) 5;6.27

²⁸An example from Jaime:

(xxi) [J has on baseball uniform PJ's. M suggested he could wear them for Halloween.

Jaime protests:]

It's **not gooder** than any costume. [means "It's less good than any costume"] (5;9.22)

For the quantifier *less*, in addition to occasional uses of *less*, she draws on spatial terms and on her long-standing association of age with number and uses *lower*, *under*, *thinner*, and *younger* to encode negative amount (see Table 11.17C). These developments appear to indicate that Rachel has now linked the two ends of a scale. She may now be seeing both ends as lying on one scale rather than as two separate properties.

Finally, it is at this time that we see her first use of the quantifier *much* without a Deg, in a negative context (Table 11.17C):

- (73) I don't think I can take **much** sugar on this much cereal. [R has very little cereal in bowl. [first "not...much" OK; second "this much"—this amount—wrong direction; should be "this little"] 5;2.24

Syntax In the previous period, we saw Rachel using the forms X + *more*, Degs *this*, *how*, *so*, *too*, *that* + *much* (and *as/how* + *many*), forms of X + *A-er*, and *even/much more A-er*. During this new period, she expands on these forms in a number of ways.

much more A-er* → *more A First, for the first time, we see Rachel use *more* as an A modifier without *much* and without *-er*; for example, *more safe*, *more bad*:

- (74) Jaime says the ladder's **more safe** the way he has it. 5;2.30

Further examples are shown in Table 11.18A. It is of note that that *most* does not occur as a superlative marker without *-est* for the first time until a year later: "Jaime told me his **most favorite** book was One Hundred Folk Tales." 6;1.4

Deg + *much* → Deg + *many*; differentiation of *much* and *many* In addition, while *many* previously occurred only with *as* and *how*, it now occurs, and quite prolifically, with all of the Degs that were previously used with *much* (see Table 11.18B). It is of note that Rachel often self-corrects her choice of *much* versus *many*. By 5;6 or so, she seems to have a fairly clear grasp of the association of *many* with certain (countable) items and *much* with certain (uncountable) items, although the association is not perfect:

- (75) R: **How many** are there? [re: Cheerios in bowl]
 M: Why don't you say "how much are there"?
 R: I could say "how much is there!"
 M: What could you say that for?
 R: Cream...orange juice...ice cream...belly buttons, in the whole world.
 M: What else could you say "how many are there" for?
 R: Fingers—5...hands—6...cheerios—I bet 10,000...Rachels—3.
 5;9.18

Of further note is that by now the previously used forms "How many" and "How old" for age have now merged into "How many years old...":

TABLE 11.17 Rachel 5;0–6;0 New Developments, Negation and Negative Ends of Scales**Table 11.17A** Negative comparative A

Topeka **isn't farther than** Kansas City. [M asks R if K.C. is farther than Top. to clarify and R says "yes." R means "Top is less far than KC." Problem with direction on scale? "Not farther than" is not same as "less far than"; "not farther than" denies passing limit of distance set by KC] 5;2.13

R: I'm not gonna go as far as I can't reach.

M: You mean reach the bottom?

R: I'm **not** gonna go **farther than** I can't reach.

[re: swimming; R won't go in water that's too deep. means "I'm not gonna go farther than where I can reach the bottom"—negation of Stand of Comparison with *than*] 5;2.19

Table 11.17B Negative superlative A

That's the pointiest one. Now I'm gonna find **the non-pointiest one**. That's **the non-pointiest one**. [re: candy corns; R first had pointy one, then one with the top half broken off.] 5;6.14
Jim's the tallest one of all, and Fran's **the tallest littlest one**,.... [R has 3 things standing up—Jim (fork), Fran (magic marker), Scott (marker cap).] 5;7.12

R: The first oldest is Brian Q____. The **last oldest** is Timmy. [re: boys in class]

F: Do you mean the youngest?

R: Yes. 6;0.4

Table 11.17C Negative Q**= "little"**

R: Five is too much.... Five isn't too much, but it's just **the opposite of too much**.

M: What is the opposite of too much?

R: I don't know.

[means "...too little..."] 5;4.15

I haven't got **so much** left that I can't—that I can hardly get it. [re: little amount of cereal left; = "I've got so little left ..."] 5;10.7

= "the least"

[R and Aunt Fran looking at R's Star Record Book; R has gotten stars for doing different tasks well; Fran asks R: "which one has **the least** stars?" (i.e., which line); R points to line with most stars. When Fran tells her that's not correct, that it has the most, then R chooses the line with the least.] 5;1.17

One has the most; one has **the most littlest**.... This is the one that has **the non-most**. [re: levels of milk in glasses] 5;6.27

= "less"

Was that **lower than** a minute? [R had told M to wait a minute before doing something, or M had told R to wait a minute before she would do something; then M ready to do that thing; i.e., "was that less than a minute?"] 5;1.7

That was **lower than** ten. [re: R ate fewer than 10 bites and she was finished w/ her food; M had told R that she should eat 10 more bites; it took R about 6 bites to clean her plate. ["lower than" = "less than"] 5.1.26

Table 11.17C (continued) Negative Q

- R: Maybe you should have gave me **less** strawberries, 'cause with so much strawberries...I would take a longer time to finish eating...strawberries.
- M: Longer than what?
- R: Longer than I would have to sit up at the table than,...I don't know 5;2.3
- Ten or **under** ten. [i.e., that's how many bites she wants to have of beans off plate. [means "less than 10"—at same time as having trouble with "least"—non-most/most littlest] 5;6.28
- I want **younger than** this. [re: amount of noodles on her plate. i.e., "...less..."] 6;0.14
- Fifteen! **Lower than** fifteen! [R, M, and friend F talking about school J and R had gone to in Chicago; M asked R how many kids were there; F asked if there were 15.] 6;1.12
- R: Mommy, are the morning and afternoon the same amount of day?
- M: Mhm.
- R: Oh, I thought the afternoon was **bigger and older**, and [? I thought] the morning was **littler and thinner—and younger**. 6;1.20

not...much

I don't think I can take **much** sugar on this much cereal. [R has very little cereal in bowl. first "not...much" OK; second "this much"—this amount—wrong direction; should be "this little"] 5;2.24

- (76) **How many years old** is Eva? **How many years old** is Christy? [M, J, & R in car on way to Eva and Christy's house] 5;1.28

This development, crucially, comes at the same time as, for the first time, Rachel begins using a full Deg-Q form (*how many*) as a modifier of *more* (where previously, the modifiers were unanalyzed forms *a lot*, *a little bit*, numbers).

- (77) **How many more** bites? **How** bites? **How more** bites? **How more** bites?
How many more bites? [R fooling; protested when M went to get paper, and said it has to be last line above.] 5;1.30

Mommy, **how many more** bites? [R eating lunch] 5;2.14

It is noteworthy that (a) the vacillation in the first of these examples is indicative of the tenuous nature of this construct for Rachel at this point, and (b) these developments coincide with indications that Rachel has gained some clarity with regard to the differential meaning of *many* and *much*.

X + A-er / most + A-est → **X + A-est** During this period we also see expansion of quantifier phrases in a number of ways. First, where previously, the only modified A form that allowed modifiers was *A-er*, plus the doubly marked superlative, Rachel now begins using modifiers (*very*, *really*, *so*, and even *more*) with *A-est* as well. Examples are shown in Table 11.18C.

much more A-er → *much too A-er* → *much too A* We also see the constructs involving *even/much* with *more A-er* evolving in a number of ways. First, Rachel allows *too* in place of *more*, yielding *much too A-er*, which eventually gives way to *much too A* (see Table 11.18D).

even/much more A-er → *a lot/one more A-er* Second, Rachel begins to allow *a lot* or a number before *more A-er*. Recall that earlier Rachel had already been using for some time forms such as *one more* and *a lot more*; so this expansion seems to be an incorporation of those forms into the *much more A-er* construct (see Table 11.18E).

All of these developments take place mostly during the first half of this year. However, we see a very important change at around 5;11 that is connected with these *a lot/one more A-er* constructions. Prior to this time, it is impossible to tell whether the syntactic organization of these forms is [much [more A-er]], [a lot [more A-er]], with *more* acting as a double marker for the comparative, or [[much more] A-er], [[a lot more] A-er], with the modifier forming a constituent with *more*. At 5;11, we begin to see some clear cases in which the structure takes the latter form. First, there are utterances such as the later two in Table 11.18E:

- (78) You're **one more older than** her. [To F; about M; J had asked M, then F, what year they were born.] 5;11.25 Note: [[one more] older], not [one [more older]]

He has **a whole bunch more littler** circles. [i.e., than R or than he has big circles. R saying J has design drawing set that has big circle and a lot of little circles. R has own in hand, could only find a medium size circle of her own design set.] 6;3.27 [Note: [a whole bunch more] [littler circles]]

This coincides with the emergence of measure phrases modifying *A-er* and *as A* (Table 11.18F), as in (79), as well as of a quantifier modifying a Q other than *more*: *much + much*, as in (80).

- (79) Daddy's arms are **two arms longer** than {mine/my arms}.
[R wearing F's sweater] 5;11.16

I'm **one step later** than you.
[R following M to car; R wants to give M good-bye kiss before M leaves.]
6;3.30

It was a big name.... It's **twice as big as** "Gathercole." [re: tumbling teacher's name] 5;11.14

- (80) I get **much much** lots of water. I get **much much** of water. I get whole bunches of water....I get lots and lots of water. [R in bathtub] 5;11.24

TABLE 11.18 Rachel 5;0–6;0 New Developments, Qs

Table 11.18A *more A*

?? It makes it be **more weight** with this much people in it. [re: car's weight w/ 8 people in it. note: not "heavier"] 5;1.18

Jaime says the ladder's **more safe** the way he has it. [re: ladder to swing set. {first *more A* without *-er* on adjective} 5;2.30

All the bad babies, when I spank 'em, they be **more bad**. [R discussing her "bad babies"; said she has on occasion spanked them; M asked if they behaved after R spanked them. [note: not "more badder"]] 5;8.3

I'm away from you. I'm **more close** to you. I'm **more close** to you now. 5;9.1

Lift me up **more carefully**—more bigger. [F lifting R up on his lap; R standing; up high.] 5;9.16

Table 11.18B Expansion of X + *many**too many*

R: **Too many** windows are open.

F: There's only two open.

R: I know. That's too much! 5;1.6

There's too much different stories—**too many**, I mean. 5;5.15

There's **too many** people at Aunt Rainie's. [= "...so many people..." at Xmas supper; M and F ask R many questions like why she thinks there are too many; gives no reason.] 5;7.18

R: I got too much peach.

M: You got too many peaches?

R: Yeah, I got too much peach. [R sticks with "much" + sing N] 6;4.16

as many

I can't make just **as many** flowers. [R drawing picture like one she says she made before; picture had flowers on it; I think she means she can't make exactly the same number of flowers.] 5;1.15

There has to be **as many** people... [R says she doesn't know how to say it, then:] There has to be **as many** people ... um ... that **as many** words there are. 5;2.15

Can I choose as much—**as many as** I want? [re: marshmallows] 5;4.29

[R asks M how many dollars she has left, at store]

M: Four.

R: That's under—that's almost **as many as** I am—five. 5;5.16

We'd just use **as many** candles that would make a three. [re: for M's birthday—for "3" of "31".] 5;8.4

I got about **as many** you need. I got six. [M needs five magic markers.] 6;3.6

this many

I'm **this many** years old. I'm **this many** years old. I'm **this many** years old. I'm **this many** years old.

I'm **this many** years old. [R holding up first 1, then 2, then 3, then 4, then 5 fingers; R to Aunt Fran, sort of teasing; previously, it was always "the many" or "how many" w/o "years old"] 5;1.15

that many

F: They were doing that at the Topeka Zoo, weren't they, Rachel?

R: [nods] But not with **that many** elephants!

[There were 2 at T. Zoo, 4 on TV—doing trick where 1 elephant is bridge, others walk under] 5;1.28

how many [previously connected with AGE]

R: How much do you want? Two? [R getting cookies for F]

F: How many do I want [correcting R].

R: Yea [= "yes"], **how many**. 5;1.4

Table 11.18B (continued) Expansion of *X + many*

How much people is there in the house? How much people are there in the house? **How many** people are there in the house? How much people is there in the house? [R correcting herself, not sure which form to use. ["much...is," "many.are..."]] 5;1.18

How many years old is Eva? **How many** years old is Christy? [M, J, & R in car on way to Eva and Christy's house] 5;1.28

How many more bites? How bites? **How more** bites? **How more** bites? **How many more** bites? [R fooling; protested when M went to get paper, and said it has to be last line above.] 5;1.30

R: I don't care **how many**....

M: You don't care how many?

R: I don't care how much—.

M: Which?

R: How much and many. Both.

[re: cents—to "pay" for milk R gave M] 5;2.12

Mommy, **how many more bites**? [R eating lunch] 5;2.14

R: **How many** bites?

M: Mm—thirteen.

R: Too much Has to be ten or under ten.

[re: bites left to eat at supper] 5;4.29

R: How much do you think I should take?

M: How much? [absent-mindedly]

R: Yea, how much. **How many**. 5;5.6

There's too much different stories—**too many**, I mean. 5;5.15

R: **How many** holes are there?

M: You mean to hang the toothbrushes?

R: No, not to hang 'em. To put the toothbrushes through. 5;6.2

[M tests R's judgements on some N's on whether you should say "How much X" or "How many X":

How much: paint (N offered by R), cake, milk (N offered by R), pie; **How many**: teeth, plates, cake plates, children, pieces of pie, costumes, leafs. 5;6.15

How many rides...? [re: at Maple Leaf Festival; how many rides does each one get?] 5;6.15

J (8;0.9): How much peanut butter balls did you have?

F: How much!?

R: **Many!**

F: [to J] You mean "how many"?

J: Mhm [as if to say, "Sure, why do you ask?"]. 5;9.0

R: **How many** are there? [re: cheerios in bowl]

M: Why don't you say "how much are there"?

R: I could say "how much is there"!

M: What could you say that for?

R: Cream...orange juice...ice cream...belly buttons, in the whole world.

M: What else could you say "how many are there" for?

R: Fingers—5...hands—6...cheerios—I bet 10,000...Rachels—3. 5;9.18

Table 11.18B (continued) Expansion of *X + many*

[written note from R to M:]

"To mom. I love you! **How many** pages have you made now? Answer [followed by arrow pointing down on the page, showing where M should answer]. Love, Rachel" 6:2.14

Table 11.18C Expansion of *X + A-er* → *X + A-est*

[R had asked M to pick favorite ("best") picture of bear drawn by R and two friends, M & S:] I mean your **very, very, very, very, very, very, very, very, very best** one. 5:1.1

[R, M, and Aunt Fran all playing ABC game; players must choose red, blue, or yellow cards to play; R asks them what color they "like best," then "just like," then: last utterance not necessarily distinct from "like best"; R just wants a final decision, I think.] What is your **really best** one? 5:1.18

That's not a bad record. Only "Santa" is the very last one. On the tape it's the **very middlest** one. [re: new Xmas record, "Santa Claus is coming to town". R doesn't like having to wait until the last song to hear it; prefers the tape.] 5:7.13

R: Mommy, you're **so the cutest**.

M: Hm? What does that mean?

R: You're the cutest in the whole world. 5:7.29

That's **more best**. That's best of all of 'em. [re: a particularly good place for sledding.] 5:8.24

Table 11.18D *much more A-er* → *much too A-er*

[R said that only little people could ride in the stroller where little friend H was riding; then:]

M: I'm as little as H_!

R: [ʔə ʔə].

R: H__'s **much too smaller**.

[Note: "too" not scalar] 5:1.1

[R said section of orange she had cut was "too big,"]

M: Rach, how would you say it if it was really, really too big.

R: "**much too big**." I wouldn't say it like this, "too too too big." [2 times] I would say "it was **much too big**." 5:7.13

Table 11.18E *much more A-er* → *a lot/one more A-er*

Thanks. This [re: robe] makes me **a lot more cooler**. [M has just put it on? taken it off? exchanged what she had on for the robe? on Rachel.] 5:7.13

You're **one more older than** her. [To F; about M; J had asked M, then F, what year they were born.] 5:11.25 [Note: [[one more] older], not [one [more older]].]

He has a **whole bunch more littler** circles. [i.e., than R or than he has big circles. R saying J has design drawing set that has big circle and a lot of little circles. R has own in hand, could only find a medium size circle of her own design set.] 6:3.27 [Note: [[a whole bunch more] [littler circles]].]

Table 11.18F Emergence of *Measure + A-er*, *Measure + as A*, *Q + Q*

Daddy's arms are **two arms longer** than {mine / my arms}. [R wearing F's sweater] 5:11.16

I'm **one step later** than you. [R following M to car; R wants to give M good-by kiss before M leaves.] 6:3.30

It was a big name....It's **twice as big** as "Gathercole." [re: tumbling teacher's name]. 5:11.14

I get **much much lots** of water. I get **much much** of water. I get whole bunches of water....I get lots and lots of water. [R in bathtub] 5:11.24

And a few months later, we see the first occurrence of a full Deg-Q form (*as much*) modifying A-er:

- (81) She's just **as much older** than me (as) I'm older than you. [re: friend; "...as I am you."] (6;1.4)

But the system is far from sorted, as we see continued errors beyond these dates; for example, just a few days later, Rachel says:

- (82) Mommy, **how higher** is the water at the diving board than you? [i.e., how much deeper is the water than you are tall] (6;1.19)

Scalarity During this year, we still see continued errors in the use of scalar expressions. The primary difficulty now appears to be one of appreciating the importance of the direction on the scale (see Table 11.19A). At the same time, Rachel still uses *catch up* as a nonscalar predicate to mean something more like "beat," as in Table 11.19B.

At the same time, we see further attempts at the expression of scalarity that appear more appropriate, as in Table 11.19C. It appears that by the middle of this year, Rachel is developing a more sophisticated appreciation of scale. And this appears in part to be promoted by the use of spatial imagery (see Table 11.19D). Also, as noted above, Rachel's attention to negative ends of scales is posited to be related to her growing appreciation of scales and her linking of the two ends of scales.

Summary, Even Greater Advances, Rachel

During this period, we see several significant advances. First, Rachel appears to have linked the two ends of scales, as evidenced in her attempts at expressing negation and negative ends of scales, with both adjectives and quantifiers, and her grasping at terms for the negative ends ("non-most"). This development may be an outgrowth, at least in part, of her previous developing awareness of scalarity, as well as a co-temporaneous expression of scalarity through spatial imagery. She may now be able to lay multiple levels of presence of a property along a single scale.

She also appears to have come to an appreciation of the mass/count difference between *much* and *many*. This coincides with a proliferation of the use of *many* in her speech.

In relation to syntax, Rachel appears to be working on the syntax of degree-marked and quantified phrases with nominal heads and of clausal complements, although she seems to have not yet worked these out. And she seems to come to more all-encompassing structure(s) for such phrases, leading to Q-A (*more A*), Deg-Q (*how many*), Deg-Q-Q (*how many more*), Q-Deg-A (*much too A*) and Measure word-Q/Deg-A (*one more older; two arms longer*) forms. (It is not until later that we see Deg-Q-Deg-A (*as much older*) forms, however.)

TABLE 11.19 Scalarity

Table 11.19A Direction on Scale

too, as

- R: It may be **too late**, 'cause they may still be in bed.
 M: It may be too late?
 R: It may be **too early** because they may be—they may still be in bed.
 [R wanted to go play with neighbors M and S early in the a.m.; M told R to wait a bit till later; M probably said something about M & S might still be in bed. [first "too late" wrong direction on scale] 5;1.18
- It's **not as much as** I wanted. [R complaining that M put too much cheese on her food. [wrong direction on scale] 5;2.19
- I don't think I can take much sugar on **this much** cereal. [R has very little cereal in bowl. [first "not...much" OK; second "this much"—this amount—wrong direction; should be "this little"] 5;2.24
- I got about **as many** you need. I got six. [M needs five magic markers.] 6;3.6
- [R holding up piece of bread, M having told her to put back end piece because it was too small.]
 R: This is **as small as** they come.
 M: What do you mean? Is that the biggest piece you can find or not?
 R: Yeah, it's the biggest piece.
 [wrong direction on scale] 6;3.29

until

- How do we call her **until** that tower's finished? [re: calling her grandmother in England from the US; we had been discussing how a new microwave tower they've been building will facilitate overseas calls.] 5;0.2
- R: Now it's real long ago that you've cut it.
 M: What?
 R: Now it's real long ago **till** you cut it.
 [M has made a remark about how happy she is she cut R's hair; R told M not to talk about it, since it's so long since she cut it; M cut R's hair about a month ago.] 5;5.7

Table 11.19B Non-Scalar Uses of *catch up with*

- Daddy **caught up with** all three of us, cause he was done before us. ["beat?" "catch up" demands sense of scale—moving up on scale; lacking in R's understanding?] 5;1.7
- [R is ahead of M: R pretending M is girl, R is mother.]
 R: I'm **catching up with** you, little girl.
 M: What does that mean, Rach?
 R: It means I'm getting closer to the place I'm going. Oh, I'm **catching up with you**, that's for sure.
 [Not clear; *catch up* appears to mean "beat"] 5;4.17
- I was tryin' to **catch up with** daddy, so you didn't know he was here in the first place. [R was trying to rush ahead of F to get up to M at her office before him; she was trying to "beat daddy, so that..."] 6;4.1

TABLE 11.19 (continued) Scalarity**Table 11.19C** Expression of Scalarity

It'll be long since now **until** your birthday comes. [R to friend T. [scale of time]] 5;8.2
 [R explaining how a boy who was 6 differed in age from her and Jaime: He was...] The **second** age as me, and the **first** age...I mean, the **second** age from me, and the **first** age from Jaime. 5;4.26

Table 11.19D Scalarity Linked with Spatial Imagery

Was that **lower** than a minute? [R had told M to wait a minute before doing something, or M had told R to wait a minute before she would do something; then M ready to do that thing; i.e., "was that less than a minute?"] 5;1.7
 Ten or **under** ten. [i.e., that's how many bites she wants to have of beans off plate. Means "less than 10"—at same time as having trouble with "least"—non-most/most littlest] 5;6.28
 I was waiting about that much. I was waiting that much. [R **holding arms apart**—i.e., "that long"; R waited for M at Community Building after art class.] 6;0.14
 Fifteen! **Lower** than fifteen! [R, M, and friend F talking about school J and R had gone to in Chicago; M asked R how many kids were there; F asked if there were 15.] 6;1.12
 (I want something we haven't had) for a real, real, real long time—like **about from the hallway to that side of the garage**. 6;1.4

What Is Missing? One aspect of these forms that children must still sort out is which adjectives go with *-er* and which with *more* in comparatives:

(83) Mine was gigantic—even **giganticer** than Jaime's. [re: balloons]
 (R 6;2.12)

J: The least you could do is be **more quiet**.

F: Why didn't you say "**quieter**"?

J: Because "be **more quieter**" wouldn't make sense. (J 7;6.17)

[Family is riding overnight in car to Chicago. J has just woken up. Beginning to dawn.]

J: It's becoming **more light**, everybody.

M: What?

J: It's becoming **lighter**. (J 7;7.3)

I found two really interesting ones. One is **interestinger** than the other. Which one do you want to see—the **interestinger** one? (Saul 5;2.4)

Only if I had kept these stamps in a **secreter** place. [J regretting that he hadn't put his stamps in a more secret place than he had. Means "If only..."] (J 7;7.29)

You feel much **uneasier**—much **more uneasy** in an elevator with a wheelchair. (J 14;1.9)

This is complicated by the fact that the choice is not strictly lexically based, but is dependent on the overall structure. Thus, for example, *He is bigger than he is tall* does not mean the same as *He is more big than he is tall*. Utterances from children such as the following reveal that sorting this out is not unproblematic:

(84) I'm strong and I'm brave. But I'm braver than I am strong. [means "I'm brave more than I'm strong" or "I'm more brave than I am strong"?]
(Saul 6;3.29)

Syntactically, Rachel appears to be on the brink of sorting out fully the syntax of degree and quantifier phrases. However, many of the problematic forms (*much more A-er*, Degs with *A-er* without an intervening *much*, Deg + *much* + A, and *so vs such*) hang on in children's speech beyond these ages, indicating that the process of sorting the whole set of structures out fully is protracted beyond these ages.

COMBINED SUMMARY, BOTH SADIE AND RACHEL

What aspects of development are common to Sadie and Rachel, and where does their development differ? The following summary is provided in an attempt to clarify the commonalities and the differences in the developmental trajectories followed by Sadie and Rachel.

Semantics

Semantic Development Before 3;0 With regard to the semantics of their expressions, both Sadie and Rachel begin early on, before age 3;0, to use modifiers to express INTENSIFICATION. For Sadie, the forms used were generally preadjectival modifiers, *so*, *very*, *quite*, *all*, *really*, and reduplication of *very* and *really* (and occasionally *-er*). After initial appropriate use, Sadie showed extensive overgeneralization of the expression of INTENSIFICATION outside the acceptable adult norms; for example, to *way/freezing/heck-out A*, reduplication of verbs and adverbs. Rachel also used *really* and reduplication of the adjective itself, but she also used the suffixes *-er* and *-est* prolifically for this meaning.

Both children also used forms before 3;0 to express EXTREME ENDS and LIKE. Sadie often used *match*, Rachel used *same* to express LIKENESS. Both children often used *than* to mean "like." For Sadie, the expression of these notions seems to have come in after the expression of INTENSIFICATION. For Rachel, the timing appears to have been more co-temporaneous. Rachel also expressed CONTRAST during this period.

During this early period, neither child expressed notions associated with *as...as*, *enough*, or *too*. If they used these forms at all, they were used immaturely (e.g., Rachel's use of *too late* and *too heavy* for "can't").

Semantic Development 3;0-4;0 During the next year, both children continued prolific expression of INTENSIFICATION, adding forms used to express this notion. Sadie added *quite* as a modifier, and she extended the use of *so* and *galore* to use with verbs. Rachel added *very* and *real* as intensifiers.

Both children also began during this time to add the forms *as...as*, *A enough*, and *too A* to their repertoires, and Sadie added *how* and *-er*. (However, Rachel only used *how* with *old* during this period.) While these forms seem to have

been used occasionally in appropriate contexts, with possible appropriate import, on the whole they revealed immature use. Both children showed a clear lack of understanding of the scalar nature of these, that they entail specification on a scale viewed from below going upward on the scale. They often used them instead for more "punctual" readings. This absence of a scalar usage is also evident in both children's use of *until* and *catch up with*, and in Sadie's use of *barely*.

Evidence of consistently appropriate semantic usage of the comparative appears at around 3;6 in Rachel's speech, followed by appropriate use of the superlative around 3;8. Appropriate uses of *too A* appear around this same time. With this consolidation of the semantics of the comparative and the superlative, not only is the usage of *-er* and *-est* appropriate, but when *-er* is accompanied by a standard of comparison, it is appropriately introduced by *than*. Rachel's use of *as...as* continues to show problems with scalarity, however.

Semantic Development 4;0-5;0 Rachel continues to expand on the expressions used for INTENSIFICATION, now adding *so* and *pretty* for adjective modification. She also now uses *how* for this purpose, as well as for nonintensive meaning.

Her uses from 4;0 on show confirmation of solidification of the semantics for *A-er* and *A-est*, with no further misuses for less mature meanings. However, while the use of *than* is by now established as accompanying *-er*, the form of the superlative is more tenuous. Rachel begins alternating *-est* with *best*, she vacillates between *the* and *my* as the determiner accompanying the superlative, and she shows variable use of *of all*, *in the world*, and *world's* as the standard of comparison.

Rachel also begins to use *very* quite a lot for "absolute," modifying expressions of EXTREME ENDS. She also shows greater use of *as A as* (and *that A*), although she still uses this as marking a point on a scale (as if it means "the same as"), rather than as encoding a point on a scale as seen from below upward.

Semantic Development 5;0-6;0 Finally, during the final year examined, Rachel shows heightened attention to negative poles of scales. She often uses the positive-pole term with *opposite* or *non-* to refer to the negative pole. This is interpreted as an indication that she has now realized that the positive and negative ends of the scales lie along the same scale.

Her usage of the scalar forms *too A* and *as A as* appear to be developing, with a greater appreciation of the scalar nature of these predicates. However, she still makes errors in giving these forms nonscalar readings.

Forms

Forms Before 3;0 Prior to age 3, both children used *more* as one of their earliest quantifiers, with immature meaning, alongside a few free-standing others such as *two*, *first*. Both children's first steps to more complex expressions involved adding *any more* and *no more* to their repertoires. For Rachel, prior to age 3, the next development was to add *many* to refer to age ("the many") and the occasional *too much* (with uncertain semantic import).

For Sadie, there was further development prior to age 3: First, she also added the quantifiers *a lot* and *a little bit* to her lexicon. Subsequent to these, she added *all* and *a few*, and she expanded the modifiers occurring with *more* to *yes more*, *one more*, *some more*, and she added other quantifiers that allowed modification: *a little bit some*, *a lot of three*. At approximately the same time, she added Deg + *much* (*very*, *how*, and *so + much*, all used for INTENSIFICATION) to her repertoire, with *much* never appearing without such a Deg marker.

Subsequently, about two months later, Sadie began using some of the Qs in her speech as Adjective or Deg modifiers; for example, *a little bit loose*, *a lot salty*, *a lot so love you*, *all that fast*, *somewhat better*.

Forms 3;0-4;0 In the next year, Rachel began using *more* for amount, and she added the Qs *a lot*, *much*, *most* to her repertoire. These were occasionally linked with *than*, expressing "like." She also continued using *any more*, but expanded her use of Deg + Q to *too/that much* and *how many* (for age only). Rachel appears to have been somewhat behind Sadie in her development of the forms of these structures at a comparable age.

For Sadie, developments were more extensive regarding forms at this age. First, she added *many* and *enough* to her Qs, and she began using *how/too/as much* beyond INTENSIFICATION. By 3;8, the first use of *much* without a Deg word was observed.

During this time, there also seems to have been in Sadie's speech an explosion of Deg and Q and A combinations, apparently quite indiscriminate in syntactic form. These included Deg + Q ("quite a bit," "quite a lot," "the a lotter"), Q-A ("a bit spicy," "any spicy"), Q-Deg-A ("any too tight"), Deg-Deg-Q ("quittest bit"), Deg-Deg-A ("very too small"), Q-Q ("5...bit"), Q-Q-Deg-A ("once less braver," "much less braver"). However, while these appear to have been indiscriminate in form, when they involved multiple modification, they seem to have involved the semantic modification of *-er*, *too*, and *-est*; that is, the second Deg₂ appears to always have been *too*, *-er*, or *-est*.

Finally, Sadie also began using numbers as A modifiers ("150 tired") at this same time. These are likely to have been related to the other Q-A forms, but it is hypothesized that the introduction of numbers into these constructs may signal an important role for numbers in children's developing understanding of scalarity.

Forms 4;0-5;0 Rachel's early development during this year was similar to Sadie's in the previous year in many respects: She expands on modification with *more*—*three more*, *a lot more*, and she expands on Degs used with *much*—not only *too/that much*, but also *so/how/as much*.

Beyond this, like Sadie, Rachel expands the forms of the constructs. Unlike Sadie, however, her expansion of the forms in question appears to have progressed through the development of X-A-*er* in her speech, around 4;6. This expands, first, at around 4;8 to *more A-er*, and at around 4;10 to *most A-est*. About half a month later, *even/much more A-er* emerged.

There appear to have been several important steps for Rachel during this year in the development of the syntactic form of these constructs. First, the develop-

ment of *as...as* appears important. *As much* emerged at the same time as *as A*, indicating a shared source. But *as A* was accompanied early on, from 4;4, with the standard marker *as*; this close link was not the case with *as much* until about 4;10, when Rachel seems to have come to the conclusion that the standard of comparison was required. This tight link between Deg *as* and standard marker *as* appears to have been transferred over to *-er* and its association with *than*, which she explicitly links.

Furthermore, these developments appear potentially linked with Rachel's new attention to clausal complements of these forms. It was hypothesized that Rachel's conclusion that the standard of comparison was required with *as...as* and possibly *-er...than* constructs may have forced her to attempt the expression of complex clausal standards of comparison in these structures.

In addition, the more elaborated, multiply modified forms developing during this time seem to be related to the development of more complex local syntactic structures. This includes the development of constructs with nominal heads, in which the degree phrases are incorporated into constructs involving nominal determiners and nouns. Rachel's difficulties with these constructs reveal that this was a far from straightforward task.

Finally, like Sadie at one year younger, Rachel at this age, around 4;10, seems to have associated scalarity with number. While Sadie brought number into A modification, Rachel seems to use numbers more adverbially, as in "I'm sweating three times, and I'm tired two times."

Forms 5;0–6;0 During this year, Rachel appears to develop a refined set of structures out of the forms that were developing during the previous year. First, *more A* emerges for the first time, likely a development from *much more A-er*. Deg + *many* emerges, comparable to the previously available Deg + *much*, and this development seems to coincide with a developing understanding of the differential mass/count status of *much* and *many*. Similarly, X + *A-est* appears to emerge out of X + *A-er* (perhaps in combination with *most A-est*); *much too A* and *a lot/one more A-er* emerge from *even/much more A-er*.

OVERALL DISCUSSION

What do these data ultimately reveal concerning the acquisition of language, in particular language involving a complex set of interrelated forms and meanings? First, they reveal a complex interweaving of cognitive, semantic, and syntactic factors that contribute to the timing and sequence of acquisition.

Cognitive and Semantic Development

Encodable Notions First, on a cognitive and semantic level, it appears that certain concepts are "accessible" early to children; others appear more inaccessible and do not come in until later. Among the relatively accessible notions are

INTENSIFICATION and LIKENESS. Comparison of the relative presence of a property in two or more individuals appears more complex and less accessible to young children. Thus, the early uses of forms in children's speech tend to be associated with meanings of INTENSIFICATION and LIKENESS. If in the adult language a given form expresses scalarity, that form, if used by children, will tend to be misused for one of these simpler notions.

This cognitive/semantic factor interacts with factors related to the form of the linguistic input. There are many ways to express INTENSIFICATION and LIKENESS in English, and different children appear to "grab" different expressions and run with them. Sadie used a lot of preadjectival forms (*very, so, etc.*) to express INTENSIFICATION; Rachel tended to use suffixal forms (*-er, -est*). Sadie used *match* quite a bit to express LIKENESS; Rachel used *same(s)*. Beyond the data examined here, my son, Jaime, used *as* quite a bit for LIKENESS, which he picked up through his fondness for books ("Its fleece was white as snow"); see (85). Melissa Bowerman's daughter Christy, on the other hand, used *so* (as in "so is she") for LIKENESS; see (86).²⁹

(85) ...but she's not big **as** her brother so she can't say "thank you" **as** her brother, right? (J 3;9.25)

It's pink **as** your shirt. The balloon's pink like your PJ's. (J 4;1.4)

(86) I want ice cream **so** boy. (= "I want ice cream like the boy has." As M & C pass boy eating ice cream.) (C 2 yrs.)

I have a go potty ... **so** Mark. (= "...like Mark." C at home, but Mark goes potty when she is at his house every day.) (C 2 yrs.)

Each child seems to have drawn on his or her linguistic experience to express this commonly understood notion of LIKENESS.

Development of Scalarity The lack of accessibility of notions of scalarity is associated early on with misuse of a variety of expressions. This includes early use of, e.g., *A-er, A-est*, and *too A* for "A" or "very A," as well as misuse and misunderstanding of *as X as, that X* in an immature fashion, to mean "the same X as." This usage shows a lack of appreciation of the fact that scalar predicates involve a direction on a scale, asserting a lower limit on the scale in the affirmative, denying the meeting of that lower limit in the negative.

Problems with scalarity also affect forms that go well beyond the forms of primary interest here, spilling over to all other scalar expressions, including those involving time (*until, still*) and notions like "catching up." Children's early misuses of these forms treat them as if they express more punctual notions like "when," "at that time," and "beat."

The growing understanding of scalarity associated with these linguistic forms seems to emerge in two ways. First, children begin to explicitly associate the magnitude of a property they are expressing with numbers. It is possible that this devel-

²⁹I am grateful to Melissa Bowerman for these data.

opment has its source in the child's growing understanding of number or in the child's growing command of these linguistic structures themselves. The former case would mean that as children are beginning to understand number and scalarity outside of these expressions, they then bring that understanding into these expressions as a consequence, to help them gain a greater scalar command of those expressions. Another possibility, however, is that the linguistic forms themselves invite children to think of them as directly involving number themselves.

There are several ways in which language may be providing such an invitation, in that many associated constructs contain quantifier and number-related forms; for example,

- (87) *no more, some more, one more*
more delicious
(not) one bit
any more, any X-er, any good
a bit, a bit more, a bit A
twice as X
five times X-er
lots X-er
much X-er

The data here make it clear that children pick up on such associations and try to generalize from them:

- (88) I want **yes more baguette**. I want **yes more cheese!** I forgot I already had baguette! (Sadie 2;3.7)

That doesn't make **any sense**. Not **one single** /sent/ [= {sent[?]/cent[?]}] (Sadie 3;8.24)

Is it **a bit spicy?** Is it **any spicy?** [re: food V has made, Thai food—S wants to know if it's spicy before she tries it] (Sadie 3;9.22)

[V and Sad discussing how Sadie was "lost" at a park one time:]

V: But Sadie wasn't worried. Not **one teensy bit**.

Sadie: **Not even 2. Not even 3. Not even 4. Not even 5...bit.** 3;9.24

I like it **30 bits!** (Saul 4;9.28)

[Rachel comparing amount she's sweating and amount she's tired:]

I'm sweating **three times**, and I'm tired **two times**.

[i.e., sweating at a value of 3 and tired at a value of 2.] (Rachel 4;11.25)

I'm like **once** less braver than Saul. (Sadie 3;11.27)

The direction of influence may, of course, go both ways, and is at this point unclear; this can only be answered through further research.

At the same time, Rachel's growing understanding of scalarity associated with these linguistic forms seems to emerge in a second way, in her focus on negation

and on negative ends of scales. Her focus on negative ends and her expression of those ends often with the positive-pole forms ("nonmost," "the opposite of too much," etc.) suggest a linking of the two ends of the scale into a single scale. Rachel's utterances expressing scalarity seem to also draw on spatial metaphors, such as in the use of *lower* and *under* for "less than." However, these may simply be attempts at expressing negative ends of scales when the appropriate lexical items are not readily available, as she also draws on, for example, *younger*, *thinner*, and *older* for such purposes.

Scalar Predicates and Conversational Implicature If these analyses are correct, they suggest that the acquisition of scalar predicates involves several separate developments in the semantics of the forms, and is not simply a matter of coming to understand the conversational implicatures associated with them. We can discern five developments necessary for coming to understand the relevant forms:

1. First, the child must gain an appreciation of something of the core meaning associated with the form in question. Thus, learning *too* involves going beyond initial uses limited to, for example, *heavy* or *late* with an immature semantic content, to understanding that it involves whether there is a fit for some purpose. Learning *more* involves going beyond use for recurrence, or for "amount," to knowing it expresses relative amount. Learning *some* entails learning two meanings: the determiner meaning, used as a plural equivalent of *a* with count nouns, and as a singular determiner with mass nouns; and the quantifier meaning, which contrasts with *all*. Learning *as...as* or *-er...than* entails learning that a comparison of two things is involved. This may be easier with *as...as* than with *-er...than* if, like Rachel, most children link degree marker *as* from the beginning with standard marker *as* (while the link of *-er* with *than* takes longer). The explicit link with a standard of comparison may make it clear from the beginning that degree marker *as* entails such a comparison. And so on.

2. Learning the core meaning also entails understanding that the application of scalar predicates is usually context-dependent for application. What is *bigger* in one context might be *smaller* in another context. What is *too big* in one context can be *too small* in another. It has long been recognized that certain adjectives like *big* demand reference to the context for proper interpretation, but the same applies to quantifiers and scalar forms (Moxey & Sanford, 1993; Papafragou & Schwarz, 2006).

3. Third, the acquisition of these forms entails their placement on a scale along with other terms. Knowledge of the forms entails, as with numbers, knowing their relative positions and their order on such a scale. Thus, for example, knowing *big* entails knowing where it lies on a scale relative to *huge*, *small*, *large*, *tiny*, and so forth. Knowing *A-er* entails knowing how it relates to *as A as*, *A-est*, etc. Knowing quantifier *some* entails knowing that it encodes a quantity on the same scale as *all*.

4. Knowing the placement or point on a scale where a given scalar predicate falls does not necessarily mean that one also understands that the use of the term asserts the lower limit, and that the scale is viewed from below upward. The acquisition of these forms involves acquiring this as well as the first three elements.

So, for example, a child may understand that *as...as* has to do with the specification of two entities at the same point on a scale (elements 1 to 3), but not that it asserts the meeting of a lower limit at that point. Not until a child understands this will he or she be able to adequately use and understand, among other things, negation of scalar predicates—e.g., that *A is not as X as B* means “A is less X than B,” not “A is either less or more X than B.”

5. And, finally, the acquisition of scalar predicates entails understanding the pragmatic implicatures involved and controlling the linguistic devices that confirm or deny such implicatures. Among these understandings is knowing that the default pragmatic implicature is that a higher/stronger term is not applicable. Thus, to say *A is as X as B* usually, as a default, invites the inference that “A is not X-er than B.”

Much of the work to date on the acquisition of scalar predicates has focused on the child's knowledge of the pragmatic implicatures associated with the forms in question, element 5. However, equally important is ascertaining whether the child has the first four elements in place; without them, the child will not have the option of applying or denying implicatures. Many of the studies in the literature have found that children are more likely to associate implicatures with numbers than with nonnumerical scalar predicates. However, in most of those studies, the question of whether the child even understands or knows the meaning of the nonnumerical form in question or its scalar nature has not even arisen. A child cannot interpret *some* in relation to *all* if the child only knows the determiner meaning of *some*; similarly, a child cannot interpret *most* as implicating *all* or *not all* if he or she does not know what *most* means or primarily knows *most* as a (double) marker for superlative adjectives.

Later Semantic Developments Have Their Roots in Earlier Semantic Developments The data here suggest that each predicate will have its own history of development and its own status vis-à-vis the child's knowledge of its scalarity. These forms undergo critical and important changes in the child's use and understanding at the ages studied here, up through age 6, and beyond. The present data suggest that the earliest that any of these forms have scalar-like semantics (i.e., in relation to elements 1 to 3 above) is around 4 years of age, and that understanding may even come in quite a bit later. Understanding that such forms assert a lower bound, item 4, comes in even later.

Furthermore, the history of a form in a given child's usage will affect her understanding of that form at a later point in development. Thus, for example, Rachel's use of *many* was linked from the start with number through her use of *the many* and *how many* in relation to age. This early link with number may mean that whatever scalarity she learned to associate with number may have accrued fairly automatically as well to *many*. In contrast, a form like *some*, which may well be learned early as a determiner before it is used as a quantifier, may retain some of an early association with unspecified sets when children begin to understand its use as a quantifier; as a result, it may not be surprising that children interpret *some* as including reference to a whole set. This contrasts further with a form like *as...as*, which, according to the data here, is probably never taken by the child as

allowing application beyond the point at which the standard of comparison lies. That is, it is unlikely, given the data here, that children go through any early stage (comparable to those reported for *some* when children allow it to refer to "all") at which they interpret *A is as X as B* as allowing for A to be "X-er" than B.

Recall that children's insensitivity shown toward conversational implicatures in previous studies has been attenuated if the relevant contextual support has been made available, and has varied from predicate to predicate. I would suggest that one of the reasons that children's honouring of conversational implicature varies from predicate to predicate and from study to study has had to do with items 1 to 4 above: First, children will have varying degrees of knowledge of the semantics of the terms themselves (1 above); for example, they will know what some of the words "mean" and others they will not know; they may know one use of a word (e.g., *some* as a determiner), but not another (*some* as a quantifier). Second, children initially fail to appreciate the scalar nature of the predicates (3 above); for example, knowing the "meaning" of quantifier *some* does not necessarily mean knowing where *some* lies on a scale relative to *all* on the same scale. Third, children do not appreciate until late that scalar predicates entail a direction on the scale (element 4). Until these four components of knowledge are in place, it is unlikely that children can come to the critical knowledge that scalar predicates involve default conversational implicatures.

Syntactic Development: Limited Formulas

What do these data reveal about the syntactic contributions to the development of these forms? First, it is apparent that children begin with highly restricted formulas; for example, *no more*, *any more*; *this many*, *how many* [for age only]; reduplication restricted to *very very* and *really really*; *much* occurring always preceded by *too*; and so forth. These gradually, bit by bit, piece by piece, get expanded to broader constructions, sometimes extending beyond the adult possibilities. Thus, for example, *no more*, *any more* get expanded to *some more*, *one more*, and even *yes more*; *this many* and *how many* may be extended to *how old*, and then eventually to *how A*. *Very very A*, *really really A* might get extended to reduplication of adjectives themselves, and then to reduplication of any type of word, including verbs. *Too much*, *that much* might extend to any degree marker + *much*. *A little bit more*, *a lot more*, *one more*, *some more* might extend to *a little bit some*, *one...2...3...4...5 bit*. As Deg + *much* brings in Degs initially associated with As (e.g., *very*, *so*), the link between quantifiers and adjectives is opened up, then allowing modifiers used with Qs to subsequently move into A modification (*a bit A*, *any A*, *some A*, etc.).

There are moments when we can observe general insights on the child's part—but these are usually, at least during the earlier stages, relevant to a small subset of the system. For example, Sadie's transfer of Degs initially associated with As to *much* seems to have occurred in one step, not each Deg at separate moments. Rachel's acquisition of *as...as* for both As and *much* at the same time is indicative of these developments having a common source. And Rachel's later use of *many* as a quantifier with Degs, just as she had used *much* with them, coincides with her

understanding of the mass/count distinction between *much* and *many*: It is as if this latter insight allowed the extension of what had been learned with *much* to *many*. But these are all "small" insights, applying to a relatively restricted set of structures, and do not appear to reflect a more global understanding of the syntactic makeup governing the whole set of structures.

Indeed, there is little evidence prior to the later stages (around 4;10 for Rachel) that the children had broad syntactic categories governing these constructs or guiding their acquisition. Indeed, there is some evidence against that possibility. First, there are several cases in which it is clear that a child had certain forms available but did not bring these into other constructs when the option became available; for example, even though Rachel had Deg + *much* constructs available to her, she did not use Deg modifiers of *much* when she first began producing *much more A-er* forms; that is, she did not produce forms like *so much more A-er*, *that much more A-er*, and the like. Likewise, even though Rachel had by now introduced X + *A-er* forms into her speech, with X coming from a wide range of modifiers (*very*, *how*, *so*, etc.), when *much more A-er* emerged, she did not produce any forms like *much so A-er* or *much very A-er*.

Second, there is no evidence of any broad understanding of constituent phrase structure governing the children's early usage. As just mentioned, in some cases, the children had full phrases available for combining, for example, quantifier elements and adjectival elements (*too much + more A-er*), but they did not draw on these available forms when first combining *much* with *more A-er*. There is also evidence that children did not treat forms that in the adult language are constituents as indivisible units, but rather treated the subcomponents as free-standing elements. These children, as others, often use *How* with falling intonation in answer to adults' questions like "Do you see how far out we are?" in places where *How far*, *How old*, or *How big*, etc., should be used.

The first evidence of the establishment of some broad overall structure governing the syntax of these forms appears around 4;10, when Rachel begins using modified adjectival forms in conjunction with nominal heads, uses more complex degree-phrase and quantifier forms (e.g., as evidenced in her new "how many years old" construct), and begins using complex clausal complements.

Later Syntactic Developments Have Roots in Earlier Syntactic Developments As was the case with semantics, it is quite apparent that at every step, the children are drawing on what they have already learned to build up new structures; later developments are rooted in earlier developments. The links that children form early on between forms and their meanings, for example, seem to stay tied with those forms for a long time. Thus, for example, Rachel's association of *many* with age, and, in turn, age with number, seems to have been an anchor that helped to keep *many* associated with number throughout, and, further, seems to be associated with her later use of *younger* and *older* for "less" and "more." Similarly, Rachel's early use of *very* concentrated on the "absolute" sense, so the link of *very* with superlatives ("very best") seems a natural outgrowth of this and may have played some role in her expansion of X + *A-er* to X + *A-est* constructs. Rachel's preference for *in the world* as a standard of comparison for

X-est, combined with her exposure to *world champion*, together seem to have led to her attempts at marking the superlative with *world's*. Sadie's early association of the word *how* in A modification with INTENSIFICATION may have made the later leap to use of *how* with *much* for a similar notion a natural outgrowth. Similarly, Sadie's early use of *all* with As for intensification may have paved the way for its use with Deg₂s (*all that fast*) for a similar meaning.

One very interesting place where this type of association may have had a critical impact on syntactic development was in Rachel's association of standard marker *as* with degree marker *as*. She appears to have concluded at one point that the standard of comparison was required when the degree marker *as* was used. (And she explicitly states that *than* is required with the comparative, although she does not religiously follow this herself.) This development is interesting in two ways. First, it means that Rachel has drawn a conclusion about structure on the basis of positive evidence alone. We know from the examination of the Kuczaj data, above, that in adult speech to children, degree marker *as* is invariably accompanied by standard marker *as*.

Second, this conclusion on Rachel's part appears quite likely to have forced her to pay attention to the structure of complement clauses. If the *as* standard marker introduced a clause, she had to find a way to say it, as in her utterance at 5;2:

- (89) There has to be as many people...[R says she doesn't know how to say it, then:] There has to be **as many** people...um...**that as many** words there are. 5;2.15

CONCLUSION

The data and analyses presented here provide insight into one area of language that involves a complex set of semantically and syntactically related forms. The data from Sadie and Rachel suggest that the acquisition of such forms is a long drawn-out process in which multiple developments are occurring side by side across structures.

At the outset, several questions were raised concerning aspects of development related to these particular forms. Let us return to these to reflect on how these data shed light on them:

- (1) Little is known regarding the acquisition of multiple modification:

These data indicate that children work out the structure of multiple modification piece by piece, drawing on prior-learned constructs at every step.

- (2) Little is known about the development *within* each structure (how do uses of each form—*very*, *too*, *as*, *than*, *more*, *many*, etc.—change with time and experience?):

These data suggest both piecemeal learning (e.g., the semantics of Rachel's use of *too* in *too heavy* and *too late* was not linked with the subsequent semantics of *too* in *too A* constructions) and the development of networks of linked constructs (e.g., Rachel's early use of *how* and *many* were linked with age and number, and this early connection seems to have supported subsequent developments for these forms; in Sadie's speech, the entry of Deg forms initially associated with As (*very, how, so*) into constructs with *much* may have provided an impetus for further linking of A and Q structures). Both children's early use of *than* for "like" seems to have been influenced by notions that were cognitively and semantically accessible, but its semantic development appears to have been related in time to its growing syntactic ties with the comparative.

- (3) Little is known about how development across the whole range of structures evolves; for example, how do the developments of *as...as*, *-er...than*, *X enough*, *too X* interact?

Again, while the data here indicate much early piecemeal learning, they also suggest that linkages across forms occasionally push the child along. As noted, for example, it appears that Rachel's apparent conclusion that degree marker *as* must be accompanied by standard marker *as* spilled over into her understanding of the structure of comparatives, and these in turn affected her attention to the expression of clausal complements.

- (4) Not much is known about individual differences in the acquisition of these forms across children.

These data suggest some commonalities in development across children, some idiosyncracies. Some commonalities appear to be that children attempt to express certain concepts (INTENSIFICATION, EXTREME ENDS) earlier than others (SCALAR POSITION), and that children's syntactic development of these forms may be anchored primarily around certain forms (*more*, *A-er*, and *much*) and developments associated with them. Children differ, however, in which exact forms they pick up to express the notions in question (e.g., *very* vs. *so* vs. *-er* vs. *-est* vs. reduplication for INTENSIFICATION) and how they go about expanding the modification of As and Qs. For example, in Sadie's case, she developed a syntactically indiscriminate combining of Deg and Q forms; in Rachel's case, she progressed through the expansion of *X + A-er*, *much more A-er*, and *Deg + much* forms.

- (5) Further work is needed regarding the acquisition of language versus the acquisition of cognitive understanding.

While this study did not examine this question directly, it has provided indirect evidence that certain cognitive concepts seem more easily accessible to children than others, and this affects their early use of forms that in the adult language are linked with the less accessible forms. Thus, scalarity is relatively inaccessible early on, so younger children use language

that expresses scalar notions (*as...as, enough, until, catch up with, etc.*) for nonscalar meanings.

- (6) Very little is known about children's understanding of scalar predicates.

These data suggest that children initially misuse and misinterpret scalar predicates. It also suggests that the development of scalar predicates involves several components in development, and that the semantic appreciation of scalarity may go hand in hand with the child's developing understanding of number.

Among the broader questions posed here were the following:

- (7) To what extent do children approach these structures on the basis of broad syntactic categories and structures? That is, does knowledge of syntactic structure guide children's acquisition of these forms, or do the syntactic structures emerge out of the children's experience with the forms?

It is clear that these children are not guided by broad syntactic structures in the development of these forms. Rather, the data here clearly point to the development of syntactic structures in a piecemeal fashion, and syntactic structures eventually emerge as a product of development.

- (8) Are the developments in the syntactic and semantic (and cognitive) realms autonomous, or do developments in one area influence developments in another?

The answer to this question is mixed. On the one hand, there is clear interaction:

- (a) Children's early limited cognitive understanding leads them to attach accessible notions (INTENSIFICATION, EXTREME ENDS) to forms, both appropriately (*very A, so A*) and inappropriately (*A-er, A-est*).
- (b) Children's immature understanding of *A-er* leads to immature understanding and use of *than*, and figuring out the meaning of *than* seems to coincide with figuring out that *-er* requires *than* as standard marker.
- (c) Determining the meaning of the superlative appears linked with its association with *in the world* or *out of the world*; the meaning of degree marker *as* is tied with its high occurrence with standard marker *as*.
- (d) A child's early association of a given meaning with a form (e.g., *many* with age, and, hence, number) can carry over into later developments (the correct association of *many* with countable entities when it is later used appropriately as a quantifier).
- (e) Overextensions of semantic notions can lead to inappropriate syntactic structures (e.g., Sadie's expansion of INTENSIFICATION to verbs—"he's drawing galore").
- (f) The development of multiple modification appears to have been anchored around *A-er* (Rachel) or *A-er, too A, A-est* (Sadie). It is

not clear whether this is because the children discovered a semantic property—e.g., that the notion expressed by *A-er* can be modified semantically—or is an outgrowth of the addition of syntactic patterns to their speech (e.g., *very bigger*, *that bigger*).

If the former was the case, this would mean that semantics led syntactic development. However, it would be hard to explain (a) why neither child used multiple modification with *as* and *enough* (see introduction) and (b) why Rachel's initial steps revolved only around *A-er*.

If the latter was the case, it would mean that both children took small, conservative syntactic steps in developing these forms, which ultimately would involve both syntactic and semantic structure.

At the same time, semantic and syntactic developments for a structure are not necessarily tied.

- (g) Take, for example, the case of the comparative vs. the superlative. Since the superlative *A-est* is related to the expression of EXTREME ENDS, a notion that is fairly accessible to children, its semantic use is appropriate fairly early, even while *A-er* is being used immaturely. However, in syntactic development, the development of the comparative seems to generally precede/lead the development of the superlative: The association of *than* with *-er* becomes solidified earlier than the association of *in the world* with *-est*; the introduction of quantifier modifiers (*much*) into A constructs is tied with the comparative (e.g., *much more A-er*) more than with the superlative.
 - (h) Developments regarding the form of degree phrases appear to occur largely independent of their meaning, as the child discovers commonalities across forms (e.g., between Deg + A and Deg + *much*).
- (9) Do children follow a common trajectory in the development of these systems, or is the developmental path followed idiosyncratic and distinct across children?

With regard to semantic development, both Sadie and Rachel seem to have expanded their repertoire of messages from initial notions of INTENSIFICATION, EXTREME ENDS, LIKE, through comparative and superlative notions, through to scalar notions encoded through *as...as* and *enough*.

However, the data here indicate also that not all children will necessarily follow the same steps in their choice of initial limited formulas, nor in the expansion of these initially limited formulas. For example, in Sadie's case, the introduction of Q modifiers into A structures and of A modifiers into Q structures led to syntactically quite indiscriminate combining of Deg and Q patterns. In Rachel's case, on the other hand, the introduction of multiple modification, for As, revolved around modification of *A-er* constructs and the introduction of *much more A-er*, and for Qs, around Deg + *much* constructs. The difference between the two children may have stemmed from the early differences in their attention to premodi-

fiers of As (Sadie's preference) vs. postmodifiers (Rachel's preference). That is, Sadie's early attention to X + A forms may have influenced her later development of pre-modifiers of bare As and Qs, while Rachel's early attention to *X-er* and *X-est* forms may have influenced her later syntactic expansion, based on *A-er*, to X + *A-er* forms.

- (10) Does language lead cognitive development, cognitive development lead language, or a mixture of these two?

Again, the answer appears mixed:

On the one hand, the common semantic trajectory shared by Sadie and Rachel seems to have its roots in cognitive accessibility of the notions encoded.

At the same time, these data open the possibility, at least, that it is children's understanding of scalarity associated with number and the introduction of numbers syntactically into these scalar predicate expressions that may facilitate children's developing understanding of the concepts underlying these scalar predicates.

As stated at the outset, this research was conducted with the hope of helping to answer some of these open questions, and of providing further insight into the developments of individual lexical structures; into the development of links between structures and of the whole linguistic system; into the influences of cognitive, semantic, and syntactic aspects on the course of acquisition; and into the range of individual differences and range of commonalities in the acquisition of these structures. With the help of Sadie and Rachel, I hope that this chapter provides food for thought on the answers to these questions.

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