

THE CHILD'S EXPRESSION OF MEANING:  
EXPANDING RELATIONSHIPS AMONG LEXICON,  
SYNTAX, AND MORPHOLOGY\*

Melissa Bowerman  
*Department of Linguistics*  
*Bureau of Child Research*  
*University of Kansas*  
*Lawrence, Kansas 66045*

INTRODUCTION

Studies of first-language acquisition typically have shown strong respect for the major components into which linguistic analysis divides language: lexicon, syntax, morphology, and phonology. Thus, researchers explore the acquisition of word meaning (for example), or the characteristics of children's early word combinations, or the acquisition of inflectional morphemes, but only rarely compare the elements of the child's developing linguistic system *across* the major formal categories. The picture of language acquisition built up in this way is fragmented. We may know a great deal about the development of particular subsystems, but we do not yet have a clear understanding of how the different parts fit together, how they interact and are affected by each other in the course of development.

Interrelationships among the components of the child's developing grammar can be approached in various ways. The most studied problem to date is whether children's initial rules for combining and inflecting words are bound to particular words or groups of semantically similar words rather than extended across all words of the relevant part of speech (e.g., References 1 and 2). Limited attention also has been paid to the influence of the infant's phonological system on the "selection" of first words to be learned.<sup>3</sup> The present paper asks still a third question: Given that the child has a certain type of meaning he wants to communicate, what are his lexical, syntactic, and morphological options for encoding that meaning, and how do these options change and affect each other over time? This question is elaborated in the first section below. Two issues raised there are considered in more detail in the next two sections. Finally, some possible implications of these issues for second-language acquisition are discussed in the last section.

ALTERNATIVE ENCODING DEVICES

Useful input to the study of the ontogenetic growth of lexical, syntactic, and morphological options for encoding meaning comes from two relatively

\* This research was supported in part by Grant HD 00870 from the National Institute of Child Health and Human Development.

independent fields of inquiry: linguistic research on variability in the way the same or closely related meanings are expressed in different languages, and sociolinguistic and pragmatic investigations of alternative ways of accomplishing a given speech act within a language.

### *Cross-Linguistic Perspectives*

Languages differ in the devices they employ to express meanings of different kinds. What one language marks syntactically with word order another language encodes morphologically with case endings or phonologically with stress. These cross-linguistic differences mean that the division of labor between lexicon, syntax, and morphology is a matter of discovery for the child. Certain cross-linguistic differences, such as the use of word order vs. case endings to mark grammatical relations, already have been discussed extensively by child language scholars.<sup>4</sup> Other, more subtle differences have yet to be investigated systematically, however. One such unexplored difference concerns the question of "what can be a word."

The fluent monolingual speaker may find this a bizarre question: that certain meanings should be dignified with their own words seems self-evident. But cross-linguistic studies have shown fascinating variability in the way complex meanings are packaged, and this variability is, moreover, patterned, with different languages or language families showing internal consistency. For example, categories of meaning that in one language are expressed routinely with single, monomorphemic lexical items may in another language be obligatorily partitioned into two or more components, each of which is assigned to a different word. Still a third alternative, intermediate between these "synthetic" and "analytic" extremes, involves assigning part of the meaning to a lexical root and another part or parts to inflectional or derivational affixes on this root. Languages differ globally from one another with respect to the degree of analyticity they favor,<sup>5</sup> and they also manifest qualitatively different patterns in what meanings tend to get combined with what other meanings and expressed together as single words.<sup>6,7</sup> An intriguing question is whether in the course of acquiring the lexical items to which he is exposed, the child gradually arrives at an abstract understanding of the characteristic patterns in which semantic material combines to form words in his language.

### *Within-Language Options*

When languages are discussed with an eye toward cross-linguistic comparisons, they tend to be treated as single, monolithic entities: "language X does things like this, language Y does them like that." But sociolinguists and pragmaticists remind us that individual languages are anything but monolithic; rather, they are best seen as complex systems of *linguistic variants*, or alternative ways to encode roughly the same meanings under

different linguistic and nonlinguistic conditions.<sup>8</sup> Becoming a fluent speaker, according to this view, requires not only mastering a body of linguistic forms but also learning which ones mean approximately the same thing and which circumstances favor the use of one variant over another.

The speaker's options can be conceptualized at a variety of levels. At a relatively global level, for example, a speech act such as requesting something may be realized by sentences with entirely different semantic contents, cf. *Open the window* vs. *It's hot in here* as alternative methods of getting someone to open a window. At a more molecular level, what is roughly "the same" semantic content can be expressed in different ways. Sometimes options involve items drawn from the same component of the grammar (e.g., two "synonymous" words). What is particularly important for present purposes, however, is that roughly synonymous encoding devices may be very dissimilar structurally, often reflecting the range of variability that is found *across* languages. For example, for certain meanings, English offers both syntactic and lexical choices: compare, for instance, how the notion of causation is expressed in *The news of his death made me sad* vs. *The news of his death saddened me*, and in *John opened the door by kicking it* vs. *John kicked the door open*; how repetition is marked in *He read the book again* vs. *He reread the book*; how mode of travel is indicated in *He drove/flew/bicycled/walked to California* vs. *He went to California by car/plane/bicycle/on foot*; and how location is encoded in *Jack put the wine into bottles* vs. *Jack bottled the wine*.

The within-language availability of alternative devices for expressing given meanings raises a host of interesting questions. Most extensively discussed has been what kinds of linguistic and nonlinguistic factors correlate with the use of one form over another.<sup>8,9</sup> Still relatively unexplored, however, are ongoing psycholinguistic processes at the time of speech: how speakers keep track of the many contextual factors that are relevant to the form of their utterances, how they generate linguistic alternatives that meet as many contextual demands as possible, how they evaluate these alternatives and choose among them, and how they manage to do all this under considerable time pressure in ongoing discourse (see Reference 9 for an excellent theoretical discussion of the problem). One particularly interesting question in this connection is how speakers resolve conflicts when alternative incompatible language forms compete for selection in the same speech context.

#### ACQUIRING LEXICALIZATION PATTERNS

We return now to the question of whether language-learning children acquire an understanding of underlying regularities in the way their language packages semantic material. In principle they need not. They could become fluent speakers simply by memorizing the words they actually have heard and working out their meanings by observing how they are used.

In fact, however, children appear to go well beyond this bare minimum: they analyze and compare the words they are learning in such a way as to develop expectations that words with certain semantic properties should exist, regardless of whether they have ever heard them, and they develop a feel for the possible morphological properties of these words. The evidence for this process lies in children's systematic use of words to convey meanings that they do not convey in adult speech.

Three representative categories of these novel usages by English-speaking children are illustrated with a few examples each in TABLE 1 (see References 10–12 for more detailed analyses). We shall call these usages "errors," meaning by this term only that they deviate from the conventional adult usage of these words. Most of the data presented in this and subsequent tables come from my two daughters, Christy and Eva, whose language development I followed closely by daily diary notes and periodic tape recording from the time of first words. I have documented each error type with data from a number of other children, however; the processes involved appear to be very general.

Errors 1–11 in TABLE 1 all involve the expression of causal relations, a domain in which particularly rich and interesting cross-linguistic differences in lexicalization patterns have been identified. A succinct summary of these differences has been provided by Fillmore,<sup>5</sup> whose outline we shall follow here (see Reference 6 for a more detailed analysis).

Given a complex, two-part causal event in which one event, act, or situation is seen as bringing about a second event, act, or situation: let *X* stand for a verb that names the initial event (act, situation) and let *Y* stand for a verb or adjective that names the resulting situation. How shall a speaker express the total complex causal event? One possibility is for there to be a verb *Z* (a "lexical causative" or "causative verb") that represents this event. Such verbs are extremely common in English, e.g., *kill* (do something that causes someone to die) and transitive *break* (do something that causes something to break). Causative verbs are rare in some languages, however, where causal events are encoded more typically by syntactic combinations equivalent to English *make die*, *make break*, etc.

If a language does have *Z* verbs, there are several possible ways that these verbs can be related morphologically to *X* and *Y*. One is "no relationship," e.g., *kill* means roughly "do something that causes to die" but is morphologically unlike either a possible causing act (*shoot*, *stab*, etc.) or the resulting event (*die* or *dead*). Another possibility is for *Z* to be identical to *Y*, the resulting event, as in, for example, *John OPENED the door* (cf. the door OPENED) or *Mother WARMED the milk* (the milk became WARM). Still another possibility is for *Z* to be identical to *X*, the causing event; in this case the resulting event is expressed separately with a word or phrase: *John KICKED the door open* (cf. John KICKED the door, which caused it to open, or John caused the door to become open by KICKING it); *Jim CHOPPED the tree down* [Jim CHOPPED (on) the tree, which caused it to fall down]; *Mary WIPED the table clean* (Mary WIPED the table, which caused it to become

TABLE 1  
 ERRORS SHOWING GRASP OF LEXICALIZATION PATTERNS \*

Use of "caused event" predicate as causative verb:

1. C, 3;1: M: The cow would like to sing but he can't. (As C and M handle broken music box shaped like a cow.)  
 C: I'm *singing* him. (Pulling string that used to make cow play.)
2. C, 4;3: It always *sweats* me. That sweater is a sweaty hot sweater. (Doesn't want to wear sweater.)
3. C, 4;6: *Spell* this "buy." *Spell* it "buy." (Wants M to rotate blocks on toy spelling device until word "buy" is formed.)
4. E, 3;2: E: Everybody makes me cry.  
 D: I didn't make you cry.  
 E: Yes you did, you just *cried* me.
5. E, 3;7: I'm gonna put the washrag in and *disappear* something under the washrag. (Putting washrag into container while playing in tub. Has been pretending to put on a magic act.)
6. E, 3;8: I'm gonna *round* it. (Rolling up piece of thread into a ball.)

Use of "causing event" predicate as causative verb:

7. E, 3;9: A gorilla captured my fingers. I'll *capture* his whole head off. His hands too. (= cause his head to come off by capturing it. As plays with rubber band around fingers.)
8. E, 3;11: She *jumped* it off for Jennifer and Christy. (= caused it to come off by jumping. After someone jumps up to pull icicle off eaves of house and gives it to C and a friend.)
9. E, 3;0: The birdies will find the squirrel and *spank* the squirrel from eating their birdseed . . . with their feet. (= cause the squirrel not to eat . . . by spanking him. After squirrel gets into birdfeeder.)
10. C, 3;6: And the monster would *eat* you in pieces. (= cause you to be in pieces by eating you. Telling M a scary story.)
11. A, 4;3: When you get to her, you *catch* her off. [= cause her to come off by catching her. A is on park merry-go-round with doll (= her) next to her; wants friend standing nearby to remove doll when doll comes around to her.]

Novel verbs of directed motion conflating motion plus manner:

12. E, 3;11: Eon laughed too. He *laughed* all the way † down the hill and he *laughed* on top of the other people. (= moved down the hill while laughing and moved on top of the other people while laughing. Describing event in TV show.)
13. E, 5;0: M: It's time to leave.  
 E: OK, then I'm *frowning* out the door. (= move in a frowning manner. E then stomps out in mock anger.)
14. C, 10;5: We *crouched* down the hill. (After M and C go down an embankment in a crouching position.)

\* C = Christy, E = Eva, M = Mother, D = Daddy, and A = Andrea. Age given in years;months.

† The insertion of phrases such as "all the way" or "right (up)" + preposition can render some otherwise dubious novel verbs of this type more acceptable; children may use these phrases at times but seem not to recognize that many such verb uses are unacceptable without them.

clean). Still other possibilities are for *Z* to be derived morphologically, e.g., by affixation, from either *X* (common in German and Hungarian) or *Y* (common in Turkish) or for *Z* to be a compound of *X* and *Y* (as in Mandarin).

English is unusual among the languages of the world in possessing many *Z* verbs—lexical causatives—that are identical morphologically to *X* or *Y*. But not every *X* or *Y* expression can be used as a *Z*. In some cases there is indeed a *Z* term, but it is either morphologically unrelated to *X* or *Y* (e.g., *kill*) or derivationally related to *Y* in ways that are no longer productive in contemporary English (e.g., *sharpen*, *flatten*, *legalize*, *enrich*). In other cases, there simply is no *Z*, no single-word lexical causative.

It is well known that when children discover a patterned way of doing things in language, they regularize forms that are exceptions to this pattern. Apparently the use of *X* or *Y* forms as *Z*—lexical causatives—is prevalent enough in English that the child extracts a pattern from the particular lexical causatives she has encountered and comes to *expect* that *X* or *Y* terms can be used, without morphological modification, as lexical causatives regardless of whether she has ever heard them so used. In 1–6 in TABLE 1, the child uses *Y* (a predicate for the caused event) as a lexical causative where English simply *has* no verb with the meaning of the converted *Y* (in many equivalent errors, the child's novel *Z* form replaces an existing *Z* form, e.g., transitive *die* for *kill*, cf. 7 in TABLE 2). In 7–11 it is *X*, a predicate specifying the causing act, that is used as a novel lexical causative. Errors of these types are quite analogous to more familiar overregularizations involving inflectional morphology, such as *foots* and *breaked*.

Examples 12–14 in TABLE 1 express not causation but the directed motion of the entity specified by the sentence subject with respect to some other object. Lexicalization patterns involving the simple expression of directed motion have been studied extensively by Talmy.<sup>7</sup> According to Talmy's analyses, there are three basic patterns. English, along with Chinese and most or all Indo-European languages except Romance, follows a pattern whereby the verbs used in sentences encoding such events typically express, in "conflated" or combined fashion, both the *fact* of motion and either its *manner* or its *cause*:

Motion + manner:

1. The ball *slid/rolled/bounced* down the hill.
2. I *limped/stumbled/rushed/groped* my way into the house.

Motion + cause:

3. The napkin *blew* off the table.
4. The bone *pulled* loose from its socket.

The verbs in such sentences frequently have other, more "basic" uses in which the notion of directed motion is absent:

5. The ball *bounced* up and down.
6. I *stumbled* on a rock/*groped* around in the dark.

Sentences like 1-4 are so natural for speakers of English that it is difficult not to see them as the obvious way to encode such events. But in Spanish and other Romance languages, along with Semitic languages among others, the usual pattern is quite different: along with the basic fact of motion, the verb expresses *path*, or the course followed by the moving entity with respect to the background object (English has a few such verbs, mostly borrowed from Romance). If manner or cause is expressed at all it must be given independently, e.g., as an adverbial or

TABLE 2  
INTERCHANGEABLE USE OF LEXICAL AND PERIPHRASTIC CAUSATIVES \*

---

Periphrastic causative used where lexical causative is required:

1. C, 2;11: I *made* him *dead* on my tricycle. (= *killed* him. Re: imaginary monster she had run over.)
2. C, 3;1: I don't want you to *make* him *go* off. (= *brush* off, *knock* off. After M tries to brush a moth off C's car seat with her hand.)
3. E, 2;3: Then I'm going to sit on him and *made* [sic] him *broken*. [= *break* (squash). Looking at ant on seat of her toy tractor.]

Lexical causative where periphrastic causative is required:

4. C, 5;10: Water *bloomed* these flowers. (= *made* these flowers *bloom*.)
5. C, 4;0: The machine might *put* him away. (= *make* him *disappear/go* away. C watching "Captain Kangaroo" story about a magic machine that caused Captain Kangaroo to disappear for a while; she's now suggesting same thing may happen to Mr. Greenjeans.)
6. C, 5;8: It's not worse. But the airplane's *keeping* it. [Re: stomachache C had before boarding plane. Now, as we fly, the plane (ride) is *making* stomachache *continue, go on*.]

Successive use of periphrastic and lexical causatives in same speech context:

7. C, 5;0: OK. If you want it to die. Eva's gonna *die* it. She's gonna *make* it *die*. (Upset because E is about to touch a moth.)
  8. E, 2;8: *Put* it on her. *Make* it *be* on her. (Wants M to put a dress on her doll.)
  9. E, 3;9: Can you *make* this *flattened* and *round*? You *round* it and then I'll *flatten* it. (To M, as E plays with a piece of play dough.)
  10. Em, 2;11: You *make* me *swing* around. You *swing* me around. (To Melissa, who is rotating chair Emily is sitting in.)
- 

\* Names and ages as in TABLE 1. Em = Emily.

gerundive; since this may be awkward it is often simply omitted. For example:

7. La botella *entró* a la cueva (flotando)  
The bottle moved-in to the cave (floating)  
"The bottle floated into the cave"
8. La botella *salió* de la cueva (flotando)  
The bottle moved-out from the cave (floating)  
"The bottle floated out of the cave"

9. La botella *volvió* a la orilla (flotando)  
The bottle moved-back to the bank (floating)  
"The bottle floated back to the bank"
10. El globo *subió* por la chimenea (flotando)  
The balloon moved-up through the chimney (floating)  
"The balloon floated up the chimney"

In still a third pattern, exemplified by certain American Indian languages such as Navaho and Atsugewi, verb roots express in a conflated manner both motion and the *type* of object that moves. For example, Atsugewi *-lup-* means "for a small shiny spherical object to move (or be located)"; *-qput-* means "for loose dry dirt to move (or be located)," etc. Manner and path are both expressed separately by affixes on the root.

Sentences 12–14 in TABLE 1 fall squarely into the English pattern whereby motion and manner are expressed simultaneously with a single verb. The child has taken a "basic" action term and converted it into a verb that means "to move (with respect to —) while doing this action." English, however, does not allow quite such a free conversion, and the results sound odd to adult ears. Although to my knowledge there are no relevant data available from children learning Spanish, it seems unlikely that such sentences would occur in their speech. The lexicalization pattern of Spanish simply would not give rise to the expectation that motion and manner could be expressed simultaneously.

It should be noted, but cannot be elaborated here (see References 10–12), that errors like those in TABLE 1 are *not observed* in the early stages of the child's use of the verbs in question. To the contrary, errors of each type are preceded by months or in some cases even years during which usage is syntactically impeccable. This rules out an interpretation according to which the child simply is confused, e.g., does not know yet whether a verb is transitive or intransitive, or whether it can take a locative complement. The period of correct usage before the onset of the errors strengthens the inference that, far from reflecting basic ignorance of the linguistic system, these errors are signs of a rather sophisticated grasp of underlying regularities in the English lexicon.

#### CONFLICT AND HARMONY AMONG COMPONENTS OF GRAMMAR

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 other. Rather, choices in one domain can severely restrict or eliminate choices in another domain. Learning how to coordinate the components of grammar is an important aspect of first-language development that may have interesting implications for second-language learning.



*Choosing the Right Alternative*

There is evidence that early in development, children seek a relatively direct mapping between underlying meanings and overt linguistic forms. That is, a particular meaning will be associated with a unique form (or allomorphs of a form) and, conversely, this form can be seen as the procedure invoked to express this meaning and no other.<sup>4</sup> It is not long, however, before roughly equivalent forms begin to multiply. The child with several forms at his disposal must learn how to make principled choices among them. The learning process can be extended, and marked by many errors.

Consider the child who, like Christy and Eva at 24 months, can express causal events either with single-word causative verbs (e.g., *kill*, *break*, or novel forms like transitive *die*) or with syntactic ("periphrastic") causatives (*make die*, *make break*). How does he choose between them? In adult English, the choice hangs on a complex set of distinctions involving, most critically, how directly the "causer" brings about a change of state in the "causee."<sup>13</sup> Children at first may fail to appreciate these distinctions, however. The evidence is that they initially make many errors in which the lexical form is used where the periphrastic is called for, or the other way around, or *both* forms are used within the same context as if they were regarded as interchangeable. Some examples are shown in TABLE 2 (see Reference 12 for further discussion). Further development consists of working out the conditions under which each form is preferred.

A different kind of conflict between roughly equivalent forms is shown in TABLE 3. The semantic domain involved here can be termed "acts of separation." English encodes acts of separation in several ways. In some cases, separation is entailed by the reversal of an action of coming together or fastening, and is expressed with the reversative prefix *un-*: *untie*, *unbuckle*, *uncoil*, *unbutton*, etc. In other cases, separation is encoded by a locative particle following the verb, e.g., *take off/out/apart/away*. In still other cases, separation is more implicit, incorporated directly into the meaning of a monomorphemic lexical item such as *open*, *break*, *peel*, or *split*.

Children initially seem to learn the correct method for each lexical item independently, and make no errors. Later, however—starting around age four for Christy and Eva—they begin to make occasional errors. For example, in 1 and 2 of TABLE 3 the child has prefixed *un-* to verbs that require *off* or *out*. Examples 3 and 4 show the reverse type of error, adding *out* to a verb that requires *un-*. In examples 5 and 6 the child has simultaneously selected both *un-* and a postverb particle. Finally, in 7–9 the child has redundantly and incorrectly prefixed *un-* to a verb that already expresses separation simply by virtue of its lexical meaning.

Errors like these indicate that beyond a certain point in development, the intention to encode a given act of separation does not present itself

to the mind as a unit, neatly tagged with a suitable lexical item. Rather, the notion of separation apparently is "pulled out" from the surrounding semantic specifics and mentally represented in a form that is neutral enough to simultaneously activate encoding devices from different components of the grammar. Errors result when the child fails to choose successfully among them.

TABLE 3  
ERRORS IN ENCODING ACTS OF SEPARATION \*

*un-* prefixed to verb that requires *off/out*, etc.:

1. E, 4;2: D: Pull your pants up, Eva. (E has pants sagging down.)  
E: Somebody *unpulled* 'em. (= pulled them down/off.)
2. C, 5;6: . . . So I had to *untake* the sewing. (= take the sewing/stitches out. Telling about sewing project at school.)

*out* following verb that requires *un-*:

3. C, 4;5: (Wants to move electric humidifier): I'll get it after it's *plugged out*. (Shortly after): Mommy, can I *unplug* it?
4. E, 4;5: M: The end is tucked in. (Discussing state of E's blanket as puts E to bed.)  
E: Will you *tuck* it *out*?

*un-* and *out/off* both selected:

5. E, 3;5: How do I *untake* this *off*? (= take this off. Trying to get out of swimsuit.)
6. E, 4;11: . . . and then *unpress* it *out*. (Showing how she gets play dough out of a mold by pressing it through.)  
M: How do you *unpress* it out?  
E: You just take it out.

*un-* prefixed to lexical item that already incorporates notion of separation:

7. C, 4;11: Will you *unopen* this? (Wants D to take lid off Styrofoam® cooler.)
8. E, 4;7: E: (Holding up chain of glued paper strips): I know how you take these apart. *Unsplit* them and put 'em on.  
M: How do you *unsplit* them?  
E: Like this. (Pulling a link apart.)
9. S, 5;2: How do you *unbreak* this? (Trying to pull sheet of stamps apart.)

\* Names and ages as in TABLE 1. S=Scott.

### *Coordinating Verb Choice and Syntactic Arrangement*

When a speaker chooses a certain verb for a simple, active, declarative sentence, she is not free to assign the noun arguments of that verb to any syntactic role she likes. Rather, the verb imposes a certain syntactic arrangement on these arguments. If the verb is *sell*, for example, the noun phrase naming the one who hands over the goods must function

as the subject while a name for the recipient of the goods, if present, is the oblique object. *Buy*, in contrast, requires the opposite arrangement:

11. Harry *sold* a car to John/\*John *sold* a car from Harry.
12. John *bought* a car from Harry/\*Harry *bought* a car to John.

Similarly, but with respect to the direct object, we have a contrast between verbs like *pour* and *fill*. *Pour* requires the name for the moving liquid to be the direct object while the name for the container, if mentioned, is the oblique object; it is precisely the other way around for *fill*:

13. John *poured* water into the cup/\*John *poured* the cup with water.
14. John *filled* the cup with water/\*John *filled* water into the cup.

On the whole, children do a remarkably good job of learning the syntactic roles associated with the noun arguments of the verbs in their vocabularies. But mistakes do occur, and these give interesting clues to the processes involved in coordinating verb choice and syntax.

In the examples given in TABLE 4, verb choice and syntax do not harmonize. The child has selected the wrong syntactic arrangement for the verb or, to look at it the other way around, the wrong verb for the syntactic arrangement. The precise cause of such errors is not easy to establish. Different errors—even different tokens of the same type of error with a given verb—may have somewhat different causes. Some errors, particularly errors made under the age of about four or five with familiar, high-frequency verbs like *spill* and *fill*, appear to reflect generalizations about the proper or possible syntactic treatment of the noun arguments of “verbs of this semantic type.”<sup>14</sup> Others, especially with later-learned verbs of lower frequency that are members of a set of semantically closely related verbs (e.g., *cost/spend/pay/charge*; *mind/matter/care*; *rob/steal*; *enjoy/appeal to*), may stem from “contamination” among members of the set. That is, the differing syntactic requirements of verbs that are semantically very similar may confuse the child. Beyond the age of five or six there is increasing reason to suspect a third cause for error: the child’s growing awareness of syntactic structure as a device for conveying perspective and her attempts to actively manipulate it in service of this goal.

“Perspective” is a complex psychological construct having to do with where the speaker mentally places himself with respect to the event described by his sentence.<sup>7,15</sup> One important device through which perspective is conveyed in English is the way in which the noun phrases of a sentence are arranged syntactically with respect to the verb. Those entities referred to by the noun phrases functioning as subject and direct object of the verb are perceived as “in perspective,” whereas entities mentioned only as oblique object or omitted entirely are, relatively speaking, perceived as “out of perspective.” Thus, a speaker would utter sentence 12 above if he took the perspective of John, the receiver of the car, whereas he would choose 11 if he took the perspective of Harry, who gives over the car. Which entities are chosen for placement “in perspective” is in-

fluenced by a variety of factors, such as whether they have been the subject of prior discourse, whether they are animate or inanimate, stationary or moving, definite or indefinite, etc.

Some semantic domains in English are characterized by great flexibility

TABLE 4  
ERRORS IN COORDINATING VERB CHOICE WITH ASSIGNMENT  
OF SYNTACTIC ROLES TO NOUN ARGUMENTS \*

- 
- 
- |              |   |
|--------------|---|
| 1. C, 7;0:   | (M has chucked C under chin):<br>C: Don't do that. I don't <i>appeal</i> to that. (=that doesn't <i>appeal</i> to me/I don't <i>like</i> that.)<br>M: That doesn't appeal to you?<br>C: Yeah.   |
| 2. E, 6;6:   | I saw a picture that <i>enjoyed</i> me. (=that I <i>enjoyed</i> /that <i>appealed</i> to me.)   |
| 3. C, 8;7:   | (To M): I have an idea but it won't <i>approve</i> to you and Daddy. (= you and Daddy won't <i>approve</i> of it/it won't <i>meet</i> with your and Daddy's <i>approval</i> .)  |
| 4. E, 7;7:   | She doesn't <i>picture</i> to me like a "Henrietta." Does she to you? (= I don't <i>picture</i> her as—/she doesn't <i>look like/strike</i> me as—. After telling that a friend's middle name is "Henrietta.")  |
| 5. E, 6;3:   | It didn't <i>mind</i> me very much. (= I didn't <i>mind</i> it—/it didn't <i>matter</i> to me—. While recounting that there had been a storm in the night.)   |
| 6. E, 7;2:   | Does it not <i>care</i> if I see the eggs? (= does no one <i>care</i> if—/does it not <i>matter</i> if—. After M suggests that E and D buy chocolate Easter eggs together; E wondering whether she should see them ahead of time.)  |
| 7. C, 6;10:  | <i>Feel</i> your hand to that. (= <i>feel</i> that with your hand/ <i>put</i> your hand on that. Wants M to put her hand on one end of a hose; then she blows into the other end.)†   |
| 8. E, 5;0:   | Can I <i>fill</i> some salt into the bear? (= <i>fill</i> the bear with—/ <i>pour</i> some salt into—. Playing with empty bear-shaped saltshaker.)†   |
| 9. E, 7;2:   | (Dipping water out of tub and letting it run down her stomach; has discovered with delight that her navel holds water): My belly holds water! (= belly button).<br>Look, Mom, I'm gonna <i>pour</i> it with water, my belly. (= <i>pour</i> water into my belly button/ <i>fill</i> my belly button with water.)† |
| 10. E, 4;11: | (M sees uneaten toast at end of breakfast, has asked if E plans to eat it):<br>I don't want it because I <i>spilled</i> it of orange juice. [= <i>spilled</i> orange juice on it/ <i>got</i> it <i>wet</i> ; (poor choices): <i>wetted</i> it, <i>moistened</i> it with orange juice.]†                           |
- 
- 

\* Names and ages as in TABLE 1.

† See Reference 14 for discussion of errors of this kind.

with respect to the taking of perspective. In some cases this flexibility is due to the availability of a variety of verbs that encode the same meaning from different perspectives (e.g., *buy/sell*; *give/take*; *lend/borrow*; *rob/steal*). Alternatively, it may stem from the presence of syntactically versatile verbs that permit more than one perspective (e.g., *her face*

*radiated joy/joy radiated from her face; the farmer loaded hay into the wagon/the farmer loaded the wagon with hay*). In other semantic domains, however, there is less flexibility and the verb that semantically is ideally suited to the meaning to be conveyed may require a syntactic arrangement that is counter to the desired perspective.

The resources of language are riddled with such gaps; speakers must learn to work around them, to find compromises. Adults have impressive skill at unconsciously and effortlessly striking balances in which one communicative goal is met less satisfactorily than it otherwise could be in the interests of maximizing another goal deemed more important.<sup>9</sup> Children, in contrast, make many errors in which they apparently try to “eat their cake and have it too.” That is, they attempt to establish a desired perspective through the manipulation of syntactic roles, they select a verb that on semantic or other grounds is “just right,” and they proceed to weave these two choices together without attending to whether the choices can be realized harmoniously in the same sentence.†

Example 9 from TABLE 4 illustrates the genre (as does 10). Here, the child is concentrating on her navel. In the first utterance, she places it maximally in perspective by making it the sentence subject (*belly* apparently is a shorthand for *belly button* in this monologue). In the second utterance, the agent (*I*) takes over the subject slot, but the navel clearly is still more in perspective than the water; its placement as direct object rather than oblique object thus is well motivated pragmatically. But *pour* does not allow this arrangement: *belly* must be the oblique object. If Eva wants *belly* as direct object, she should switch to another verb that allows this. But *fill* is the only plausible candidate, and *fill* is semantically odd here: can one speak of “filling” a “container” as shallow as a navel, which is, moreover, oriented sideways? Under the circumstances, sentence 9 can be seen as well tailored to both the perspectival and semantic requirements of the situation—unfortunately, however, English does not permit this nice combination of goals.

As this example suggests, new problems for the child to resolve are created by her own growing ability to take perspective into account and to manipulate it through syntactic role assignment. A first step in the resolution of such problems is for the child to recognize that conflict exists—that some constraints are binding and that she may not be able to meet all goals satisfactorily with her “first choices” of lexical items and syntactic structures. Beyond this, she must learn how to search for suitable “near synonym” verbs, how to exploit alternative devices for handling perspective such as passivization or clefting, and, when all else fails, how to give up a less important goal in the interests of preserving grammaticality.

† An experimental study by A. Karmiloff-Smith indicates that prior discourse does not begin to influence the child's selection of sentence subject until about age six,<sup>10</sup> which is approximately the time at which Christy and Eva began to make errors attributable to manipulation of perspective.

## SOME IMPLICATIONS FOR SECOND-LANGUAGE ACQUISITION

The foregoing sections have discussed several ways in which lexical, syntactic, and morphological aspects of grammar begin to interact in first-language acquisition, often causing important problems for the child to resolve. We now look briefly at the possible relevance of these observations for second-language acquisition.

*Lexicalization Patterns*

I have argued that one aspect of first-language development is the acquisition of a sense of what lexical items are semantically possible and what morphological forms these items can take, relative to other semantically related words. To the extent that a second language (L2) has different lexicalization patterns from the first (L1), the L2 learner may face particular kinds of interference.

Consider, for example, native speakers of English and Spanish trying to learn Spanish and English, respectively. English speakers may expect that verbs like *float*, *hop*, etc., should be usable as verbs of directed motion (MOVE while floating/hopping, etc.) and may fail to realize that the Spanish translation equivalents are more restricted semantically and syntactically than their English counterparts. Errors would result. Spanish speakers, on the other hand, may fail to recognize the potential of English verbs for these uses and therefore underexploit them, possibly overlooking the systematic preference of English for such constructions over semantically equivalent, technically correct, but uncolloquial expressions, such as *John entered the house (hopping)*.

Even more subtle kinds of interference could arise when L1 and L2 fall into the same typological category with respect to certain lexicalization patterns but differ in how freely and unconditionally the pattern can be realized. For example, I have observed that Dutch speakers of English as a second language often have trouble "hearing" the unacceptability or marginality of sentences like 7-11 in TABLE 1. This is because Dutch exploits more fully than English the pattern whereby an X term (predicate representing the causing act) serves as a Z (lexical causative), freely allowing constructions like *drink your tummy full*, *eat your plate empty*, and *Jip sprayed Janneke wet* that sound distinctly or somewhat odd in English.

It is possible that the ability to extract underlying lexicalization patterns on the basis of exposure to the words of a language diminishes with age or with prior experience with another language. Some suggestive evidence comes from studies of American sign language (ASL) by Newport.<sup>17</sup> Newport found that children who learn ASL as a native language acquire a sensitive feel for the internal morphological structure of signs and create novel forms analogous to those shown in TABLE 1. Speakers who acquire ASL as a second language often achieve considerable fluency,

but they appear to learn signs in frozen citation form and rarely exhibit an understanding of the internal structure of these signs and the possibilities for novel recombination. If L2 learners typically have trouble seeing past the individual lexical items they are learning to the more abstract patterns these items reflect, they might benefit from explicit tuition on these patterns and how they differ from those in their own language.

### *Competing Forms*

It was argued that first-language learners may have difficulty sorting out the distinctive uses of alternative forms that express the same or closely related meanings, such as lexical vs. periphrastic causatives or *un-* vs. *off*. Once mastered, however, the L1 system may prove resistant to modification. When a second language offers analogous alternative forms that are not distributed in quite the same way as their L1 counterparts, errors in L2 may result that are quite parallel to those the speaker made earlier in acquiring his first language.

Consider the methods of encoding separation discussed in *Choosing the Right Alternative*. English *un-* is cognate with Dutch *ont-*, *off* with *af*, and *out* with *uit*. These "translation equivalents" function identically in many contexts, e.g., *I unload = ik ontlaad*, *I chop off = ik hak af*, and *I cut out = ik knip uit*. Unfortunately for the L2 learner, however, the correspondence is far from perfect: side by side with these matches, we find such unpredictable crossovers as *I unpack = ik pak uit* (I pack out), *I unhook = ik haak af/uit* (I hook off/out), *I undress = ik kleed me uit* (I clothes myself out), *it slips out = het ontglipt* (it unslips), and *I skin* (e.g., my knee) = *ik ontvel* (I unskin). As a recent L2 learner of Dutch, I had considerable difficulty with these apparently arbitrary mismatches, often making incorrect L1-based predictions about the Dutch forms and stammering when well-practiced English units like *unpack* had to be abandoned in favor of more analytic expressions as in *ik pak mijn koffer uit*, literally, "I'm packing my suitcase out."

### *Verb Choice and Syntactic Arrangement*

Mutual constraints between verb choice and the syntactic arrangement of the noun phrases in a sentence may lead to a number of interference problems in learning L2. Most obviously, a verb in L1 may permit or insist on certain role assignments that a translation-equivalent verb in L2 does not allow; conversely, the verb in L2 may be *more* flexible than that in L1. The result could be errors in the first case, underuse of a resource of L2 in the second case.

Consider English *lend*. This verb allows only one syntactic arrangement, whereby the one who gives something is in perspective relative to the receiver:

15. John *lends* Mary a book.

If the speaker desires the receiver to be in perspective, he must use a different verb:

16. Mary *borrow*s a book from John.

But many languages have only one verb that is syntactically adaptable to either perspective, e.g., Dutch *lenen*:

17. John *leent* Mary een boek.

"John lends Mary a book"

18. Mary *leent* een boek van John

"Mary borrows a book from John"

The Dutch learner of English identifies English *lend* with his *lenen* and assumes an equal flexibility for it; errors of the form *Mary lends a book from John* are common. Conversely, the English speaker identifies Dutch *lenen* with his *lend* and assumes an equal restrictiveness; he therefore tends to overlook *lenen* while searching in vain for a Dutch equivalent for *borrow*. It should be noted that these errors or blockages are due to deeply ingrained habits and persist even when the speaker has had explicit instruction and "knows better."

A second kind of interference is more subtle. A certain language, X, may have considerable flexibility with respect to realizing different perspectives in a given semantic domain, either because it has two or more verbs with different syntactic requirements (e.g., *lend*, *borrow*) or because the verbs it does have are syntactically flexible (e.g., Dutch *lenen*). A speaker accustomed to X therefore may have developed an implicit sense that "everything is possible"; he is not used to dealing with conflicts between semantic content and perspective-taking in this particular content area. If language Y lacks this flexibility, the native speaker of X may tend to talk himself into a dead end in Y. He starts off, for example, with a certain noun intended as sentence subject, but is drawn up short when he cannot find a verb in the right semantic ball park that can take this noun argument as subject. Blocking, hesitations, false starts, and errors will result as the speaker struggles to recruit the needed linguistic devices. The converse of this situation, of course, faces the speaker who is going from Y to X: this individual will have well-developed habits concerning constraints on what is possible, and he will not think to exploit the flexibility in combining certain perspectives with certain semantic contents that his second language affords him.

Finally, L2 learners, like L1 learners, may have trouble determining or remembering the syntactic role requirements of particular L2 verbs, especially if they are of low frequency or are members of a set of semantically closely related verbs with differing requirements. The following errors collected from Dutch adults speaking English appear to reflect difficulties of this kind: *This kind of reason is very ACQUAINTED to me* (= I am very acquainted with ———/——— is well known to me; cf.



Dutch *Het is me bekend*, "it is to-me beknown"); *I will SUFFICE with these examples* [= these examples (which I give) will suffice; I will finish up with/limit myself to these examples]; *I don't know what all I robbed; I robbed here and there* ("what all" referred to the stolen objects; hence: I don't know what all I stole; I stole here and there).

### Conclusions

The above discussions touch on a few potential problem areas in L2 acquisition that reflect differences in how L1 and L2 assign the job of expressing meaning to the lexical, syntactic, and morphological components of grammar. The list is far from exhaustive. However, I hope it is sufficient to indicate that the study of how lexicon, syntax, and morphology come to be interrelated in first-language development can lead to interesting and fruitful questions about second-language learning and perhaps eventually to more effective methods of language teaching.

### REFERENCES

1. BRAINE, M. D. S. 1976. Children's first word combinations. *Monogr. Soc. Res. Child Dev.* 41(1): Serial No. 164.
2. BLOOM, L., K. LIFTER & J. HAFITZ. 1980. Semantics of verbs and the development of verb inflection in child language. *Language* 56: 386-412.
3. FERGUSON, C. A. & C. B. FARWELL. 1975. Words and sounds in early language acquisition. *Language* 51: 419-439.
4. SLOBIN, D. I. 1973. Cognitive prerequisites for the development of grammar. *In Studies of Child Language Development*. C. A. Ferguson & D. I. Slobin, Eds.: 175-208. Holt, Rinehart & Winston. New York, N.Y.
5. FILLMORE, C. J. 1978. On the organization of semantic information in the lexicon. *In Papers from the Parasession on the Lexicon*. D. Farkas, W. M. Jacobsen & K. W. Todrys, Eds.: 148-173. Chicago Linguistic Society. University of Chicago. Chicago, Ill.
6. TALMY, L. 1976. Semantic causative types. *In Syntax and Semantics*. M. Shibatani, Ed. 6: 43-116. Academic Press, Inc. New York, N.Y.
7. TALMY, L. Lexicalization patterns: semantic structure in lexical forms. *In Language Typology and Syntactic Field Work*. T. Shopen, Ed. 3. (In press.)
8. HYMES, D. 1972. Models of the interaction of language and social life. *In Directions in Sociolinguistics*. J. J. Gumperz & D. Hymes, Eds.: 35-71. Holt, Rinehart & Winston. New York, N.Y.
9. TALMY, L. 1976. Communicative aims and means. *In Working Papers on Language Universals* 20: 153-185. Stanford University. Stanford, Calif.
10. BOWERMAN, M. 1974. Learning the structure of causative verbs: a study in the relationship of cognitive, semantic, and syntactic development. *Pap. Rep. Child Lang. Dev.* 8: 142-178.
11. BOWERMAN, M. 1977. The acquisition of rules governing "possible lexical items": evidence from spontaneous speech errors. *Pap. Rep. Child Lang. Dev.* 13: 148-158.
12. BOWERMAN, M. Evaluating competing linguistic models with language acquisition data: implications of developmental errors with causative verbs. *Quad. Semantica*. (In press.)

13. SHIBATANI, M. 1976. The grammar of causative constructions: a conspectus. *In Syntax and Semantics*. M. Shibatani, Ed. 6: 1-40. Academic Press, Inc. New York, N.Y.
14. BOWERMAN, M. Reorganizational processes in lexical and syntactic development. *In Language Acquisition: The State of the Art*. L. Gleitman & E. Wanner, Eds. Cambridge University Press. London & New York. (In press.)
15. FILLMORE, C. 1977. The case for case reopened. *In Syntax and Semantics*. P. Cole & J. M. Saddock, Eds. 8: 59-81. Academic Press, Inc. New York, N.Y.
16. KARMILOFF-SMITH, A. Language as a formal problem-space for children. *In The Child's Construction of Language*. W. Deutch, Ed. Academic Press, Inc. New York, N.Y. (In press.)
17. NEWPORT, E. Constraints on structure: evidence from American Sign Language. *In Minnesota Symposium on Child Psychology*. W. A. Collins, Ed. 14. Erlbaum. Hillsdale, N.J. (In press.)