PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B BIOLOGICAL SCIENCES

From Universal to Language-Specific in Early Grammatical Development

Melissa Bowerman

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From universal to language-specific in early grammatical development

MELISSA BOWERMAN

Max Planck Institute for Psycholinguistics, Postbus 310, 6500 AH Nijmegen, The Netherlands

SUMMARY

Attempts to explain children's grammatical development often assume a close initial match between units of meaning and units of form; for example, agents are said to map to sentence-subjects and actions to verbs. The meanings themselves, according to this view, are not influenced by language, but reflect children's universal non-linguistic way of understanding the world. This paper argues that, contrary to this position, meaning as it is expressed in children's early sentences is, from the beginning, organized on the basis of experience with the grammar and lexicon of a particular language. As a case in point, children learning English and Korean are shown to express meanings having to do with directed motion according to language-specific principles of semantic and grammatical structuring from the earliest stages of word combination.

1. INTRODUCTION

The acquisition of a first language is a feat of astonishing complexity and speed. Within the first two years of life, children have acquired many words and are putting them together to form simple sentences, and by four years they have mastered most of the syntactic machinery of their language. What makes this achievement possible?

Factors that contribute to language acquisition come from both inside and outside the child. Learners seem to approach language with some sense of what to look for and how to structure what they find. But their unlearned dispositions for linguistic organization obviously do not provide all the structure, since children in different communities end up speaking different languages. In studying language acquisition, it is essential to disentangle the effects of internal and external structuring influences and to determine how they interact. An indispensable tool in this enterprise is the comparison of children learning different languages.

The modern era of cross-linguistic research on language acquisition began about 25 years ago. An important outcome of the first wave of studies, in the early 1970s, was the discovery that all around the world, children's first sentences revolve around a restricted set of meanings to do with agency, action, location, possession, and the existence, recurrence, non-existence, and disappearance of objects. As Dan Slobin (1973b) put it, 'If you ignore word order, and read through transcriptions of two-word utterances in the various languages we have studied, the utterances read like direct translations of one another. There is a great similarity of basic vocabulary and basic meanings conveyed by the word combinations (p. 177).'

These early meanings were strikingly reminiscent of the notions of causality, space, and the enduring object that Piaget (1954) had argued are constructed by children independently of language during the sensorimotor period of development (Brown 1973). This correspondence suggested an intriguing idea: that children's initial step in grammar construction is to discover patterns for positioning words that instantiate relational concepts learned independently of language; e.g. for English, mention the agent before specifying the action he performs (Bowerman 1973; Braine 1976; Brown 1973; Schlesinger 1971).

The idea that the forms of language map fairly directly onto children's prelinguistic concepts took hold and spread during the 1970s and 1980s. Children were seen as linking not only word-order patterns but also words, inflections, and other grammatical forms to cognitively based categories of meaning and pragmatic function. In a hypothesis that strongly influenced subsequent cross-linguistic research, Slobin (1973a) argued that the non-linguistic notions underlying language emerge in children in the same order and at about the same rate everywhere, regardless of language. Since the linguistic devices languages use to encode these notions vary, children's strategies for language acquisition can be explored, proposed Slobin, by holding meaning constant and comparing the difficulty with which the different devices are learned. In a related proposal, Slobin (1985) argued that children start out with a shared, prestructured 'semantic space' in which meanings and clusters of meanings constitute 'primordial building blocks' onto which functors and grammatical constructions are first mapped. The result of this initial mapping process is a 'universally specifiable "Basic Child Grammar"' (see also Berman 1986).

Of course, not everyone has agreed that children's early grammars should be characterized in terms of a direct mapping between non-linguistic meanings and

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linguistic forms. Many theorists argue that children are guided from the outset by innate knowledge of (among other things) syntactic categories and relations such as noun, verb, sentence-subject, and predicate. But these investigators too have typically invoked a basic repertoire of privileged non-linguistic meanings to account for language acquisition. Pinker (1984), for example, notes that having innate knowledge of, say, the category 'verb' cannot help learners if they have no way to identify verbs in the speech around them. But if inborn syntactic constructs are initially associated with specific meanings, learners could bootstrap their way into grammar: they could infer, for example, that words naming actions are verbs, words naming concrete objects are nouns, and words naming the agents of actions are subjects. Once children have used this technique (termed 'semantic bootstrapping') to identify instances of formal constructs and register their properties (e.g. nouns may be preceded by *the*), they do not need it any more, and the tight correlation seen in their early grammars between units of meaning and units of form will begin to fade.

But are children's early grammars really semantically so uniform as these views of language acquisition presuppose? In the recent literature there is a new stirring of interest in how children approach language-specific aspects of the grammatical structuring of meaning, and some indications that children learning different languages are in fact less similar than has been thought. In this paper I explore the question of universal vs. language specific in the domain of space, asking how children acquiring very different languages, English and Korean, initially express directed motion.

At first glance, spatial language seems a surprising place to look for evidence of language specificity in children's early grammars, since space has long been cited as a paradigm example of a domain in which language is mapped rather directly onto pre-existing knowledge structures. There is indeed good evidence that non-linguistic spatial cognition is important in the acquisition of spatial morphemes (for reviews, see Bowerman 1994; Johnston 1985). But, as we will see, children turn out to be sensitive to language-specific principles of lexical and grammatical structuring in this domain even before the age of two.

2. CROSS-LINGUISTIC DIFFERENCES IN THE EXPRESSION OF MOTION

An insightful account of cross-linguistic differences in the expression of motion is provided by Talmy (1985). Talmy defines a motion event as 'a situation containing movement of an entity' or – in the limiting case – 'maintenance of an entity at a stationary location' (p. 60). By movement is meant a directed motion that results in a change of location; e.g. going into or out of something, going up or down. Talmy analyses motion events into four basic components: *Motion* (the fact of motion), *Figure* (the moving entity), *Ground* (the reference point object with respect to which the Figure moves), and *Path* (the course followed by the Figure with respect to the Ground). A motion event can also have a *Manner* or a *Cause*, which are analysed as distinct external events.

There are typological differences among languages in how these meanings are characteristically expressed. In English, as in most Indo-European languages, Chinese and Finnish, the Motion component is typically 'conflated' (combined) with either Manner or Cause (henceforth simply 'Manner') and expressed in the main verb. Path is expressed separately by a 'satellite' to the verb (spatial particle, affix, or preposition). English examples include:

The bottle floated INTO/OUT of the cave;
The bottle floated BACK to the bank;
The balloon floated UP/DOWN the chimney;
John walked/skipped/ran INTO the room.

(The element expressing Path is shown in upper case.) Talmy terms languages of this type 'satellite-framed'.

Analogous sentences are not possible in Romance, Semitic and Turkish. In languages of this second type, most Path information is conflated with fact of Motion and expressed with the main verb. Manner can be expressed in the clause as well, if desired, but this is done separately, e.g. with an adverbial phrase. Thus, the Spanish equivalents of the English intransitive sentences we just saw are:

La botella ENTRÓ a/SALIÓ de la cueva (flotando) 'The bottle MOVED.IN to/MOVED.OUT from the cave (floating)';
La botella VOLVIÓ a la orilla (flotando) 'The bottle MOVED.BACK to the bank (floating)';
El globo SUBIÓ/BAJÓ por la chimenea (flotando) 'The balloon MOVED.UP/ MOVED.DOWN via the chimney (floating)';
Juan ENTRÓ al cuarto caminando/brincando/corriendo) 'John MOVED.IN to the room (walking/skipping/running)'.

Transitive sentences in English and Spanish show the same typological differences. Compare:

I rolled the keg INTO the storeroom with *METÍ el barril a la bodega (rodandolo)* 'I.MOVED.IN the barrel to the storeroom (rolling it)',

and:

I pulled the cork OUT of the bottle with *SAQUÉ el corcho de la botella (jalandolo)* 'I.MOVED.OUT the cork from the bottle (pulling it)'.

Talmy terms languages of this type 'verb-framed'.†

† The distinction between satellite-framing and verb-framing captures the most characteristic patterns of a language, but it is not absolute. For example, although Spanish is verb-framed, it allows the English-style pattern in certain contexts (see Aske 1989). And although English is satellite-framed, it does have some Path verbs, e.g. *enter*, *exit*, *ascend*, *descend*, *rise*. Most of these are borrowed from Romance, where they represent the basic pattern; in English they belong to a more formal register than their native counterparts like *go in/out/up/down*. Talmy (1991) argues that satellite-framing and verb-framing are consistent and pervasive patterns that apply not only to the expression of motion events but also to the way languages characteristically express temporal aspect (as in *they talked ON*), state change (*The candle blew OUT*), 'action correlating' (*She sang ALONG*), and 'event realization' (*The police hunted the fugitive DOWN*).

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A third basic pattern for expressing motion is represented by Atsugewi, other Hokan languages and Navajo. Atsugewi lacks verb roots with meanings like 'put', 'give', 'throw', and 'kick' (i.e. English-style conflations of Motion with Manner) or like 'enter', 'ascend', and 'extract' (i.e. Spanish-style conflations of Motion with Path). Instead, it expresses motion events with roots that refer to the movement or location of various kinds of Figures, e.g.:

-lup- 'for a small shiny spherical object (e.g. a candy, a hailstone) to move/be located;

-swal- 'for a limp linear object suspended by one end (e.g. a shirt on clothesline, a hanging dead rabbit) to move/be located';

-qput- 'for loose dirt to move/be located'.

As in English, Path is expressed by a satellite (so Atsugewi is also 'satellite-framed'), but the satellite in this case is not a particle but a verb suffix that combines information about Path with information about the Ground object; e.g.:

-ič't 'into liquid';
-ak 'onto the ground';
-ay 'into someone's grasp';
-wam 'down into a gravitic container (e.g. a pocket, cupped hand, lake basin).

Manner is expressed by an instrumental verb prefix such as:

ru- 'by pulling on (it)';
ci- 'by acting on (it) with one's hands';
ca- 'from the wind blowing on (it)';
uh- 'by acting on (it) with a swinging linear object' (such as pounding, batting, or throwing) (Talmy 1982, 1985).

Talmy's analyses show that although languages share a basic inventory of components relevant to motion events – Figure, Ground, Motion, Path, and Manner – they package them differently for linguistic expression. First, there are differences in the semantic categories associated with the components. Second, there is a complex trade-off between lexical and syntactic structure; e.g. if Path is specified in the main verb, Manner will have to specified, if at all, in some other constituent; conversely, if Manner is in the main verb, Path must go elsewhere. Finally, the grammatical differences have consequences for discourse structure (Talmy 1985). For example, information about Manner is backgrounded in satellite-framed languages: in English, it comes 'for free' with the main verb. But in verb-framed languages it is foregrounded, and so it is included much less frequently (Berman & Slobin 1994).

Differences in the linguistic packaging of events raise problems for approaches to language acquisition that assume that children crack into grammar with a uniform inventory of conceptual building blocks. For instance, what portion of a motion event will learners isolate as the 'action'? For a direct mapping to succeed, the child learning English must home in on the manner of the motion, e.g. 'walking' or 'throwing'. The child learning Spanish must pick out motion along a particular Path, e.g. 'entering' or 'ascending'. And the child learning an Atsugewi-style language (Atsugewi itself is alas now defunct) must extract the motion of an object of a particular kind. Further, English learners should construe both 'throwing' and 'giving' as ways of acting on an object, thereby causing it to move, whereas Atsugewi learners must treat them grammatically as different types of meanings: 'throwing' is, as in English, a way of making something move (expressed with an instrumental prefix, although not distinguished from other precursor causal swinging motions made by a linear object), but 'giving' is a Path meaning (expressed with the Path suffix meaning 'into one's grasp').

Knowing how a scene should be conceptually broken up and its elements assigned to different parts of a sentence is, then, a critical part of a fluent speaker's grasp of sentence construction. But, as these examples illustrate, this knowledge cannot flow directly from children's general cognitive understanding of events. To the extent that languages differ, the appropriate segmentation and packaging of events is an aspect of linguistic knowledge that must be learned (see also Gentner 1982). When does this learning begin?

3. LEARNING TO EXPRESS MOTION EVENTS IN ENGLISH AND KOREAN

To explore this question, Soonja Choi and I have been studying lexical and syntactic development in learners of languages that differ typologically in their expression of motion: English (satellite-framed) and Korean (verb-framed) (Bowerman 1989; Choi & Bowerman 1991). In the present paper, I will compare the way the two sets of children express motion events in the early stages of word combining. The data come from spontaneous speech samples collected longitudinally from two English-speaking children and eight Korean-speaking children between the ages of about one and three years.‡

On first inspection, the English and Korean learners look remarkably similar (see Choi & Bowerman 1991). They began to talk about motion events at the same time, between 1;2 (one year; two months) and 1;4, and they talked about similar kinds of events; e.g. their own movements, dressing and undressing, and putting objects in, on, or together with other objects and taking them out, off, or apart. These similarities probably reflect correspondences both in

‡ The English data come from detailed diary records of my two daughters from the start of the one-word stage, supplemented by an extensive literature on the acquisition of Path words like *in*, *out*, *up* and *down* by English-speaking children. There were two sets of Korean children:

(1) four children videotaped by Choi every 3–4 weeks from 14 to 24–28 months, and

(2) four other children taped by Choi, Pat Clancy and Youngjoo Kim every 2–4 weeks from 19–20 months to 25–34 months.

Choi and I are grateful to Clancy and Kim for generously sharing their data.

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the children's level of cognitive development and in their daily activities. Early word combinations expressing motion events also look similar in the two languages, reminding us of Slobin's remark that early two-word utterances 'read like direct translations of one another'. For example:

ENGLISH 1;7 Hat on. (Wants mother to put her hat on.)
KOREAN 1;8 Moca ss-e. (Putting on doll's hat.)
hat put.on-DECLARATIVE SUFFIX
ENGLISH 1;9 Go in. (Trying to put peas in cup.)
KOREAN 1;9 An tule ka. (Struggling to put box in mother's purse.)
not enter go

On closer inspection, however, we find not only similarities but also systematic differences.

(*a*) *English-speaking children*

Being a fluent speaker of English requires being able to analyse motion events into a Manner portion, which is assigned to the verb, and a Path portion, which is assigned to a spatial particle or prepositional phrase. Learners of English begin to get the hang of this combinatorial system by two years of age or before.

In the speech of our subjects, C and E, motion events were first expressed by Path particles of adult English: *up*, *down*, *in*, *out*, *on*, *off*, *away*, and *back*. These forms appear so early in the speech of English-speaking children, and are so quickly generalized to a wide range of appropriate motion events, that many investigators (e.g. McCune-Nicholich 1981) have proposed that their meanings correspond directly to non-linguistic spatial concepts constructed by all children during the sensorimotor period. For example, a child who says *down* as she climbs down from a lap, sits down, lies down, requests to be put down, drops a toy, or directs mother to put a coffee cup on the table seems to have a notion of 'vertical movement downward', and a child who says *in* as she climbs into the tub, stuffs her hand into her cup, and tries to pour salt back into a salt container seems to have a notion of 'containment'. These meanings might indeed be purely non-linguistic. But in cross-linguistic perspective it is sobering to realize that they are perfectly tuned to the requirements of what is, after all, a language-specific system of expressing Path.

Beyond the one-word stage, Path particles figure prominently in English-speaking children's early word combinations. At first they are combined mostly with nouns naming the Figure, e.g.:

Christy down as the child goes down a flight of stairs;
socky up as she picks a sock up off the couch;
cracker off as she moves a cracker wrapper off her placemat.

But they also appear increasingly with verbs in the two-part constructions typical of English-style satellite-framed languages, e.g.:

step up as the child steps on a stool;
pant pull up as mother pulls up her pants;
put down asking mother to put a train on the floor;
push down asking mother to push a jack-in-the-box down in its box;
close in trying to close the lid on the jack-in-the-box;
fall off as a doll balanced on a tiny staircase falls off.

By 24 months our subject E had produced the following combinations, among many others:

get + up/down//on/off/away/out/out my suitcase
fall + down/off/out/out my coffee cup
run + down
step + on my bus
pull + up/down/out/out my night-night (=bedding)
push + down/in/off
pour + down there/in/out/on me
drop + down there
carry + up/out
put + down/in/on/on your face/back
take + on/off/outside/upstairs

(See Table 5, Choi & Bowerman 1991, for a complete listing for both children).§

Perhaps this early look of an adult English-style, two-part (Manner + Path) analysis of motion events is an illusion. In adult references to motion events, the verb and the Path marker each make a distinct contribution to the meaning of the whole. But English-speaking children might at first simply memorize each combination as if it were a single verb, comparable to a Path verb in a language like Spanish.

The data argue against this. While some combinations may start out as unanalysed units (e.g. Tomasello 1992, reports that *fall* at first always co-occurred with *down* in his daughter's speech), there is ample evidence that within a short time English-speaking children begin to understand the combinatorial principles according to which the system works. For example:

1. Children flexibly use the *same* verbs both in isolation and with *different* particles. The verb conveys a constant Manner in which something moves, while the Path varies. This set from E's speech is typical:

1;7 POUR. (Request to pour pancake batter onto griddle.)
1;7 POUR. (Trying to pour her juice into father's glass.)
1;8 POUR *in*. (Watching mother get soap ready to pour into washing machine.)
1;9 POUR *down* there. (Pointing to place in tub where she wants mother to pour bubble bath.)
2;0 Deedee POUR water *on* me. (After sister squirts her with water from a bulb baster.)

§ Path particles and prepositional phrases were combined even more extensively with the deictic verbs *come* and *go*. But these combinations do not in themselves diagnose language specificity in child English, since their counterparts occur in child and adult Korean as well (see next section).

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2. Conversely, children use the *same* particles with *different* verbs. In this case, Path is held constant while Manner varies, or while different aspects of the same action are highlighted. Examples again from E:

1;10 *Dip* IN milk. (Dipping noodle into her milk glass.)
1;10 Lemme *put* IN. (Wants to put toilet paper in toilet.)
1;9 (E stringing beads. As she pushes thread through holes, she murmurs:)
'Nother one *get* IN.
'Nother one *push* IN.
'Nother one *fit* IN.

3. For transitive constructions, children show recognition of the independent status of the verb and the particle by beginning to separate them with a noun phrase specifying the direct object (see also Tomasello 1992). These examples are from C's and E's speech between 1;9 and 1;11:

Want get nipple out,
take Deedee outside,
take bottle out,
brush dirt off,
take belt off,
put books away,
Mommy drop glue down there,
put socks on me,
I get my belt on,
push me off,
pull my pants up,
you pull my bear out my night-night (=bedding),
take your coke upstairs,
carry me up,
I put juice in that sink,
I get sweater on,
take those out,
I got papers on those floor.

4. Perhaps most persuasively, children's grasp of the English two-part system for expressing motion is shown by their errors: combinations that, although cut to the English pattern, happen not to be the conventional way of expressing the desired meaning:

1;9 *Carry up*. (After mother sets a tipped-over stool upright. Child then goes on to use 'carry up' for many situations in which adults would say 'pick up.')
2;0 *Catch* me *in*. (Wants mother to chase her and scoop her up in a cardboard carton.)
2;0 *Blow* it *out*. (Wants mother to deflate a beachball.)
2;1 Daddy, *pick* me *down*. (Frequent as request to be lifted down from a high place.)
2;2 *Pick* me *out*. (Wants mother to take her out of her stroller.)

In summary, children learning English acquire a feel for the English-style, Manner + Path packaging of motion events in the early stages of word combining. What about children learning Korean?

(*b*) *Korean-speaking children*

Korean expresses most Path information with verbs, so it may be considered a verb-framed language, although it deviates from more typical languages of this typological pattern, such as Spanish (Choi & Bowerman 1991). In intransitive clauses expressing spontaneous motion, Korean uses a serial verb construction that usually has as its final (right-most) element a deictic verb like *kata* 'go' or *ota* 'come'. This verb is immediately preceded by a Path verb such as *tule* 'enter', *na* 'exit', *olla* 'ascend', *naylye* 'descend', or *kalocille* 'cross', and this verb may in turn optionally be preceded by a Manner verb. The Ground nominal, if present, is suffixed with a case ending, *-ey* 'at/to' (=LOC), *-lo* 'toward', or *-eyse* 'from'. An example:

John-i pang-ey (ttwuie) *tule* o-ass-ta.
J.-SUBJ room-LOC (run) *enter* come-PAST-DECLARATIVE
'John came (running) into the room.'

As in other verb-framed languages, information about Manner is foregrounded, so it is included together with a Path verb only if the speaker wants to emphasize the manner in which the motion took place.

In transitive clauses expressing caused motion, no deictic verb follows the Path verb: As in intransitive clauses, a verb specifying manner may optionally precede it. For example:

John-i kong-ul (kwullye/mile) sangca-ey *neh*-ess-ta.
J.-SUBJ ball-OBJ (roll/push) box-LOC *put.in*-PAST-DECLARATIVE
'John put/(rolled/pushed) the ball into the box.'

Of the transitive Path verbs in Korean, few express 'familiar' Paths corresponding to the meanings of the intransitive Path verbs or to English prepositions and particles: perhaps only *ollita* 'cause to ascend' and *naylita* 'cause to descend'. Most have meanings that seem rather exotic to speakers of English, since they combine information about Path with information about the Ground, Figure, or both; for example:

'put clothing onto trunk/head/feet';
'pick up and carry on head/on back/on shoulder/in hand/in mouth';
'fit or mesh one three-dimensional object with another'.

They also often cross-cut the Path categories associated with English Path markers; e.g, the verb *kkita*, which can be used for:

'put these earplugs IN your ears',

cannot be used for:

'put these apples IN a bowl'

because it picks out a relationship of tight fit. Unlike *in*, the verb can also be applied to:

'put the cap ON the pen'

and:

'put these Lego pieces TOGETHER' (see Choi & Bowerman 1991).

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Table 1. *Path verbs (shown in citation form, often marked by -TA) used by Korean children by age 2;0*
(See Choi & Bowerman (1991) for more complete data and a breakdown by age.)

ASCEND/DESCEND:
olla kata/ota 'ascend go/come' (go/come up)
naylye kata/ota 'descend go/come' (go/come down)
ollita/naylita 'cause.ascend/cause.descend'

ENTER/EXIT:
tule kata/ota 'enter go/come' (go/come in)
na kata/ota 'exit go/come' (go/come out)

PUT IN/ON/TOGETHER/AROUND; TAKE OUT/OFF/APART:
kkita/ppayta 'fit/unfit' (e.g. Lego pieces together/apart, top on/off pen, cassette into/out of case)
nehta/kkenayta 'put in [loose container], put around/take out of [loose container], take from around' (e.g. blocks into/out of box, ring onto/off pole)
pwuthita 'join flat surfaces (e.g. sticker or magnet on refrigerator, two tables or pieces of paper together)
nohta 'put onto a surface' (e.g. cup on table)
kkacta 'peel/take off covering' (e.g. skin from apple)
kkocta 'put elongated object to base' (e.g. flower in vase, hairpin in hair, book upright on shelf)

DON AND DOFF CLOTHING:
ipta 'put clothing on trunk' (e.g. dress, shirt, pants)
sinta 'put clothing on feet' (e.g. shoes, socks)
ssuta 'put clothing on head' (e.g. hat, glasses, raise umbrella)
pesta 'take clothing off'

PICK UP/CARRY ON OR IN BODY PART:
anta 'pick up/carry in arms'
epta 'pick up/carry on back'
tulta 'pick up/carry in hand'

Like English learners, Korean learners first encode motion events with Path expressions. A list of Path verbs used by many children by the age of two is shown in table 1.

As noted earlier, word combinations expressing motion events can look very similar in Korean and English. But when we compare an entire range of utterances produced by the two sets of children, the structural influence of the input language is obvious. For example:

1. English-speaking children use Path markers from their earliest word combinations (and even before) for both spontaneous and caused motion events, e.g.:

C 1;9 Christy *IN*. (As child is about to climb into bath tub.)
C 1;8 Letters *IN*. (Putting magnetic letters into a small box.)
C 1;8 Daddy *OUT*. (Waiting for father to get out of car.)
C 1;7 Balls *OUT*. (Trying to push round pieces out of a puzzle.)

This is, of course, appropriate: the Path particles of English are indifferent to whether a motion is spontaneous or caused.

Korean children, however, are acutely sensitive to this distinction, and consistently use different Path expressions for spontaneous and caused motion, e.g.:

IN: *tule* 'move in, enter' vs. *nehta* 'put loosely in or around':

TJ 2;0 (Wants father to go into shower):
Appa *TULE* ka.
Daddy *enter* go
'Daddy go *in*.'

WJ 2;0 (Wants to put sugar in coffee):
Emma, Wonjongi-ika *NEH*-ullay.
mother, [child's name]-SUBJ *put.in*-FUTURE
'Mother, Wonjongi will put [it] *in*.'

OUT: *na* 'move out, exit' vs. *kkenayta* 'take from loosely in or around':

WJ 2;0 (Remembering owl on Muppet Show):
Pwuengi-ka *NA* o-ass-e.
owl-SUBJ *exit* come-PAST-DECLARATIVE
'Owl came *out*.'

WJ 1;10 (Asking investigator to take things out of her bag):
KKENAY cwe.
take.out give
'Take *out* for me.'

This is also language-appropriate: the Path markers of Korean are verbs, and, like other Korean verbs, they are strictly distinguished according to transitivity.

2. Many of our English learners' two- and three-word combinations involved both a Path marker and a Manner verb, and before age two the children showed a good understanding of the combinatorial principle that relates them (cf. the discussion of examples given earlier). Our Korean subjects, in contrast, did not combine Path verbs with Manner verbs until many months beyond the stage of early word combinations, and even then did so only rarely. In adult Korean, combinations like 'run enter go'(=go running in) and 'throw put.in' (=throw in) are possible, and our subjects could in principle have produced them since they knew a number of Manner verbs in addition to Path verbs. But, as noted, when Manner information is included along

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with a Path verb in a Korean sentence, this information is – unlike in a comparable English sentence – foregrounded. This difference in the discourse value and frequency of specifying Manner in conjunction with Path in the two adult languages leads to systematic differences in the composition of learners' early word combinations.

3. The Path expressions of learners of English and Korean pick out different categories of Path meaning. The particles and prepositions of adult English identify highly schematic Paths, i.e. Paths that are abstractly 'the same' across events involving a wide range of Figures and Grounds. But the transitive Path verbs of adult Korean, as noted earlier, distinguish between Paths involving different kinds of Figures and Grounds. English learners appear to associate English particles with broad Path meanings from very early, as judged from their extensions to novel situations. *On* and *off*, for example, are used in connection with all clothing and jewelry items, as well as for many other relationships of contact with or attachment to an external surface in any orientation, e.g.:

E 1;8 *ON* hair. (Wants mother to put her sweat-shirt hood up.)
C 1;9 Want bead *ON*. (Trying to make string of beads stay around her neck.)
E 1;8 *ON* tummy. (Wants a piece of paper stuck on her stomach.)
C 1;11 Can't wow-wow *ON*. (Frustrated when can't put toy dog on moving phonograph record.)
C 1;9 Tail *ON*. (Holding broken tip of toy dog's tail up to dog.)
E 1;6 Baby. *ON* barrette. (Wants mother to put a barrette on her hair.)
C 1;9 Want tie *ON*. (Trying to attach tie to tie holder.)

Korean learners, in contrast, use their Path verbs for different and often more restricted categories of events. For example, our subjects distinguished putting clothing ON the trunk, ON the feet, and ON the head (see table 1), and, in contexts similar to those of the seven sentences just given, they used several different Path verbs, e.g.:

Juxtaposing flat surfaces: *PWUTHITA* (cf. third sentence above)
TJ 2;1 Ike *PWUTH*-ye
this *put.on*-cause
'Put this on.' (Sticking a flat vinyl man on a vinyl road attached to the wall.)

Putting things on a horizontal surface (cf. fourth point above): *NOTHA*
TJ 1;11 Yeki-ta *NOH*-a.
here-LOC *put.on*-IMPERATIVE
'Put (down) on here.' (Asking investigator to put a toy saucer down on the floor.)

Putting a long object into or onto a firm base (cf. sixth sentence above): *KKOCTA*
JS 1;9 Ppin *KKOC-A*.
hairpin *put.on*-IMPERATIVE
'Put on hairpin.'(Wants mother to put a hairpin in her hair.)

The particular Path meanings that English and Korean children express in their early sentences are, then, language specific. The difference in Path schematicity between adult English and Korean is no doubt related to the part of speech in which the two languages characteristically express Path (cf. Talmy 1981): the Path markers of English are members of a closed class of grammatical functors, i.e. particles and prepositions, whereas those of Korean are members of an open class, verbs. The semantic consequences of this syntactic difference are picked up early.

To summarize, although children learning English and Korean combine words into short sentences to express similar kinds of motion events, they do not do so in the same way. English-speaking children associate Path markers with highly schematic Path meanings, and they combine them flexibly with verbs expressing the Manner in which a motion along a Path takes place. Korean children, in contrast, associate Path markers with meanings that are more specific to the movement of particular kinds of Figures with respect to particular kinds of Grounds, and they do not combine them with verbs specifying Manner.

4. BEYOND EARLY WORD COMBINATIONS IN THE EXPRESSION OF MOTION

Choi and I have not compared how learners of English and Korean express motion beyond the stage of early word combinations. But recent work by Berman and Slobin (1994) and their colleagues points to intriguing differences in the development of narrative style by children learning satellite-framed vs. verb-framed languages. Berman and Slobin compared how children aged three, four, five, and nine, and adults, tell the same picture-book story – about a boy looking for his frog – in each of five languages: English and German (both satellite-framed) and Spanish, Hebrew, and Turkish (all verb-framed). Their findings are consistent with the differences Choi and I have observed, and elaborate on them to show early language specificity in the treatment not only of motion but also of temporality, perspective, and connectivity.

Although the children studied by Berman and Slobin grew increasingly skilled over time at the narrative style typical of adult speakers of their language, certain distinguishing characteristics were already present by age three. For example, at all ages, speakers of the satellite-framed languages rarely used a bare verb to describe the Paths followed by the protagonists of the story. Rather, they used a rich array of Manner verbs coupled with Path phrases, such as:

jump down,
jump out the window,
fly out of here,
climb up in the tree,
swim over to the log,
fall off the tree,
throw in the water.

Speakers of the verb-framed languages, in contrast, often used bare verbs, they rarely mentioned Manner

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in connection with a statement of Path at any age, and they gave much less information overall about Path, often preferring to specify where the protagonist was before and after a change of location, and leaving details of the Path to be inferred. Berman & Slobin were struck by how children as young as three already channel their attention in the way favored by their native language:

> We began the study with an expectation that there was a basic set of semantic notions that all children would try to express by some means or other, whether or not grammatically marked in their language . . . [But] we were repeatedly surprised to discover how closely learners stick to the set of distinctions that they have been given by their language . . . We are left, then, with a new respect for the powerful role of each individual language in shaping its own world of expression, while at the same time representing but one variant of a familiar and universally human pattern. (1994, p. 641)

This conclusion takes on added weight when we realize that the language-specific properties that so impressed Berman and Slobin in the narratives of three-year-olds can already be observed in the speech of children learning English and Korean more than a year earlier!

5. CONCLUSIONS

According to the view of grammatical development reviewed at the beginning of this paper, all children construct their early sentences from the same conceptual building blocks. At a relatively coarse level of analysis, this description is not inaccurate: children learning different languages do talk about similar topics, and their early lexical items and word combinations often look remarkably alike. But when we turn up the power of the microscope, what at first looked like 'the same' building blocks turn out to be shaped in accordance with language-specific principles of lexical and syntactic structuring. In this study we saw that, already by the period of early word combining, children express motion events in the way that is characteristic of the input language. Early language specificity has also recently been documented in the semantic partitioning of modality (Choi 1991; Stephany 1986), tense and aspect (Berman & Slobin 1994; Weist 1986), and agency (Bowerman 1985, 1989).

There is, then, no initial stage in which children's grammars rely exclusively on meanings provided by non-linguistic cognition. From the very beginning, form and meaning are analysed together, and learners are sensitive not only to the formal linguistic devices their language uses to encode meanings, but also to the way the meanings themselves are structured for linguistic expression. We as yet know little about how this subtle, linguistically driven kind of semantic learning takes place (but see Gleitman, this issue, for some ideas). The first step toward coming to understand the process is simply to recognize that it does take place, and this awareness is only recently beginning to dawn.

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