

Korean putting verbs do not categorize space contrastively in terms of “tightness of fit”

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Abstract

The present study refutes Choi and Bowerman's (e.g. 1991) analysis of Korean putting verbs as showing a crosslinguistically unusual pattern of categorizing space in terms of “tightness of fit.” It shows that, in adult Korean, the differences between the “tight-fit” verb *kki-ta* (‘slide the Figure, which is surrounded by or surrounds the Ground, along the inner or outer side surface(s) of the Ground with friction produced between the side surfaces of the two objects’) and two “loose-fit” verbs, *neh-ta* (‘move the Figure to a locus where it is surrounded by the Ground’) and *noh-ta* (‘deposit the Figure by releasing one's hold of it and leave it the way it exists’), cannot be reduced to “tightness of fit”; in addition, they even show different syntactic behavior.

First, the two types of verbs refer to different components and phases of a motion event. *Neh-ta* and *noh-ta* are path verbs that refer to the endpoint of a path, whereas *kki-ta* is a manner + path verb that focuses on an earlier phase; in particular, *kki-ta* normally requires the Figure and the Ground to produce friction in the course of the motion. Because of this difference, in a verb compound with the connective *-el-a*, in which manner/cause verbs must precede path verbs, *kki-ta* occupies the manner/cause-verb slot, whereas *neh-ta* fills the path verb slot; *noh-ta* is usually used as an aspectual marker in the verb compound and goes into the final slot, after the above two slots.

Despite Choi and Bowerman's argument for young children's acquisition of language-specific principles of categorization of the input language, their child subjects' errors on their production of *kki-ta* show deviations from adult usage toward a much simpler pattern of categorizing putting events in terms of whether or not the Figure can easily be separated from the Ground at the endpoint of the path. The present study points out that the experimental studies conducted in recent years, which seem to show that preverbal infants respond categorically to putting events that appear to contrast in terms of “tightness of fit,” allow different interpretations, because the categorization principle that the infants used may not be based on “tightness of fit.”

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1. Introduction

One of the central issues concerning semantic development has been which of the two factors – young children’s nonlinguistic cognition prior to language development or their sensitivity to the input – plays a more crucial role in their acquisition of the semantic organization of the input language (e.g. Schlesinger, 1977; Bowerman, 1985; Slobin, 1985, 1997; Mandler, 1992, 1996). The importance of children’s nonlinguistic cognitive development has been reported by researchers who found universals of language acquisition processes or strategies guided by conceptual precursors (e.g. Clark, E.V., 1973; Clark, H.H., 1973). For example, Slobin (1971, 1973) found universals in the ways of relating meanings of grammatical morphemes and constructions to preverbal concepts or conceptual elements in terms of the order of acquisition of grammatical structures in different languages in relation to general cognitive development. Parisi and Antinucci (1970) and Johnston and Slobin (1979) found that grammatical morphemes expressing topological concepts are acquired earlier than those expressing non-topological and more complex spatial concepts; they concluded that children first map the meanings of linguistic spatial expressions onto preverbally established concepts.

On the other hand, Choi and Bowerman (henceforth, C&B), who stress wide crosslinguistic variations in spatial categorization, argue that children have a high sensitivity to the categorization patterns of their native language even at the earliest stages of acquisition (e.g. Bowerman, 1989, 1994, 1995, 1996a,b; Choi and Bowerman, 1991; Choi, 1997). According to their claim, children start to use language-specific principles of spatial categorization from an early point in their lives, because even crosslinguistically unusual categorization patterns whose acquisition cannot be indebted to prelinguistic conceptual development can be acquired very early. For example, C&B observed that approximately at the same time as English-speaking children learn the differences among particles such as *in*, *out*, *on*, and *off* (as early as sometime during the latter half of the second year of life), Korean children learn to categorize space with the “tight-fit” putting verb *kki-ta* and “loose-fit” putting verbs.

Recent studies on children’s patterns of looking to spatial relations by C&B and their colleagues and by other researchers, however, appear to suggest that preverbal infants share the same set of principles by which they categorize motion events not only in terms of containment and support but also in terms of “tightness of fit”; this transpires regardless of the language in their environment (e.g. Choi et al., 1999; McDonough et al., 1998, 2003). Such studies seem to show that it is not the case that children construct spatial categories purely by paying attention to and analyzing the input language.

Thus, the most frequently addressed issues in recent years are what spatial categorization principles preverbal children use independently of language and how early infants start to acquire the language-specific principles of spatial categorization, rather than which of the two factors is more important than the other in semantic development (e.g. Choi et al., 1999; Bowerman, 2000; Bowerman and Choi, 2001, 2003). However, these studies have often been conducted without closely examining linguistic categorization principles that adults use. For example, no one seems to have questioned C&B’s characterization of Korean putting verbs as semantic opposites that show contrast in terms of “tightness of fit.”

The main goal of the present study is to provide accurate characterizations of Korean putting verbs. Contrary to C&B’s analysis, this study argues that, in adult usage, Korean putting verbs do not categorize space contrastively in terms of “tightness of fit” or any other criterion. Rather, they are syntactically as well as semantically so different that they are not simple semantic

opposites. In fact, *kki-ta*, the verb that C&B treat as the “tight-fit” putting verb, refers to friction produced between the Figure and the Ground in the course of the motion rather than a tight-fit Figure–Ground relationship at the end of the path, and does not contrast with the verbs that C&B treat as “loose-fit” putting verbs. The present study also discusses the implications that it has for the studies involving “tightness of fit.”

The present paper is organized as follows. Section 2 reviews C&B’s analysis of Korean putting verbs as well as the studies of C&B and other researchers on categorization of putting actions in terms of “tightness of fit.” Section 3 analyzes differences between the “tight-fit” putting verb *kki-ta* and two “loose-fit” putting verbs in adult Korean, and shows that their differences do not lie in “tightness of fit.” Section 4 reexamines the results of the studies involving “tightness of fit.” It points out that C&B’s incorrect analysis of the meanings of these verbs in adult Korean might have generated inaccurate interpretations of the results of studies on their acquisition and other related studies. Section 5 concludes the paper.

2. Overview of previous studies involving “tightness of fit”

2.1. Choi and Bowerman’s analysis of Korean putting verbs

Following Talmy (1975b, 1983, 1985b, 2000a, etc.), the present study analyzes motion events in terms of the motion components: (the Fact of) Motion (motion or stationariness), Agent (if any), Figure, Ground, and Path (path or site). These constitute motion complexes optionally together with co-events such as manner and cause. The Path is constituted of the three components: the vector, the conformation, and the deictic.

The present study focuses on *kki-ta* and two “loose-fit” putting verbs, *neh-ta* (‘move the Figure to a locus where it is surrounded by the Ground’) and *noh-ta* (‘deposit the Figure by releasing one’s hold of it and leave it the way it exists’) (these glosses are my own). Recent studies on infant spatial categorization (e.g. Choi et al., 1999; Casasola, 2000; Casasola and Cohen, 2002; McDonough et al., 1998, 2003) treat these two “loose-fit” putting verbs as verbs for putting actions resulting in “loose containment” and “loose support,” respectively.

Korean is a verb-framed language, where the path is characteristically expressed in the verb root (Talmy, 1985b, 1991, 2000b; Choi and Bowerman, 1991; Im, 2001). A verb-framed language often has a series of putting verbs that distinguish different types of path conformations at the endpoint of the path (Talmy, 1985b, 2000b). It might appear that Korean putting verbs are in competition with each other with respect to the path conformation at the endpoint, given that they can be used in the same construction ‘Agent-*ka/-i* Figure-*(l)ul* Ground-*ey* Verb (Agent-NOM Figure-ACC Ground-LOC Verb),’ as exemplified below.¹

- (1) *nay-ka panci-lul son-ey kki-ess-ta.*
 I-NOM ring-ACC hand-LOC *kki*-PAST-DEC
 ‘I put the ring on my finger (*lit.*, my hand).’

¹ List of abbreviations: ACC: Accusative particle; C: Connective suffix; CAUS: Causative suffix; DEC: Declarative suffix; F: Figure; G: Ground; INT: Intimate speech suffix; LOC: Locative particle; NC: Numeral classifier; NOM: Nominative particle; PRS: Prospective suffix.

Note that the English glosses of the Korean example sentences usually contain only the verb *put*, and do not reflect all the semantic components of the putting verbs in (4).

- (2) nay-ka kong-ul paksu-ey neh-ess-ta.
 I-NOM ball-ACC box-LOC *neh*-PAST-DEC
 ‘I put the ball in the box.’
- (3) nay-ka chayk-ul sang-ey noh-ass-ta.
 I-NOM book-ACC table-LOC *noh*-PAST-DEC
 ‘I put the book on the table.’

C&B treat Korean putting verbs as if they were simple semantic opposites that belong to the same syntactic category. They characterize these verbs as follows: “Korean speakers must distinguish actions of putting in/on/together that result in a fitting relationship (KKITA) from those that result in loose containment (NEHTA) or surface contact (NOHTA, PWUTHITA)” (Choi and Bowerman, 1991:92). They further state that “[i]n adult Korean, the criterial semantic feature for the verb *kkita* is *tight fit*: The Figure ends up in a tight-fitting or interlocking relation with the Ground” (Choi et al., 1999:247). C&B contrast the different ways in which English and Korean categorize putting actions as follows. English uses the same verb *put* and distinguishes different types of putting actions with particles and prepositions such as *in*, *on*, and *around* in terms of what geometric relationship the Figure and the Ground show, whereas Korean classifies putting actions with verbs into “tight-fit” and “loose-fit” putting actions on the criterion of “tightness of fit,” and divides “loose-fit” putting actions into subtypes with different “loose-fit” putting verbs; thus, the “tight-fit” verb *kki-ta* cross-cuts the distinctions made by the English particles and prepositions. This analysis is disproved later in section 3, where it is shown that the semantic differences between the two types of verbs cannot be reduced to a difference of path conformation.

2.2. Experimental studies on categorization of putting actions in terms of “tightness of fit”

A number of experimental studies have been conducted to test whether infants and adults in different language environments are sensitive to what seems to be a “tight-loose” distinction.

Using a preferential-looking paradigm, Choi et al. (1999) found that 18–23 month-old English-learning children looked at containment putting events that would be described by *in* longer when this word was presented than when it was not; Korean-learning children of the same age range looked at “tight-fitting” putting events that would be described by *kki-ta* longer when this word was presented than when it was not. However, they also observed that when no target word was presented, the two groups of children did not look in any significantly different way at “tight” and “loose” putting events.

By means of the same paradigm, McDonough et al. (2003) compared 9-, 11-, and 14-month-old infants with adult English speakers and with adult Korean speakers in their nonlinguistic categorization of putting events in terms of containment, support, and “tight fit.” They reported that the 14-month-old infants brought up in English-speaking environments distinguish “tight-fitting” containment from “loose” support relations. They also found that 9–14 month-old infants raised in English-speaking environments, those raised in Korean-speaking environments, and Korean-speaking adults distinguish “tight” containment from “loose” containment relations; by contrast, English-speaking adults did not make this distinction.

There are also nonlinguistic categorization studies on infants raised in English-speaking families that compared looking times to habituation and test events. These studies show somewhat different findings regarding how early infants start to make the “tight-loose” distinction.

Casasola (2000) and Casasola and Cohen (2002) showed that English-learning children acquire containment prior to support or “tight-fit” relationships. Using common, everyday objects, they tested whether or not 9–11 month-old and 17–19 month-old children looked longer at a novel relationship than a familiar one, after having been habituated to an event involving a containment, support, or “tight-fit” relationship. They found that the children of both age ranges looked longer at a novel relationship after having been habituated to a containment event, but only 17–19 month-old children looked longer at a novel relationship after having been habituated to a support or “tight-fit” event (only when familiar objects were used for the novel relationship). This seems to suggest that “tight-fit” as well as support are acquired later than containment.

On the other hand, Hespos and Spelke (2002, 2004), who used simple objects such as cylinders of different widths and heights rather than everyday objects, found that even 5-month-old infants raised in English-speaking environments make a distinction between “tight” versus “loose” containment relations and between “tight” versus “loose” support relations. They also found that the infants can predict that an object tightly contained in a container will move together with that container if the contained object is moved.

All the nonlinguistic experiments discussed above seem to show that small children, including those in English-speaking environments, respond categorically to motion events that appear to contrast in terms of “tightness of fit.” However, they all assume C&B’s erroneous characterization of Korean putting verbs.

3. Differences of *Kki-ta* from *Neh-ta* and *Noh-ta* in adult Korean

The motion events expressed by the three verbs should be characterized as follows:

- (4) a. *kki-ta*: The Agent moves the Figure, which is surrounded by or surrounds the Ground, along the side surface(s) of the Ground which is/are parallel to the direction of the motion. During the process of the motion, the two objects contact each other at their side surfaces, which often have approximately the same contour and size, and friction is produced between them.
- b. *neh-ta*: The Agent moves the Figure to a locus where the Figure is surrounded by the Ground.²
- c. *noh-ta*: The Agent deposits the Figure in a certain position, and with the release of his/her hold of it, he/she leaves it the way it exists. The relation between the Figure and the Ground at the endpoint is dependent on the locational noun, which might be omitted.

(5) presents examples of the use of *kki-ta* in the construction in (1) (The *kki-ta* versus *kki-wu-ta* distinction should be ignored here; see footnote 3). The examples are classified into two types,

² *Neh-ta* can be used for putting a ring-shaped Figure object on a linear Ground object (e.g. putting a quoit on an upright pole) (Bowerman, 1996a:406–407; Choi, 1997:88–89; Bowerman and Choi, 2003:392, etc.), but this use is restricted to limited Figure–Ground combinations and is not productive at all. Nevertheless, such a use of a verb of insertion (and often also a verb of entering) involving a Figure object into or through which an object is typically inserted and a Ground object which is typically inserted into or through an object is not idiosyncratic to Korean. In fact, this phenomenon can be found in various languages, for example, Amharic (Ethio-semitic), Chinese, Japanese, Sidaama (Cushitic), and Spanish (Kawachi, 2005, in preparation).

depending on whether the Figure is in surrounded or surrounding contact with the Ground: (5a) are cases where the outer surface(s) of the Figure come(s) in contact with the inner surface(s) of the Ground, and (5b) are cases where the inner surface(s) of the Figure come(s) in contact with the outer surface(s) of the Ground.

(5) (a) <u>Figure</u>	<u>Ground</u>	
• earplug	ear	‘put in the earplug/put the earplug in someone’s ear’
• pen	ear	‘put the pen behind one’s/someone’s ear’
• window	window frame	‘put the window in the window frame’
• cork	wine bottle	‘cork the wine bottle’
• bookmark	book	‘put the bookmark between the pages of the book’
• shopping cart	another shopping cart	‘push the shopping cart horizontally into another shopping cart of the same shape and size’
• button	hole	‘button the button’
• headphone plug	headphone jack	‘put the headphone plug in the headphone jack’
(b) <u>Figure</u>	<u>Ground</u>	
• eyeglasses	face	‘put on the eyeglasses/put the eyeglasses on someone’s face’
• glove	hand	‘put on the gloves/put the gloves on someone’s hand’
• swimming ring	body	‘put the swimming ring on one’s/someone’s body’
• cap	pen	‘put the cap on the pen’
• tire	wheel	‘put the tire on the wheel’
• steering wheel cover	steering wheel	‘put the steering wheel cover on the steering wheel’
• rubber band	book	‘put the rubber band around the book’

The conditions discussed in (4a) can be eased in the following way. *Kki-ta* can be used for a situation where the Figure *could* move with friction along the side surface of the Ground that is parallel to the direction of the motion, but actually does not. If the two objects are small in depth to the extent that the motion of the Figure can be unsteady, they do not have to concurrently come in contact with each other evenly at their side surfaces (e.g. F: final puzzle piece, G: nearly complete puzzle ‘put the final puzzle piece in the puzzle’). Some Korean speakers may use *kki-ta* for hanging a ring-shaped object on a horizontally-oriented object, instead of *kel-ta* ‘hang the Figure by hooking it onto the Ground’ (e.g. F: hula hoop, G: arm ‘put a hula hoop around someone’s arm that is perpendicular to his/her body’; F: ring, G: peg ‘put a loose ring on a long enough, wooden peg that sticks out from the wall’). However, if the objects usually do not have the potential to produce sliding friction at their surfaces prior to the Figure’s arrival at the endpoint of the path, this verb cannot be used (e.g. *kki-ta* cannot be used for tying up a box with a rope tightly).

(6) shows cases where *neh-ta* can be used as in (2).

(6)	<u>Figure</u>	<u>Ground</u>	
	• bird	cage	‘put the bird in the cage’
	• coin	vending machine	‘put the coin in the slot of the vending machine’
	• straw	glass	‘put the straw in the glass’
	• hand	water	‘put one’s hand in the water’
	• air	tire	‘put air in the tire’
	• water	kettle	‘put the water in the kettle’
	• letter	envelope	‘put the letter in the envelope’

As shown in (4b), at the endpoint of the path expressed by *neh-ta*, the Figure is surrounded by the Ground. However, unlike *put in* in English, this verb can be used as long as the Figure is surrounded by the Ground at least once. The endpoint of the path expressed by *neh-ta* does not have to be the Figure’s final resting position, as the Figure may proceed beyond the endpoint and keep moving until it rests in a position where it is not surrounded by the Ground (e.g. F: basketball, G: hoop ‘toss the basketball through the hoop’/F: ball, G: cylinder with openings at its both bases ‘drop the ball through the cylinder’).

Noh-ta does not specify any path conformation by itself, and the conformation hinges on the locational noun, which may be omitted (as in (3)) if the conformation is clear or predictable from the context or the relationship typically holding between the Figure and the Ground. Therefore, this verb does not necessarily express “support.” It can occur with not only *wi* ‘aboveness’ but also *mith* ‘belowness,’ *an* ‘inside,’ *patak* ‘bottom,’ *ap* ‘front,’ *twi* ‘back,’ and so on, as shown below.

- (7) *nay-ka kong-ul paksu-wi/mith/an/patak/ap/twi-ey*
 I-NOM ball-ACC box-aboveness/belowness/inside/bottom/front/back-LOC
 noh-ass-ta.
 noh-PAST-DEC
 ‘I put the ball on the top surface of or above/below or under/inside/at the bottom of/in
 front of/behind the box.’

Sections 3.1 and 3.2 show that *kki-ta* and *neh-ta/noh-ta* do not categorize space contrastively in terms of “tightness of fit” or any other single factor in adult Korean because of a set of semantic and syntactic differences between them.³

³ All my Korean consultants agree that there is another set of differences. Unlike *neh-ta* and *noh-ta*, the non-causative form *kki-ta* is basically used as a clothing verb; it is used only when the Ground object is one of the Agent’s body parts where the Figure is normally placed (e.g. ‘put in the earplug,’ ‘put on the eyeglasses’), and otherwise has to be causativized with the causative suffix *-i* (allomorphs: *-i*, *-hi*, *-li*, *-ki*, *-wu*, *-kwu*, *-chwu*) as *kki-wu-ta* (e.g. ‘put the earplug in someone’s ear,’ ‘put the eyeglasses on someone’s face’). For example, if *anay son-ey* (wife hand-LOC), instead of just *son-ey*, were used in (1) to express ‘I put the ring on my wife’s finger (*lit.*, hand),’ not *kki-ess-ta* but *kki-wu-ess-ta* has to be used. Because the Ground object is one of the Agent’s body parts where the Figure is normally placed when the non-causative form *kki-ta* is used, this form expresses the Ground object only optionally (in fact, it is usually omitted) (Im, 2001:168). On the other hand, the causative form *kki-wu-ta* requires the Ground object to be expressed as one of its syntactic arguments. Thus, the *kki-ta/kki-wu-ta* distinction is parallel to the distinction made by other clothing verbs: *ssu-ta/ssuy-wu-ta* (Ground: head, face),

3.1. Semantic difference

First, *kki-ta* and *neh-ta/noh-ta* refer to different components and phases of a motion event. *Neh-ta* and *noh-ta* are path verbs that refer mainly to the endpoint of a path, whereas *kki-ta* is a manner + path verb that focuses on an earlier portion of a path.

Neh-ta and *noh-ta* convey only path information, but no manner information. Both express the vector TO.⁴ In addition, *neh-ta* expresses inside conformation at the endpoint of the path. It expresses this conformation no matter what locational noun it occurs with. The portion of the path that *neh-ta* focuses on is normally its endpoint, where the Figure is surrounded by the Ground.

On the other hand, *noh-ta* does not express any conformation by itself. The path conformation at the endpoint is usually dependent on the locational noun following the Ground object and preceding *-ey*. Thus, the locational noun is not always optional in the case of *noh-ta*. It may be omitted only when the Ground NP can be understood from the context as specifying a particular geometric schema, or when there is a very probable path conformation associated with the Figure–Ground pair. In a sentence like (3) in section 2.1, the path conformation does not have to be specified by the locational noun *wi* because the portion of a table where a book is normally placed is its top surface. In the following sentence, the chair is most probably interpreted as placed inside the house even when *an* is not expressed.⁵

- (8) i uyca-lul ungcepsil(-an)-ey noh-upsi-ta.
 this chair-ACC living.room(-inside)-LOC put-let's-DEC
 'Let's put this chair in the living room.'

The path conformation may also depend on the verb preceding *noh-ta* in certain verb compounds (Kim, 1995:527; *tul-i-e-noh-ta* (move.in-CAUS-C-*noh*-DEC) 'put in,' *nay-e-noh-ta* (move.out-CAUS-C-*noh*-DEC) 'put out,' *nayli-e-noh-ta* (move.down-CAUS-C-*noh*-DEC) 'put down,' *ol-li-e-noh-ta* (move.up-CAUS-C-*noh*-DEC) 'put up'), which do not follow the regular verb compound formation pattern, in which a manner/cause verb is followed by a path verb (Im, 2001:99–121; see section 3.2).

sin-ta/sin-ki-ta (Ground: foot), *ip-ta/ip-hi-ta* (Ground: trunk), *cha-ta/chay-wu-ta* (Ground: waist, wrist, arm) (Im, 2000:168–169). Therefore, my consultants would use *eti-ey kki-wu-e* instead of *eti-ey kki-e* to ask where the person is performing the action of *kki-ta* on a non-clothing-item Figure object in one of the experiments of Choi et al. (1999:254).

According to Soonja Choi (personal communication), C&B's child subjects produced only the non-causative form *kki-ta*, like their caregivers almost always did. However, the distinction between the two forms is one that (at least some) Korean speakers do make.

⁴ *Noh-ta* can express FROM instead of TO. In such a case, this verb refers only to the Agent's action of releasing his/her hold, as in (i) and (ii). When used this way, this verb is not a putting verb, but a verb that means to stop holding, because it does not express any of the other motion components that it would express as a putting verb.

- (i) patcwul-ul (son-eyse) noh-ass-ta.
 rope-ACC (hand-from) *noh*-PAST-DEC
 'I released (from my hold) the rope that I had been holding.'
- (ii) son-ul patcwul-eyse noh-ass-ta.
 hand-ACC rope-from *noh*-PAST-DEC
 'I released my hold of the rope that I had been holding.'

⁵ I would like to thank one of the reviewers for providing an example from which this example has been adapted.

Thus, the characterization of *noh-ta* as a verb of putting that results in the Figure being (“loosely”) supported against gravity from underneath by the Ground presupposes an interpretation of the use of this verb with the locational noun *wi* following the Ground NP (or with *wi* omitted).⁶ Hence, *noh-ta* is very different from English *put on*, which consistently refers to events where the path conformation is that of the surface of a volume expressed by *on* (Talmy, 2000b).

Nevertheless, even though *noh-ta* does not express any path conformation by itself, the Figure has to be located in a certain position with respect to the Ground at the endpoint of the path; this must occur whether the path conformation is specified by a locational noun, or is predicted from the context. In the following discussion, because *neh-ta* and *noh-ta* both express path without specifying any manner and refer to the endpoint of a path, they will be treated as the same type of verb, although these two verbs do not show a clear contrast with respect to path conformation.

Although it expresses the vector component of the path like *neh-ta* and *noh-ta*, *kki-ta* is also concerned with the surface conformation of the path that is dependent on the configuration that the Figure and the Ground have in common at their side surfaces, and with the manner in which the Figure is moved with respect to the Ground before it reaches the endpoint. Thus, unlike *neh-ta* and *noh-ta*, it expresses the manner of motion in addition to the path, and focuses on a portion earlier than the endpoint.⁷ This verb is indifferent to what relation the Figure and the Ground exhibit at the endpoint of the path. Therefore, *kki-ta* and *neh-ta/noh-ta* are not in competition with each other with respect to “tightness of fit” or any other criterion at the same phase of the motion event. These verbs do not categorize space contrastively.

There are at least three pieces of evidence that *kki-ta* and *neh-ta/noh-ta* express different components and phases of a motion event.

- (a) Frictional force-dynamic relationship expressed by *kki-ta*, but not by *neh-ta* or *noh-ta*: *Kki-ta* expresses a frictional force-dynamic relationship in the course of the motion, whereas neither *neh-ta* nor *noh-ta* do.⁸
- (b) Surrounding/surrounded Figure–Ground relationships expressed by *kki-ta*, but not by *neh-ta* or *noh-ta*: With *kki-ta*, but with neither *neh-ta* nor *noh-ta*, the Figure is in either surrounding or surrounded contact with the Ground in the course of a motion event.

⁶ After an event of *noh-ta*, the Figure may not end up being supported by anything at all. The Figure may stay in the air as a result. In the following sentence, the bird may stay on a perch or on the bottom of the cage, but even if the bird keeps flying in the middle of the cage after the Agent releases the bird, this sentence is appropriate.

(iii) say-lul saycang(-an)-ey noh-ass-ta.
bird-ACC cage(-inside)-LOC *noh*-PAST-DEC
‘I put the bird in the cage.’

Moreover, *noh-ta* is acceptable even when the described motion event occurs under zero-gravity and the Figure does not stay in any stable position. The following sentence is acceptable for an event taking place under such a circumstance.

(iv) kong-ul paksu(-an)-ey noh-ass-ta.
ball-ACC box(-inside)-LOC *noh*-PAST-DEC
‘I put the ball in the box.’

⁷ Of course, the focus can shift depending on the construction in which the verb occurs. For example, if *kki-ta* is used in a resultative construction with *iss-ta*, the meaning of the construction as a whole normally focuses on the endpoint.

⁸ C&B (1991:92) note that *kki-ta* can be used as a manner verb “in combination with a second Path-conflating verb,” but their argument is limited to its use in this construction. Choi (1997:70) also states that *kki-ta* “requires a certain amount of force,” although it is not clear exactly what kind of force it requires and what relation the force has with “tightness of fit.”

- (c) Alternative conceptualization of the same event with *kki-ta* and *neh-ta/noh-ta*: There are cases where *kki-ta* and one of the other two verbs can be used for the same motion event depending on the focused component and phase of the event.

(a) *Frictional force-dynamic relationship expressed by kki-ta*

Unlike *neh-ta* and *noh-ta*, *kki-ta* is a manner + path verb that expresses a frictional force-dynamic relation that exists between the Figure and the Ground at their side surfaces in the course of a motion event.⁹ When two entities are in a force-dynamic relation, the force tendency of one of them is usually described as more salient than that of the other in language. Talmy (1985a, 1988a, 2000a) calls the “focal force entity” the “Agonist,” and the “force element that opposes it” the “Antagonist.” The force-dynamic relation expressed by *kki-ta* has the following embedded structure. The Agent (Antagonist) applies force to the Figure (Agonist) and then the two form a composite main Agonist. This main Agonist in turn executes force on the main Antagonist, namely the Ground object, or often a composite of the Ground and the Agent, who, in this case, applies force also to the Ground so that it is stabilized. Friction is produced between the Figure and the Ground when the main Antagonist resists the force of the main Agonist.

Unlike *neh-ta* and *noh-ta*, *kki-ta* requires the Figure and Ground objects to have certain solidness; the inner surface(s) of one object and the outer surface(s) of the other object often have circumferences of approximately the same contour and approximately the same size at a path portion prior to the endpoint. The Agent moves the Figure along the surface(s) of the Ground such that, in the course of the motion, the inner surface(s) of one of the objects that is/are parallel to the overall path is in contact with the outer surface(s) of the other object that is/are also parallel to it. The contact on their side surfaces is often exhaustive evenly at every point at their circumferences. Such motion produces friction between the Figure and the Ground at their side surfaces.

To illustrate this, let us think about two different ways of applying an insulating sleeve to a paper cup. If the motion event expressed by *kki-ta* were defined in terms of a “tight-fit” Figure–Ground relation at the endpoint of the path, this verb would be used regardless of how the sleeve is placed on the cup, as long as the two objects result in a “tight-fit” relation. However, in order for *kki-ta* to be able to be used, the sleeve has to be round from the beginning, and its inner surface has to cause some friction against the outer surface of the cup. If the sleeve is shaped like a straight, unfastened wide belt at first and is fastened around the cup, *kki-ta* cannot be used, even if the sleeve fits the cup tightly. Therefore, whether the Figure and the Ground result in a “tight-fit” relation is irrelevant to the use of *kki-ta*; the most prominent component of the motion expressed by this verb is normally the friction produced between the two objects in the course of the motion.

Kki-ta is indifferent to how the frictional force comes to an end. The endpoint of the path for *kki-ta* is not geometrically specified, but is inferred as either the location which the Agent finds to be appropriate for terminating his/her contact with the Figure with respect to the Ground (e.g. F: rubber band, G: book ‘put the rubber band around the book’), or that where part of the Ground object is shaped so as to prevent the Figure from moving any further (e.g. F: tire, G: wheel ‘put the tire on the wheel’). Thus, the completion of the action of *kki-ta* is usually understood as the resting of the Figure at one of these two types of locations.

⁹ This only applies to *kki-ta* as a putting verb. As one of the reviewers points out, friction is much less prominent when this verb is used as a stative, intransitive verb (e.g. ‘The fog covers the harbor,’ ‘Dust is accumulated in the machine,’ ‘There is moss on the rock’) than when used as a putting verb. However, an examination of this use of *kki-ta* is beyond the scope of the present paper.

(b) *Surrounding/surrounded Figure–Ground relationships expressed by kki-ta*

Unlike *neh-ta* and *noh-ta*, *kki-ta* requires the Figure and the Ground to exhibit the following characteristics at a path portion earlier than the endpoint of the path.

- (9) The Figure is in surrounded contact with the Ground: The outer surface(s) of the Figure is/are in contact with the inner surface(s) of the Ground (see (5a)),
or
The Figure is in surrounding contact with the Ground: The inner surface(s) of the Figure is/are in contact with the outer surface(s) of the Ground (see (5b)).

Thus, *kki-ta* is unconcerned with which object surrounds which in the end, as long as friction is produced between the two objects at their side surfaces before the endpoint of the path.

Consequently, if the two objects are equally conceptually movable, Figure–Ground assignment often depends on which object is moved in the course of the motion event, not on how one object is located with respect to the other in the end (though which object serves as a Figure or Ground is sometimes idiomatically predetermined regardless of which of the objects is moved by the Agent). Therefore, Figure–Ground alternations are possible for such Figure–Ground combinations, depending on which of the two objects is moved, although one object may be usually moved and thus preferred as a Figure to the other (e.g. F: rubber band, G: book, is preferred to F: book, G: rubber band; (10a) is more common than (10b) below). Compare the following pair of sentences, where the moved objects are different, even though the event participants are the same and the results may also be seen as the same.

- | | | | | |
|----------|--------------|--------------|---|-------------------|
| (10) (a) | ttwukkeng-ul | pen-ey | } | kki-wu-ess-ta. |
| | cap-ACC | pen-LOC | | |
| (b) | pen-ul | ttwukkeng-ey | } | kki-CAUS-PAST-DEC |
| | pen-ACC | cap-LOC | | |
- (a) ‘I put the cap on the pen (by moving the cap).’
(b) ‘I put the cap on the pen (by moving the pen).’

By contrast, such Figure–Ground alternations do not work in this way for *neh-ta* and *noh-ta*; they usually produce quite different situations with not only different objects moved, but also with different results. This is because these verbs require the Figure to be located in certain ways at the endpoint of the path.

Another consequence of (9) is that *kki-ta* can describe what Talmy (1975a, 1978a, 2000a) calls a “self-referencing motion event,” where a set of objects acting as a “composite Figure” in the motion event moves with respect to each other, and thus acts also as a “composite Ground,” as in the following sentence:

- (11) Lego-twu-kay-lul selo kki-wu-ess-ta.
Lego-two-NC-ACC each.other kki-CAUS-PAST-DEC
‘I put a Lego piece on another (*lit.*, I did *kki-ta* the two Lego pieces each other).’

In contrast, neither *neh-ta* nor *noh-ta* can express such a self-referencing motion event.

(c) *Alternative conceptualization of the same event with kki-ta and neh-ta/noh-ta*

The same event can sometimes be alternatively conceptualized to accommodate either *kki-ta* or one of the other two verbs. This is not because the category of putting events expressed by *kki-ta* merges gradually into that of putting events expressed by *neh-ta* or *noh-ta* with a distinctive criterion being “tightness of fit” at the endpoint of the path; these categories are different from categories with membership gradience that merge gradually into their adjacent categories (Labov, 1973). Rather, some events can be conceptualized alternatively with *kki-ta* or one of the other two verbs, depending on the component and phase of a motion event that are brought into focus. Therefore, this is due to “conceptual alternativity” (Talmy, 1983) (“alternate construals” in Langacker, 1987; also Casad, 1995). (12) are examples where either *kki-ta* or *neh-ta* may be used for the same motion event depending on the focused component and phase of the event.

(12)	<u>Figure</u>	<u>Ground</u>	
	• book	slipcover	‘put the book in its slipcover’
	• CD	slot-loading CD player	‘slide the CD into the CD player’
	• wooden chopstick	chopstick holder made of paper	‘put the chopstick in its holder’
	• photo	non-adhesive photo album	‘put the photo in the album’
	• paper cup	another paper cup	‘put the paper cup into another paper cup’
	• battery	clock/radio	‘put the battery in the clock/radio’
	• straw	lidded paper cup/juice box	‘put the straw in the lidded paper cup/juice box’
	• credit card	wallet	‘put the credit card in the credit card compartment of the wallet’

In such cases, the alternation of *kki-ta* and *neh-ta* shifts the motion component and the locus of the path that are referred to. This is illustrated with the following two pairs of sentences, each contrasting *kki-ta* and *neh-ta*.

(13)				
kencenci-lul	sikye-ey	{	(a)	neh-ulyeko-hay-ss neh-intend-do-PAST
battery-ACC	clock-LOC		(b)	kki-wu-lyeko-hay-ss kki-CAUSE-intend-do-PAST
nuntey, mos	hay-ss-e.			
but	unable			do-PAST-INT

- (a) ‘I intended to put the battery in the clock, but I couldn’t.’ (What prevented the motion is not clear.)
- (b) ‘I tried to slide the battery into the clock, but I couldn’t.’ (Their sizes did not match each other; specifically, the battery slot of the clock was a little too small for the battery.)

- (14) (talking about a shape-matching toy that helps children learn shapes by matching the shape of a block with its corresponding hole on the lid of a box)

wuli	ttal-i	pulak-ul	paksu-ey	$\left\{ \begin{array}{l} \text{(a) } \text{neh-ul} \\ \text{neh-PRS} \\ \text{(b) } \text{kki-wu-l} \\ \text{kki-CAUS-PRS} \end{array} \right\}$
our	daughter-NOM	block-ACC	box-LOC	
swu	iss-ta.			
ability	exist-DEC			

- (a) ‘My (*lit.*, our) daughter can put the block in the box.’ (She can move the block so that it ends up inside the box; she might not be able to match the shape of the block with that of the hole on the lid.)
- (b) ‘My (*lit.*, our) daughter can slide the block into the box.’ (She can match the shape of the block with that of the hole, and slide the block through the hole.)

Analogously, the alternation of *kki-ta* and *noh-ta* also results in a shift in focus on a different component and phase of a motion event. For example, for stacking shopping baskets, either *kki-ta* or *noh-ta* may be used. Again, *kki-ta* would focus on a friction portion of the motion, whereas *noh-ta* would refer to the Agent’s depositing the basket on the stack of baskets and leaving it as it exists (with the path conformation expressed by *wi* or implied by the omission of this locational noun). Thus, after the motion of placing a basket on the stack that can be expressed by *noh-ta*, the basket may or may not be in a “tight-fit” relation with the top basket of the stack. Therefore, ‘I cannot *kki-ta* a basket on the stack of baskets’ means that the Agent cannot slide the basket into the top basket with friction most probably because their sizes or shapes do not match. On the other hand, the reason why ‘I cannot *noh-ta* the basket on the stack of baskets’ may be because the speaker cannot reach the top of the stack, or because the basket does not rest on the stack.

For many of the cases where either *kki-ta* or one of the other two verbs can be used, my Korean consultants remark that *kki-ta* may be used if the manner of the motion needs to be emphasized; otherwise, *neh-ta* or *noh-ta* would be enough. Therefore, especially when other path verbs are available, *kki-ta* is used if the speaker wants to foreground the manner of the motion. This seems to accord with Slobin’s (1987) claim that manner information is often omitted from discourse in a verb-framed language.¹⁰

¹⁰ It will help elucidate the meanings of the three Korean verbs by comparing the three Korean verbs with their Japanese counterparts. The Japanese verbs, *ire-ru* and *ok-u*, are used basically the same way as *neh-ta* and *noh-ta*, respectively, except that *ok-u* cannot be used for the sense of the Agent’s action of releasing his/her hold (footnote 4). *Hame-ru* is also similar to *kki-ta*, and their usage ranges overlap considerably (e.g. F: ring, G: finger ‘put the ring on one’s/someone’s finger’/F: cap, G: pen ‘put the cap on the pen’/F: window, G: window frame ‘put the window in the window frame’/F: headphone plug, G: headphone jack ‘put the headphone plug in the headphone jack’). However, the meanings of the two verbs are not the same. *Hame-ru* restricts the Figure to an object that is designed to form a unity with the Ground, and refers to a putting event where the Agent unites the Figure with the Ground so that it cannot easily be separated from the Ground even by a certain amount of force (hence, it is incorrect to say that this verb “is restricted to surface contact”

3.2. Syntactic difference

The above-mentioned semantic difference of the two types of verbs is reflected in a difference of their syntactic behavior.

The most predominant ordering pattern of verbs in verb compounds with the connective *-el-a* in Korean is one in which a manner/cause verb is followed by a path verb. The manner/cause specified by the first component occurs before the path of the motion indicated by the second component, and a deictic verb may follow the path verb (it normally does in intransitive verb compounds) (Choi and Bowerman, 1991:88, 92; Kim, 1995:517, 534, 1997:498–499). The order of the verbs in *-el-a* verb compounds basically cannot be changed. For example, no order other than *ttwi-e-tul-e-o-ta* (run-C-move.in-C-come-DEC) ‘run into a place toward the speaker’ or *kwul-li-e-nay-e-ka-ta* (roll-CAUS-C-move.out.CAUS-C-go-DEC) ‘roll something out of a place away from the speaker’ is possible (Kim, 1997:499). Thus, Korean exhibits the “manner verb–path verb” sequence in a serial verb construction, which is typical or perhaps universal in languages with such constructions (Foley, cited as a personal communication in Slobin and Hoiting, 1994:490).

In a verb compound with *-el-a*, *neh-ta* occupies the path verb slot (e.g. *kkoc-a-neh-ta* ‘place the Figure into the Ground in a way that the Figure is creating a hole in the Ground’), *nwul-le-neh-ta* ‘place the Figure into the Ground by pressing the Figure’). *Kki-ta*, on the other hand, goes into the manner/cause-verb slot of this verb compound (e.g. *kki-e-ip-ta* (*kki*-C-put.clothing.on.trunk-DEC) ‘put on clothing in layers, *kki-e-sin-ta* (*kki*-C-put.on.foot-DEC) ‘put on socks in layers’) (Kim, 1995:532). Thus, *kki-ta* precedes *neh-ta* in an *-el-a* verb compound, where *kki-ta* expresses the frictional force-dynamic relation between the Figure and the Ground in the course of the motion and *neh-ta* expresses the inside conformation at the endpoint of the path, as in (15). This sentence can be used for a situation where the Agent moves the book between two books on one of the shelves of a bookcase which already contains some books.

- (15) chayk-ul chayk-kkoci-ey kki-wu-e-neh-ess-ta.
 book-ACC book-shelf-LOC *kki*-CAUS-C-*neh*-PAST-DEC
 ‘After frictionally sliding the book, I put it in the shelf of the bookcase.’

However, *neh-ta* cannot precede *kki-ta* to form a verb compound with the connective *-el-a* (**neh-e-kki-tal? *neh-e-kki-wu-ta*).

Noh-ta cannot precede *kki-ta* to form the *-el-a* verb compound, either (**noh-a-kki-tal *noh-a-kki-wu-ta*). However, this verb behaves very differently from *kki-ta* and from *noh-ta* in its verb compound formation. When it occurs in a verb compound with *-el-a*, *noh-ta* normally occupies the slot of an aspectual marker (Rhee, 1996; Lee, 2003), that is the final position, after the two slots mentioned above, and usually expresses ‘leave the Figure as it is’ or ‘leave the consequence of the action expressed by the preceding verb or verb compound as it is’; thus, the other

(Choi, 1997:123)). Thus, *hame-ru* focuses on the relationship between the Figure and the Ground at the endpoint of the path, and the friction that may be produced between the two objects prior to the endpoint is secondary to the meaning of this verb. Therefore, *hame-ru* cannot be used for some cases where *kki-ta* can be used (e.g. F: block, G: shape-matching toy box ‘slide the block into the box’/F: VHS videotape, G: VHS videotape case ‘put the videotape in the case’/F: straw, G: lidded paper cup/juice box ‘put the straw in the lidded paper cup/juice box’), and there are also cases for which *hame-ru* can be used but *kki-ta* cannot be used (e.g. F: necklace, G: neck ‘put the necklace on one’s/someone’s neck’/F: cotton mask, G: mouth ‘put the cotton mask on one’s/someone’s mouth’).

components expressed by *noh-ta* as a single verb as in (3), depositing the Figure and releasing one's hold of it, are eliminated. *Noh-ta* can follow a manner/cause verb (e.g. *kwul-li-e-noh-ta* (roll-CAUS-C-*noh*-DEC)), a path verb (e.g. *neh-e-noh-ta*), a verb compound (e.g. *kki-wu-e-neh-e-noh-ta*), or a non-motion verb (e.g. *sa-a-noh-ta* (buy-C-*noh*-DEC)).

Therefore, the three verbs show different behavior in the *-el-a* connected verb compound mainly because of the semantic difference in section 3.1.

4. Discussion

The present section shows that, given that what distinguishes Korean putting verbs is not “tightness of fit,” it is possible to apply different interpretations to the results of the studies involving these verbs.

The previous section has argued that, in adult Korean, *kki-ta* and *neh-ta/noh-ta* are not semantic opposites that contrast in terms of “tightness of fit” or any other single criterion. Nevertheless, the motion components expressed by any of these verbs are each commonly expressed in language, and it does not come as a surprise that they are acquired so early. *Neh-ta* is a verb for putting events involving inside conformation at the endpoint of the path, a very basic type of path conformation (Talmy, 1983, 2000a). The meaning of *noh-ta* is made up of depositing the Figure, releasing one's hold of it, and leaving it the way it exists; the first two components are among motor skills that infants normally acquire prior to language, and the last component is expressed by *noh-ta* as a closed-class form.¹¹ *Kki-ta* is a force-dynamic verb that expresses friction, which is a basic conceptual element presumably prominent in children. As Talmy (1985a, 1988a, 2000a) showed, force dynamics plays a concept-structuring role in language, and conceptual elements pertaining to it are among the privileged inventory of basic conceptual elements available to language. Friction, which is a manner of motion, may not often appear in a closed-class form, but is involved in motion events expressed by basic verbs like *slide*, *rub*, and *wipe*. Friction also seems to be cognitively salient to children (Hubbard, 1995a,b; Hubbard et al., 1999).¹²

However, unlike Korean adults, Korean children do not seem at first to use *kki-ta* as a verb whose essential semantic property is friction. According to C&B, although their child Korean subjects could use *neh-ta* and *noh-ta* quite appropriately,¹³ they tended to use *kki-ta* inappropriately for situations where the Figure and the Ground result in tight attachment or connection (Bowerman, 1989:158–159, 1996a:413–415, 1996b:169; Choi and Bowerman, 1991:111; Choi, 1997:82–90, 1999:302–309, etc.). The specific cases are (a) joining magnetic

¹¹ Kim (1995:527) reports that her child subjects tended to produce *noh-ta* as the final component of the verb compound connected with *-el-a* earlier than as a single verb.

¹² Hubbard (1995a,b) shows that friction is one of the factors in influencing the direction and magnitude of “representational momentum,” a shift in memory for the final position of a moving object from its true final position (usually in the direction of that object's anticipated motion); specifically, friction reduces the magnitude of forward displacement. He argues that like gravity, friction is internalized in the mental representation of an object in motion as an invariant constraint in the world. The internalization of friction in the mental representation enables us to predict that if an object slides along some surface, that object undergoes friction, and its velocity decreases. Hubbard et al. (1999) report that 5;3–8;6 year-old children exhibit more representational momentum than adults. Unfortunately, as far as I know, there have been no studies on the effect of friction on the magnitude of representational momentum of younger children.

¹³ However, it is difficult to find out whether Korean children younger than 2 years old know that the conformation of a *noh-ta* event depends on the locational noun by examining their utterances, especially because each of their utterances is usually made up of two words at most.

train cars or attaching a magnetic fish to the magnetic mouth of a duck, (b) hooking train cars or hanging a towel on a hook, (c) being held tightly by an adult, (d) sticking a fork into an apple, and (e) putting a strap on a hat, for which Korean adults would use *pwuchi-ta*, *kel-ta*, *an-ta*, *kkoc-ta*, and *tal-ta* or *may-ta*, respectively. Thus, the children have not acquired the most fundamental semantic difference between the two types of verbs pointed out in section 3.1, and the deviation of their uses from adults' is systematic and motivated. C&B interpret their child Korean subjects' different use of *kki-ta* from that of adult Korean speakers as overextension. According to their analysis, Korean children overextend *kki-ta* – which should be used to express three-dimensional tight meshing – to two-dimensional attachment, because the fundamental “tight-loose” distinction is easy, but the distinction between three-dimensional meshing and two-dimensional attachment is difficult for them (Bowerman, 1989:158, 1996b:169; Choi, 1997:82–90, 1999:302–309).

In none of the Korean children's erroneous uses of *kki-ta* above, however, does frictional force at side surfaces occur in the course of the motion. Hence, they have not acquired the most crucial semantic property of this verb. This is a case not of overextension but of overlap, where children's referential range of a linguistic form is not simply wider nor narrower than adults' but overlaps with it (Reich, 1976). Korean children's *kki-ta* category does not perfectly match with Korean adults', and one does not subsume the other, although the usage ranges of this verb overlap across the two groups. In fact, “[t]he central members of the *kkita* category for Korean 2-year-olds are the Figure–Ground objects that are similar in size and shape, and that have natural tight-fit relations” (e.g. joining magnet cars/Bristle blocks/Legos/popbeads) (Choi, 1997:88).

Nevertheless, the validity of the above analysis remains to be verified with much more evidence, and I do not mean to claim that it is the right interpretation. Yet, if this analysis is correct, the following may hold. The portion of the motion event attended by young Korean children with *kki-ta* is quite different from that attended by adults with this verb. With *kki-ta* as well as *neh-ta* and *noh-ta*, the children attend to the endpoint of the path. Therefore, unlike adults, children regard this verb at first as one that is in competition with other verbs of putting. Children have only a limited vocabulary; instead of conceptualizing the same motion event alternatively with different lexical items in the same lexical domain that would refer to somewhat different phases of the event, they incorrectly categorize motion events contrastively with those lexical items at the same relative phase of different types of events, particularly the endpoint of the path, which is generally the most salient portion of a motion event (Talmy, 1996). Notice that many of the verbs that adults would use for (a)–(e) above are not produced until later (Bowerman, 1996a).

C&B's child subjects' systematic erroneous uses of *kki-ta* also show that they distinguished motion events for which they use this verb from other events in terms of whether the Figure object is easily detachable from the Ground object. This criterion must be among the relatively closed, universally available, privileged inventory of basic conceptual elements that contribute to the construction of schemas represented by closed-class forms (e.g. Talmy, 1977, 1978b, 1988b, 2000a). It seems to be parallel to the one used for the distinction made by closed-class forms in some languages, although what is regarded as easily detachable must differ slightly from language to language. For example, the Finnish inessive and adessive suffixes can show contrast with respect to a similar criterion (Bowerman, 1996b:156–158). Levinson and Meira (2003:496) report that “some resistance to removal” is the decisive criterion for the use of one of the adpositions in Tiriyo', a Cariban language spoken in South America. Moreover, English-speaking children first use *on* and *off* most frequently for attachment and detachment of “lego blocks, magnets, train cars, and other objects that could be put together or taken apart” and sometimes of two contiguous objects (Gopnik and Meltzoff, 1986:207), and never use them for the support of one object by another against gravity from underneath (also, Bowerman, 1989:157). This criterion must be prelinguistically fundamental

as well. For example, Needham and Baillargeon's (1997) study on object segregation using an expectancy violation paradigm shows that 8-month-old infants expect two connected objects to move together when one of them is pulled, and two adjacently located objects that are not connected with each other to move apart under the same condition. Therefore, the criterion that young Korean children seem to use to differentiate *kki-ta* events from others is not a surprisingly unusual one at all. Therefore, if Korean children at first use *kki-ta* as a verb that focuses on the endpoint of the path in terms of a simple criterion like this, C&B's example of Korean children's acquisition of putting verbs actually supports children's initial preference for a certain conceptual organization pattern, contrary to their claim, and the deviations of their language from the input language reflect such a pattern.

What about the experimental studies on spatial categorization in section 2.2? They seem to show that preverbal infants categorize putting events in terms of a criterion that is alleged to be "tightness of fit." But in light of the findings of the present study, how should they be interpreted? What categorization principles do the child subjects use to perform the tasks? Even if one assumes that one and the same strategy is used across different experiments and across different sessions, there are different possibilities. One possible answer is that the infants really made "tight-loose" distinctions at the endpoints of the paths, as the researchers have assumed. If this is the case, however, the categorization studies turn out to be looking at a categorization principle that does not distinguish the meanings of Korean putting verbs, and there must be a different reason that 18–23 month-old Korean children in Choi et al. (1999) looked to putting events for which *kki-ta* would be used longer when hearing this word than when not hearing it. A second possibility is that the infants paid attention to friction, the manner of motion expressed by *kki-ta* in adult Korean. The children may react to events differently depending on whether or not friction occurs in the event. However, an explanation would need to be given as to why Korean children make systematic errors on their production of *kki-ta*. A third possibility is that they categorized events in terms of whether the Figure is easily separable from the Ground, like the child Korean speakers in C&B's production studies probably did. In fact, one of the experiments conducted by Hespos and Spelke (2002, 2004) examines this categorization principle. It shows that 5-month-old infants in an English-speaking environment can reason that if an object tightly contained in a container is moved, both the contained object and the container will move together, and that if an object loosely contained in a container is moved, the container will not move together with the contained object. Hespos and Spelke argue that such reasoning is based on two of the constraints on object motion, "solidity" ("distinct objects do not occupy the same place at the same time") and "action on contact" ("objects do not move independently when they are in contact") (2002:237–238), and state that even "non-human primates display similar capacities" (2004:455). However, the categorization principle that leads to the above reasoning is different from what distinguishes Korean putting verbs in adult usage. In motion events for which *kki-ta* is used, the Figure and the Ground may not move together after the *kki-ta* action, as is clear from some of the examples in (5a). Nevertheless, if this is the categorization principle that the child subjects actually used during the "tightness of fit" experiments, it seems to match the categorization principle that the present study speculated earlier Korean children may at first use for *kki-ta*.

5. Conclusion

This study has shown that, in adult Korean, *kki-ta* and *neh-ta/noh-ta* do not categorize space contrastively in terms of "tightness of fit," but rather differ in the focused component and phase

of a motion event. They are incomparable by means of any single semantic factor, and even show different syntactic behavior.

Studies on categorization of “tight-loose” spatial relations have assumed that Korean putting verbs categorize space in terms of whether or not the Figure fits the Ground tightly at the endpoint of the path, and appear to have shown that preverbal infants use this categorization principle regardless of the language in their environment. However, the categorization principle that they actually use seems to be different from “tightness of fit” or from what distinguishes Korean putting verbs.

Nevertheless, there is not enough evidence about exactly what categorization principles Korean children use when they start to produce putting verbs. The present study cannot go beyond speculation on this question, and leaves it for future research.

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