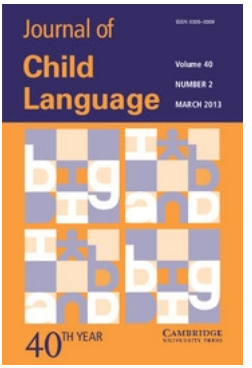

The semantic development of negation: a cross-linguistic longitudinal study

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The semantic development of negation: a cross-linguistic longitudinal study*

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ABSTRACT

Negative utterances were collected longitudinally from two English-, five French- and four Korean-speaking children between 1;7 and 3;4. An analysis focusing on both non-verbal context and linguistic form led to the distinction of nine semantic/pragmatic categories which could capture cognitive and linguistic development in some detail: NON-EXISTENCE, PROHIBITION, REJECTION, FAILURE, DENIAL, INABILITY, EPISTEMIC NEGATION, NORMATIVE and INFERENTIAL NEGATION. The nine categories were found in all three languages and their developmental order was similar across the languages. Different patterns were shown concerning the form–function relationship for different categories; for some categories, the distinct form emerged gradually after the function was acquired, while for others, the distinct form emerged simultaneously with the new function. Thus new forms emerged to subdivide an old category or to express a new function. This pattern was most typical for categories developed at later periods. It is suggested that whereas cognitive development precedes language development at an early period, at later periods cognitive and language development interact with each other.

INTRODUCTION

Studies of children's early negative utterances have used different criteria for examining developments in a particular language (English: Bloom 1970, Pea

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1980; Japanese: McNeill & McNeill 1973, Ito 1978; Italian: Volterra & Antinucci 1979; Korean: Hahn 1981). While some of these categorizations were based primarily on nonlinguistic differences (Pea and Volterra & Antinucci), others have taken into account linguistic differences between categories. Bloom (1970) treated both linguistic form and nonlinguistic context as important bases for the distinction of categories. However, Bloom did not use linguistic form as a basis of distinction through the whole developmental period studied: once three categories (nonexistence, rejection and denial) were established in the children's early negative utterances, negative forms which emerged later were considered to represent the acquisition of new forms of the existing functions and not new functions.

Recent studies have taken linguistic form rather than nonlinguistic context as the point of departure (Budwig 1985, Gee & Savasir 1985) in analysing children's semantic organization. These studies convincingly argue that different forms contrast in meaning and that their use constitutes distinct semantic categories in the child's grammar.

The present paper reports a cross-linguistic study of the development of negation in children acquiring English, French or Korean as their first language. The children's negative utterances were categorized using both linguistic and nonlinguistic differences as criteria. These criteria were followed consistently across the three languages and throughout the developmental period studied. Two aspects were studied in detail: (1) development of semantic/pragmatic[1] functions across languages, and (2) the relationships between forms and functions. Across the three languages, nine functions of negation were acquired with similar developmental patterns. The form–function relationships revealed by the nine categories showed that, while old forms were used to express a new function, new forms emerged to subdivide an old category or to express a new function. This differs from a well-accepted claim that 'a new form expresses an old function' (Werner & Kaplan 1963, Bloom 1970).

Forms of negation in English, French and Korean

Negative forms in the three languages can be grouped into different types according to their syntactic and semantic properties, as shown in Table 1. INDEPENDENT forms can occur alone and relate to prior context: they negate the preceding proposition or event. These forms fulfil several functions of negation, e.g. denial, rejection, prohibition. SYNTACTIC forms always occur as part of a phrase or sentence and can be subdivided into GENERAL and SPECIFIC

[1] In this paper, *pragmatics* covers the social and interactional functions of negation, and *semantics* the conceptualization of these functions. The term *semantic* alone is sometimes used here to represent both aspects of meaning (e.g. in the title).

negation. General negation is expressed by a grammatical particle which functions as the negator of a proposition in general. Specific forms of negation are used in particular semantic contexts. For example, *mot* in Korean negates specifically the ability to do something. In Korean, specific negation tends to be expressed by single lexical items, whereas in English and French such negation is expressed by phrases (i.e. syntactic negation of an auxiliary).

An utterance was considered negative primarily when it contained a negative form (as in Table 1). In addition, *all gone* in English, *parti* ('gone') in French and *i(:)ng* (expression of dislike, with a high pitch on the short vowel and a rising-falling-rising intonation on the long vowel) in Korean were considered negative since they reflected NEGATIVE INTENT (e.g. the child rejected something or expressed that something was wrong) and they were used consistently for an extended period of time.

TABLE 1. *Negative forms in English, French and Korean (These represent spoken forms)*

	English	French	Korean
Independent form	*no*	*non*	*ani*
Syntactic form			
General	*not* V[a]	V *pas*	*an* V
Specific			
Non-existence	*no* N	*il y a pas*	*epse*
Inability	*I can't*	*je peux pas*	*mot* V
Prohibition	*don't* V	V *pas*	V-*ci ma*
Rejection	*I don't want*	*je veux pas*	*sile*
Ignorance	*I don't know*	*je sais pas*	*molla*

[a] V, verb; N, noun.

DATA BASE

The data come from longitudinal observations of 11 children: 2 English-(American), 4 Korean- and 5 French-speaking (4 French and 1 Canadian). The American and the Korean children all lived in Buffalo, New York, during the period of the study; the French-Canadian child in Welland, Ontario, and the four French children in Bonnelles, a suburb of Paris. Among them, five children were observed for more than a year (Table 2a) and the remaining six children (two Korean and four French) were observed for shorter periods ranging between two and four months. (Table 2b). As Table 2 shows, the data extend from the single-word to the syntactic period, with the children's ages ranging from 1;7 to 3;4.

The children were observed regularly in their homes (cf. Table 2 for intervals). All the sessions were recorded with either audio (40%) or video

TABLE 2. *Subjects and study period*

	Name	Age range	MLU range[a]	Interval[b]
		(a) Longitudinal study		
English	Patrick	2;2–3;2	1·3–4·0	3–4 wks
	Kyle	1;7–3;0	1·2–3·6	3–4 wks
French	Adèle	2;2–3;4	1·0–3·5	3–4 wks
Korean	Tongju	1;9–3;3	1·4–3·7	3–4 wks
	Jene	1;7–2;8	1·0–2·9	3–4 wks
		(b) Abbreviated longitudinal study		
French	Ronan	1;11–2;2	1·3–1·9	1–3 wks
	Anne	1;11–2;1	1·9–2·3	1–3 wks
	Alexis	2;5–2;7	2·3–2·7	1–3 wks
	Marguerite	2;5–2;7	2·3–3·3	1–3 wks
Korean	Min	1;8–2;0	1–2·0	3–4 wks
	Young-Jin	2;10–3;2	3–4·5	3–4 wks

[a] MLU was measured following Brown (1973) and Dromi & Berman's (1982) methodology.
[b] Duration of each session was 60 to 90 minutes.

(60%) equipment. The children interacted primarily with the investigator, although a third person, someone with whom the child frequently interacted in his/her daily life (e.g. mother, sibling or peer), was present during most of the sessions. All the transcriptions were initially done by the investigator and were later verified by one native speaker for each language. The contexts of a total of 24,702 child utterances were transcribed of which 3,611 – considered as negative utterances (see above for criteria) – constituted the data base of the present report.

ANALYSIS

It is assumed in the present analysis that when a child produces a negative utterance, a PROPOSITION is negated. The proposition being negated may be explicitly expressed by a linguistic form (e.g. the child says *no, it isn't* to the interlocutor's question 'is this a bird?') or implicitly represented in the non-linguistic context (e.g. the child says *no* when the interlocutor offers something to him/her). In both cases, the child's negation relates to a specific meaning which he/she has constructed from the linguistic and/or non-linguistic context. 'Proposition' is used here in a broad sense to refer to the meaning negated by the child.

The criteria for the distinction of semantic/pragmatic categories were: (1) the type of proposition being negated, e.g. presence of object, occurrence of event/action in the non-linguistic context, verbal assertion of the inter-

locutor, (2) the child's behaviour in the situation and (3) a consistent use of a distinct form during the study period. Differences in these criteria constituted the basis of the semantic categorization (cf. Table 3).

The present analysis takes the view that a particular FUNCTION is present as soon as a child expresses a particular type of meaning with any negative form, but that the function does not form a CATEGORY until a distinct form is used to differentiate it from other functions. For example, when the child expresses both rejection and prohibition with *no* (in Phase 1, see below), the two types of context are considered as evidence for different functions but not yet different categories, since the child does not seem to distinguish them linguistically. Thus, in this report, a *category* specifically refers to the period where a function is expressed by a distinct form.

The criteria for emergence were as follows: a new function was considered to have emerged when (1) the child used a negative form to refer to a state of affairs (inferred from the situation and the child's behaviour) which had not been expressed by negation in previous speech and (2) such content was expressed with a negative form in more than three different contexts in one session or in two consecutive sessions. Similarly, a new negative form was considered to have emerged when it was used with a negative intent in more than three different contexts during one session or in two consecutive sessions. In both cases, the first session was considered as the time of emergence.

RESULTS AND DISCUSSION

Nine categories of negation were observed in the developmental period studied: NONEXISTENCE, REJECTION, PROHIBITION, FAILURE, DENIAL, INABILITY, EPISTEMIC NEGATION, NORMATIVE NEGATION and INFERENTIAL NEGATION. The functions which underlie these categories emerged at different developmental periods, in three phases, as defined below. Also, the distinct forms for each category emerged at different times: for some categories the distinct forms emerged simultaneously with the emergence of functions, while for others the distinct forms were acquired gradually. In what follows these findings are discussed in detail.

Nonlinguistic and linguistic differences between categories

Nonlinguistic and linguistic differences revealed by the analysis are charted in Table 3. The linguistic forms are those which the children in the study used for each category. Nonlinguistic differences among categories involved different types of proposition and the way they were typically represented in context. The child's behaviour in the situation is indicated by the category labels in Table 3.

TABLE 3. *Non-linguistic and linguistic differences among categories*

(a) Proposition is perceptually salient

Category:	Non-existence	Failure	Prohibition	Rejection
Representation of proposition:	Evoked by context		Event present in context	
Proposition:	Presence of object	Occurrence of an event	Interlocutor's action	Child's action
		Conflict between child's desire and event		
Forms:				
English	*allgone, no* N	*it won't*	*don't* V	*I don't want to*
French	*parti, il y a pas*	*ça va pas*	V *pas*	*je veux pas*
Korean	*epta*	*an twae*	V-*ci ma*	*an* V, *sile*

(b) Proposition is perceptually opaque

Category:	Denial	Inability	Epistemic	Normative	Inferential
Representation of proposition:	Verbal assertion	Mediated by failure		Mediated by situation	
Proposition:	Assertion	Internal capacity		Non-canonical situation	Inferred assertion
		Ability	Knowledge		
Forms:					
English	*no*, AUX + *not*	*I can't*	*I don't know*	(*you*) *can't*	AUX + *not*
French	*non*, V *pas*	*j'arrive pas* *je peux pas*	*je sais pas*	*il faut pas*	V *pas*
Korean	*ani, an* V	*mot* V	*molla*	*v ninke ani*	*an* V

NONEXISTENCE typically expressed that the child's expectation of the presence of an entity at a particular place was NOT met. For example,

(1) Kyle (1;8/1·44 (Age/MLU))
(*K dumps Humpty Dumpty game out of the box. Humpty Dumpty is missing.*)
K: Allgone Humpty Dumpty

In some instances, however, particularly at an early stage, nonexistence seemed to express simply the absence or disappearance of an entity without the sense of searching for it. For example, children said *allgone* (*epta* in Korean and *parti* in French) when there was a change of state from presence to absence (2), or when the child exhausted the material of an activity (3).

(2) Kyle (1;7/1·22)
(*K hears Mommy's car go out of the driveway.*)
K: Mommy allgone

(3) Ronan (1;11/1·34)
(*R takes out all the blocks from S's bag.*)
R: A plus ('no more')

When Kyle said *mommy allgone*, there was no evidence that he expected Mommy's presence in the house, i.e. Kyle did not seem to look for Mommy nor did he seem to be surprised at the sound of Mommy's car. Thus, *mommy allgone* seems simply to express that Mommy was not at home anymore, which he inferred from the sound. Considering the examples (1) to (3), perhaps *allgone*, *parti* and *epse* express the notion of absence in general. This unique feature of nonexistence may contribute to the early linguistic distinction between nonexistence and rejection/prohibition/failure in all three languages.

While nonexistence negated the presence of an entity, FAILURE negated the occurrence of a specific event. In the latter case, the child attributes the non-occurrence of an anticipated event to an external condition. For example, Tongju comments on the failure of matching as follows:

(4) Tongju (1;9/1·4)
(*T playing with puzzle. The puzzle piece does not fit.*)
T: An twae ('not work')

Nonexistence and failure are similar in that in both cases the negated proposition is evoked by immediate events in the here and now.

With PROHIBITION and REJECTION, the child negated actions present in the context: the interactant's action in the case of prohibition, and the child's own action in the case of rejection. For example, Patrick said *no* to prohibit the investigator from playing with his toy (i.e. prohibition) and Jene said *an*

meke ('not eat') when he did not want to eat his tangerine any more and gave it to the investigator (i.e. rejection).

With DENIAL the negated proposition was represented in the interactant's verbal assertion. Often, the prior assertion did not relate to what the child could see in the context. For example, in (5), when the adult asked 'Is this a car?' there was no cue in the immediate visual context for the child to evoke the concept of 'car'.

(5) Patrick (2;4/1·77)
(*S pointing to picture of a pony.*)
S: Is this a car?
P: No, that's a pony

With INABILITY and EPISTEMIC NEGATION the child negated a physical ability or possession of knowledge, respectively. In expressing inability children often gestured, e.g. looking to the adult for help or giving her/him the object.

(6) Marguerite (2;6/2·6)
(*Mg can't take two lego pieces apart. Mg giving them to S.*)
Mg: Peux pas ('can't')

With epistemic negation, the children seemed not to have the information requested. For example, as in (7), they showed a contrast between *I don't know* and an informative answer.

(7) Patrick (2;9/2·8)
(*S pointing to gray.*)
S: What colour is this?
P: I don't know
(*S pointing to blue.*)
S: What colour is this?
P: Blue

NORMATIVE NEGATION expressed a discrepancy between the actual state of affairs and the child's expectation (i.e. norms) of the objects involved. In the present data the state of affairs usually concerned relationship between entities (e.g. the relationship between a person and a car: a person goes in, not on, a car), the usual function of an object (e.g. a spoon is used for eating) or the way things should be.

(8) Kyle (2;5/3·3)
(*S puts a horse on a boat. K taking the horse down.*)
K: Him can't go on a boat

INFERENTIAL NEGATION often conveyed the child's inference about the listener. The context was different from denial in that an overtly expressed

assertion did not precede the child's negation. For example, in (9), Kyle's negation was based on his inference that S believed that he had broken the crayon.

(9) Kyle (2;8/3·6)
(K has broken a few crayons. S has been scolding K for breaking crayons. K picks up a broken crayon which he did not break and looks at S.)
K: I not broken this

Cross-linguistic comparison of the development of functions

The nine functions can be divided according to their order of emergence:

Phase 1: (nonexistence), prohibition, rejection, (failure)
Phase 2: denial, (inability, epistemic negation)
Phase 3: normative negation, inferential negation

(The functions in parentheses emerged in a given phase for some children but one phase later for others.)

The four functions of Phase 1 emerged first in the children's negation. Exceptions occurred in a Korean child (Jene) who did not express nonexistence until Phase 2 and in an American child (Kyle) who did not express failure until Phase 2. The emergence of denial, defining the beginning of Phase 2, occurred after prohibition and rejection in all the children studied. The relatively late appearance of denial in the semantic development of negation has been pointed out in a number of studies (Bloom 1970, McNeill & McNeill 1973, Pea 1980). In addition, the present data show that, at Phase 2, some children expressed inability and epistemic negation: one French (Anne) and the two American children. The two Korean children and the French-Canadian child did not express these functions until Phase 3, that is, until they also expressed normative and inferential negation. However, inability and epistemic negation tended to emerge at around the same time for all children, which suggests that they may be related conceptually: both express the child's lack of competence. In Phase 3, normative and inferential negations were expressed. This occurred after denial for all children.

This developmental pattern seems to parallel the general cognitive development of children. From the sensorimotor to the formal operational stage, children gradually increase their ability to generalize the situation and to abstract the canonical form from a particular context (Piaget 1962). In this study, the children could initially negate only concrete (i.e. perceptually salient) events, but were later able to negate more abstract propositions.

Table 4 shows the development of forms of negation during the three phases. All the forms listed in Table 4 met the criteria for emergence defined

TABLE 4. *Development of forms and functions of negation in English, French and Korean*

Category	Age	MLU	Non-existence	Prohibition	Rejection	Failure	Denial	Inability	Epistemic	Normative	Inferential
Phase 1											
English	1;7-2;3	1·2-1·8	*allgone**[a]		*no**						
French	1;11-2;7	1-1·9	*parti** *a plus*		*non** *pas là, pas ça*						
Korean	1;7-2;1	1-1·9	*epta**		*i(:)ng*+ *an twae*+, *ani*+						
Phase 2											
English	2;1-2;10	1·8-1·9	*allgone** *no* N+	*no** *no* V	*no** *I don't want to*+	(*it*) *can't*+ *not fit* *doesn't* V+	*no** *not X*	(*I*) *can't**	*I don't know**		
French	1;11-2;11	1·7-2·5	*parti* *y a pas**	*non** *pas* V	*non** *pas X* *je veux pas*	*non** *pas ici*	*non** *pas X**	*pas arrive**	(*sais*) *pas**		
Korean	1;11-2;9	1·6-2·9	*epta**	*ani*+ V-*ci ma*+ *an twae*	*ani** *an* V+	*ani**	*ani** N *ani** *an* V*				
Phase 3											
English	2;5-3;6	2·9-3·6	*allgone* *no* N*	*no** *don't* V* *you can't* V	*no** *I don't want to**	(*it*) *can't* * *won't*	*no** *not X** AUX n't*	*I can't**	*I don't know**	*can't**	*not X** AUX *n't**
French	2;5-3;6	2·5-3·5	*y a pas** *il y en a plus*	*non** V *pas**	*non** *pas ça* *je veux pas**	*non** *pas ça* *ça va pas*	*non** *pas X**	*je peux pas** *j'arrive pas*	*je sais pas**	*faut pas**	V *pas**
Korean	2;9-3;3	3·1-4·5	*epta**	*an twae*+ V-*ci ma**	*ani** *an* V* *sile*	*an twae**	*ani** N *ani** *an* V*	*mot* V*	*molla**	*ninke ani**	*an* V*

[a] (), optional
V, verb; N, noun; AUX, auxiliary
X, more than one grammatical category
*, productive form for more than two children: form occurring in more than 10 different contexts, or the most frequent form in one child's speech.
+, productive form for one child.

above. However, in each phase for each function, some forms were used more often than others. Such productive forms – the most frequently occurring form for a given function, or the forms used in more than 10 different contexts by one child – differed from child to child within one language particularly during Phases 1 and 2. Also, for some categories, the productive forms changed from phase to phase.

There were temporal differences between the emergence of functions and distinctive forms for these functions. For some functions, the distinguishing form appeared after the function was expressed with a more general form, while for others, the distinguishing form appeared in parallel with the new function. By Phase 3, all nine categories were linguistically differentiated by the children.

Relations between forms and functions

Phase 1. The children did not distinguish all four functions linguistically when the functions emerged in Phase 1. One function for which all children used a distinct form was nonexistence. The forms were *allgone* in English, *parti* ('gone') in French and *epta* ('non-exist') in Korean. With prohibition, rejection and failure, there was a general tendency to use the same form(s) for all three functions interchangeably. The forms were *no* in English, *non*, *pas* or *non pas* in French and *ani*, *an twae* ('not-possible': unanalysed by the child at this time) and *i(:)ng* in Korean. The specific forms used for the three functions differed among the Korean children (see Choi 1986 for a detailed discussion of these forms). In Phase 1, these three functions were not formally differentiated for the children, and also appeared to constitute an undifferentiated conceptual category (Ito 1981, Gopnik 1982, Clancy 1985). The common feature among the three functions was 'a mismatch between the child's aim and the actual state' (Gopnik), that is, a conflict between what the child wanted and the current state of affairs. Nonexistence differed from the other three Phase 1 functions in that it simply described the state of affairs without the sense of conflict.

Phase 2. Two developments characterized Phase 2: new negative forms were produced (1) to express new functions (i.e. denial, inability, and epistemic negation), and (2) to differentiate the functions which had emerged previously in Phase 1 (i.e. rejection, prohibition and failure).

For denial, the children used both an old form and a new form. The old form was the single-word *no* (*non* in French, *ani* in Korean) acquired during Phase 1. The new form was the syntactic form *not* (*pas* in French and *an* in Korean) produced in syntactic negations such as *not a bee*.

Inability and epistemic negation were expressed by new forms. Kyle and Patrick expressed inability with (*I*) *can't* and epistemic negation with *I*

don't know. The French child, Anne said *pas arrive* (adult form: *j'arrive pas*, meaning 'I am not able to succeed') to express inability. Marguerite's form for inability was [əpa], which seemed to be reduced from *peux pas*. In the case of epistemic negation, Anne's form was simply *pas* (with a rising intonation conforming to adult speakers' frequent pronunciation for this expression) while Marguerite and Adèle's form was always [sɛpa]. These forms which specifically expressed inability or epistemic negation were not present in the children's speech before Phase 2. The first instance in the transcription when Kyle produced *can't* was in the following context:

(10) Kyle (2:3/2·25)
(*Kyle tries to put together two pieces of railroad track but cannot.*)
K: I can't put back
(*K giving the two pieces to S.*)
K: Can't

This new form, *can't*, was first used to express inability, a function that had not been expressed before with any other negative form. Thus, a NEW form emerged to express a NEW function.

Can't and *I don't know* in English and *pas arrive* and *sais pas* in French seem to be unanalysed forms at this early stage. The children did not produce the corresponding affirmative forms (Bellugi 1967, Bloom 1970), e.g. *I can*, *I know*, *j'arrive* and *je sais*. Also, the children used the phonetically reduced forms. In the case of *I don't know* both Patrick and Kyle said [ayəno] where *don't* was reduced to [ə]. In French, Anne pronounced *pas arrive* as pa:ri:] deleting the last consonant [v]. *Je peux pas* was reduced to [əpa].

Other new forms emerged to differentiate functions which were not distinguished linguistically during the previous phase. In Phase 1, the children did not differentiate among rejection, prohibition and failure. In Phase 2, children of all three languages produced specific forms for either rejection or prohibition using the old form for the remaining categories. Patrick said *I don't want to* (reduced to [ayəwanu]) productively for rejection and never used the form for prohibition. For example, he said *I don't want to* to reject the adult's request for a game. (This form became productive in Kyle's speech during Phase 3.) Similarly, Alexis, a French child, said *je veux pas* ('I don't want') specifically for rejection. The Korean child Tongju said Verb-*ci ma* ('V-Suffix stop') to express prohibition and began saying *an* + Verb ('Neg V') for rejection. Another Korean child, Jene, used a new form *an* + Verb productively for rejection and used an old form *ani* for prohibition. Thus new forms emerged to subdivide an old category.

Phase 3. Two new semantic categories emerged in Phase 3: normative and inferential negation. The French and Korean children used specific forms

for normative negation, (*il*) *faut pas* and *ninke ani* respectively. English-speaking children used modal auxiliaries such as *can't* to express normative negation. Inferential negation was expressed by using the syntactic negative marker with the auxiliary or main verb, similar to the expression of denial. The linguistic difference between denial and inferential negation was that the latter was always expressed by the syntactic form, whereas the former was expressed by both independent and syntactic forms.

By Phase 3, most of the adult forms were productive for all categories. New forms which emerged for English- and French-speaking children during Phase 3 were: the negative imperative construction for prohibition (i.e *don't* + Verb in English, Verb + *pas* in French) and the appropriate form for failure (*it won't work* in English, and *ça va pas* in French). These new forms served to differentiate failure from prohibition and rejection.

It was in Phase 3 that the Korean children, Tongju and Yongjin, expressed inability and epistemic negation using *mot* and *molla* respectively. Similarly to the English and French-speaking children, the Korean children used new forms for these two functions from the beginning.

To summarize, the present analysis shows three types of relationship between form and function. First, an old form could express a new function. The independent form of negation which had already been acquired in Phase 1 to express rejection, prohibition and failure was used subsequently to express denial in Phase 2. Also, the syntactic forms used for inferential negation in Phase 3 were those used for denial in Phase 2. Second, new forms emerged to express new functions, including inability, epistemic negation and normative negation. Third, a new form emerged to differentiate an old category. For example, rejection, prohibition and failure, which had been expressed with a general form in Phase 2, were each expressed with different forms in Phases 2 and 3.

The present data suggest, then, that the statement 'a new form expresses an old function and an old form expresses a new function ' (Werner & Kaplan 1963, Bloom 1970) requires some modification. While the children in the present study used an old form to express a new function, they also learned new forms to express a new function or to subdivide an old category. This suggests that the acquisition of new forms contributes directly to the increase of semantic categories in the child's development.

In all three languages, the functions of rejection, prohibition and failure appeared in the earliest phase, and their specific forms were acquired gradually over time. The functions of inability, epistemic negation and normative negation emerged during later phases along with their specific forms. These results represent a cross-linguistic regularity in the relationship between specific function and specific form.

Two types of mechanism, with two different temporal relationships between the development of function and the acquisition of form, are

suggested by these data. The functions of rejection, prohibition and failure have their origins in prelinguistic development, while the functions of inability, epistemic negation and normative negation are acquired after language has begun. That children learn language to express prelinguistic concepts has been much discussed in the child development literature (Piaget 1962, Bloom 1970, 1973, Bates 1979). Tomasello and Farrar (1984) have argued that nonexistence terms are acquired after children succeed in solving cognitive tasks related to the disappearance of objects. Also, Gopnik & Meltzoff (1986) showed that children acquire success/failure words after they are able to solve a simple means-ends task. Based on these studies, it may be that children, in Phase 1, having already developed the functions of nonexistence, rejection, prohibition and failure, would look for any linguistic forms which seem to express these functions, the particular forms varying from child to child (Gopnik & Meltzoff). This could explain the individual differences in forms that the children of the present study used to express a particular function of negation in Phase 1. For example, to express rejection some of the Korean children used *ani* productively while others used *i:ng*.

As children move on to Phase 2 and 3, they are able to produce syntactic speech and acquire the ability to express a new function with a new form at the same time. The forms which children acquire readily include perceptually salient ones, e.g. frequently occurring forms or stressed forms. If the functions of such salient forms are within the child's cognitive capacity, both the form and the function can be acquired together. Whereas cognitive development precedes language development during Phase 1, in Phases 2 and 3 cognitive development and linguistic development may influence and enhance each other.

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