The Acquisition of Causative Morphology in Japanese: A Prototype Account*

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0. Introduction

Research on the acquisition of causatives has primarily addressed the question of overgeneralization (and recovery) in the use of causative verbs (e.g., Bowerman, 1974; Pinker, 1989). A related issue that needs attention is the acquisition of productive causative forms; that is, of grammatical markers of causativity. Although there has not been much research focusing on the development of productive causative forms, an interesting correlation has been observed between the use of causative morphology and the use of the imperative.[1] Allen (1995, 1996, 1998) reports that in the acquisition of morphological causative in Inuktitut, children at early stages use causative *-tit-* exclusively with imperatives. Japanese children also associate causative *-(s)ase* with the request form *-te*, which corresponds to the imperative in Inuktitut (Nomura & Shirai, 1997). This paper addresses the question of why this parallel is observed in these two unrelated languages.

The paper is organized as follows: After a quick review of Japanese causatives and the *-te* request form, we review the published studies to see if such a correlation is observed. Next, we report an analysis of new data to answer the same question. Based on the analysis of the data, we argue that the correlation is pragmatically determined and that the stronger correlation is that between causative morphology and 'indirect causation', which forms the prototype for children's acquisition of causative morphology in general. We will conclude the paper by discussing the findings in relation to other domains where such a

prototype effect is observed -- tense-aspect morphology and pronominal case acquisition.

1. Acquisition of Causative Morphology in Inuktitut

Allen (1995, 1996, 1998) provided a detailed analysis of the acquisition of causatives in Inuktitut, an Eskimo language spoken in northern Canada. In this longitudinal study, she reported a very strong correlation between morphological causative *-tit-* and the polite imperative marker at the early stage. For example:[2]

(1) Sikituurtilaunnga.
skidoo-CAUS-POL-IMP.2sS.1sO
'Make me ride the skidoo.' (wanting to have a ride on the skidoo)
(Juupi 2;0; Allen 1995: 55)

According to Allen (1995: 95), the almost exclusive use of causative morphology with imperatives indicates that children 'may initially begin using the causative morpheme with the hypothesis that this morpheme is only a required part of the form to be used when you wish to command someone or something else to do something for you'. She further attributes this early correlation to the process of lexical learning; that is, children acquire these forms as unanalyzed chunks that are used in this particular type of request.

2. Acquisition of Japanese Causative Morphology

2.1. Causative Morphology in Japanese

Japanese, like Inuktitut and many other languages, uses both lexical and morphological causatives. The morphological causative, *-(s)ase*, is productively attached to most dynamic verbs.

(2)

Ken-wa	Naomi-o	waraw-ase-ta.
Ken-TOP	Naomi-ACC	laugh-CAUS-PAST

'Ken made Naomi laugh.'

Nomura & Shirai (1997) noted a correlation of causative morphology with imperatives in the Japanese acquisition data reported in Ito (1990). Here, we analyze previous research to see whether this correlation is observed consistently.

The causative suffix *-(s)ase* is realized as *-sase* when attached to verbs with vowel-final root (e.g. *tabe-sase-ru* 'make (someone) eat'), and as *-ase* when attached to verbs with consonant-final root (e.g. *nom-ase-ru* 'make (someone) drink'). It also has a variant form *-(s)as*, which Martin (1975) called the "short form" (e.g., *tabe-sas-u* 'make (someone) eat', *nom-as-u* 'make (someone) drink'):

(3)

	Standard form	Short form
Vowel final root:	tabe-sase-ru eat-CAUS-NONPAST 'make (someone) eat'	tabe-sas-u
Consonant final root:	nom-ase-ru drink-CAUS-NONPAST 'make (someone) drink'	nom-as-u

Children make many errors in using morphological causative forms. In the review here, all those forms that represent an attempt to use the causative suffix are included in the analysis.

The *-te* form in Japanese is a non-finite connective used in various constructions, but when used at the end of a sentence, it functions as a informal request form, as in example (4) as simple request, and (5) combined with causative morphology.

(4) Tabe-te.
Eat-TE
'Please eat.'

(5)

Naomi-o	ik-ase-te.
Naomi-ACC	go-CAUS-TE

'Please make Naomi go.'

2.2. Previous Studies

2.2.1. Ito (1990)

Ito (1990, Ch. 4) discusses the acquisition of the transitivity of verbs. He provided 13 examples of morphological causative *-(s)ase* used by children, all of which are incorrect uses. Of the 13 tokens, 8 were in the request form *-te*, which is a pragmatic equivalent of the imperative in Inuktitut. For example:

(6) Nomi-sasi-te (Correct form: *Nom-ase-te.*)
drink:ADV-CAUS-TE
'Let/make (me) drink.' (4;0, Ito 1990:70)

Although the correlation is quite remarkable, we need to note that Ito's data is based on the examples he collected from various children ranging from 3 to 8 year olds, and that he only mentions incorrect uses. Therefore it is not clear how representative these examples are of overall uses of causative morphology.

2.2.2. Okubo (1967)

Okubo (1967: 118-119) reported that in the conversational data of a girl from 1;6 to 3;0, she observed only 5 tokens of causative *-(s)ase.* Okubo only reports two examples, both of which were in request forms: *orisasete* 'Let me get down' (2;3) and *kaburasete* 'Let me put (it) on' (2;9). However, she also reported (p. 147) four instances of ill-formed use of causative *-(s)ase* (at 4;0 and 5;3), none of which were in request forms.

2.2.3. Okubo (1984)

Okubo (1984) reported all the causative forms used by a boy between 2;0 and 3;6. Among the 15 tokens of *-(s)ase*, 9 were in request form, including one with the polite benefactive ending *kudasai*, as in (7):

(7) Ori-sasi-te-kudasai. (correct form: *Ori-sase-te-kudasai.*)
come:down-CAUS-TE-BEN:POL
'Please make/let (me) get down.' (3;1, Okubo 1984:60)

Again, the correlation is quite strong, although it is not as exclusive as in the Inuktitut data.

2.2.4. Kato & Kato (1983)

Kato & Kato (1983) reported 19 examples of causative *-(s)ase* produced by a boy between 2;9 and 3;10. Although it is not clear how they collected the data or how they chose these examples, 17 (i.e., 89.5%) of the 19 were used in request form.

2.2.5. Morimoto (1996)

Morimoto (1996) studied the acquisition of causative, passive, and light verb constructions in Japanese. She reported 9 tokens of causative morpheme *-(s)ase* used by a Japanese girl in her conversational data collected between 3;4 and 3;7. Importantly, only one of them was used with the *-te* request form. Four were used with benefactive (*-te-ageru/morau*), and two were with past tense form *-ta.*

2.2.6. Generalizations

This reanalysis of previous studies reveals the following:

(a) There is a strong correlation between causative morphology and request, although not as exclusive as in Inuktitut.
(b) The correlation may not hold for all children; that is, individual variation exists (Morimoto, 1996).[3]

These findings, however, need to be qualified because of the limitation in representativeness of the tokens reported in the above studies. Ito (1990), Okubo (1967), and Kato & Kato (1983) did not report how the examples were selected. Although Morimoto (1996) reported all the tokens of causative *-(s)ase* in her data, a focus of her study was on the causative construction, and that may have subtly affected the interactional patterns. In fact, she tried to test the child's understanding of causative relations in her interaction with the child. Okubo (1984) is the only study that is reliable in this regard; she exhaustively reported the causative morphemes used in the recordings between 2;0 and 3;6, of which 60% were in request form.

The present study analyzes both cross-sectional and longitudinal data from conversational interactions of Japanese children to establish a more solid empirical basis for the correlation reported. It also attempts to show why such correlation is observed crosslinguistically.

3. The Study

3.1. The Data

3.1.1. Cross-sectional Data

The cross-sectional data used in this study consist of transcribed conversations of 2-, 3- and 4-year-old Japanese children (N= 31, 67, and 32, respectively), collected and transcribed by Yoshiko Okayama and her students from 1969 to 1971 in Western Japan (Okayama,

1975). The data, which we computerized, recorded mother-child interaction, including other participants, throughout their waking hours in a single day.

3.1.2. Longitudinal Data

The longitudinal data reported here are from two Japanese children: Tai (Miyata, in press) and Kii (Miyata, 1998; Yokoyama, 1991).[4] Kii's data are diary data with extensive context notes, collected by Masayuki Yokoyama and computerized in J-CHAT format (Oshima-Takane & MacWhinney, 1995). The transcribed data include morphological analysis of children's utterances done by JMOR, an automatic morphemicization system (Naka & Miyata, 1999).

3.2. Analysis

For the cross-sectional data, coding for causative *-(s)ase* was done during the computerization of the data. For the longitudinal data, causative morphology was searched for based on the morphological analysis done by JMOR, which was later checked by hand. Quantitative analysis was done by CLAN (MacWhinney, 1995) for all the datasets.

4. Results

4.1. Cross-sectional Data

A total of 23 tokens (6 types) of causative *-(s)ase* were found in the children's speech. Importantly, all 23 tokens were used with *-te* as a request:

(8)	tabe-sase-te	'Let (me/him) eat.'	(16 tokens)
	hukuram-as-i-te	'Please inflate (the balloon).'	(2 tokens)
	ire-sase-te	'Let (me) put (it) in.'	(2 tokens)
	kikae-sase-te	'Let (me/him) change clothes.'	(1 token)
	sase-te	'Let me do (it).'	(1 token)
	osime sase-te	'Let (me/him) put on a diaper.'	(1 token)

Tabesasete here includes the incorrect forms *taberasite* and *taberazite.*

4.2. Longitudinal Data

4.2.1. Kii

Kii's data between 1;0 and 2;7 were analyzed. The first use of causative morphology was at 1;6, when she said *haasete* for which the correct

form is *hakasete* and the intended meaning is 'Help me put on (the clothes)'. We divided the data into two stages (1;6-2;0 and 2;1-2;7) to see the developmental change. For the early stage, 20 tokens of causative morphology were used by Kii. Of these, 11 (55%) were produced with the request form. This correlation is comparatively low. However, there were 7 uses of *toorasen* '(I will) not let you pass'. If we exclude this, 10 out of 13 were used with request form. It is also interesting to note that there are four cases where the intended meaning was a request such as 'Let me eat', which requires causative form + *-te* (i.e., *tabesasete*), but she did not use the causative morphology, and the resultant form was a non-causative *Tabete* 'Please eat'. Even here, the *-te* request form was used, suggesting a strong affinity between request form and the semantic notion of causativity.

For the later stage, 50 tokens of *-(s)ase* were observed. Only 7 (14%) of them were in the request form, and interestingly, none of the 31 tokens produced at 2;6 and 2;7 were used with the *-te* request form. Thus, correlation appears to be strong early, but once the morphology becomes productive, the correlation disappears, which parallels the pattern reported for Inuktitut (Allen, 1995).

4.2.3. Tai

Tai's data from 1;5 to 3;1 were also analyzed. There were 5 tokens of causative *-(s)ase*. Three of them (i.e., 60%) were in request form (at 2;2 and 2;5). Table 1 summarized the use of causative morpheme of all the data discussed.

Table 1. The Ratio of Causative Verbs Used with the *-te* Request Form (Token Count) and Children's Age Range

<previous research>			
Ito (1990)	8/13	(62%)	3- to 8-year-olds
Okubo (1967)	2/2	(100%)	2;3-2;6
	0/4	(0%)	4;0-5;3
Okubo (1980)	9/15	(60%)	2;0-3;6
Kato & Kato (1983)	17/19	(90%)	2;9-3;10
Morimoto (1996)	1/9	(11%)	3;4-3;7
<cross-sectional data>			
Okayama data	23/23	(100%)	2, 3, 4-year olds
<longitudinal data>			
Kii	11/20	(55%)	1;6-2;0
	7/50	(14%)	2;1-2;7
Tai	3/5	(60%)	1;5-3;1

5. Discussion

5.1. Direct vs. Indirect Causation

The analysis of new data confirms the generalizations noted earlier that (1) the correlation between causative *-(s)ase* and *-te* request form is strong, although not to the extent observed in the Inuktitut data, and (2) individual variation exists. Based on the longitudinal data from Kii, we can also suggest that (3) the correlation becomes weaker as the child grows older.

The important question is why such a correlation is observed. We argue that this correlation in child language is a by-product of a universal tendency for languages to express direct causation lexically, and indirect causation grammatically (Pinker, 1989).

Comrie (1989) distinguishes three types of causative expressions: (1) analytic causatives (such as English *make*, also often referred to as periphrastic causatives), (2) morphological causatives (such as Japanese *-(s)ase* or Inuktitut *-tit-*), and (3) lexical causatives (such as *kill*). Regarding the semantic notions expressed by these causative expressions, Comrie makes a distinction between indirect causation and direct causation, although he assumes these comprise a continuum. Indirect causation involves lower control by the causer, and higher control of the event by the causee. For example, permissive/assistive causatives express indirect causation (such as *The mother let* or *helped the child eat*). In contrast, manipulative/directive causatives are

considered direct causation (e.g., *She killed John; She made him sing*). This continuum is represented below:

(9) High causer control

a) manipulative:	She killed John	[-(s)ase][5]
b) directive:	She made him sing.	-(s)ase
c) assistive:	The mother helped the child eat.	-(s)ase
d) permissive	The mother let the child eat.	-(s)ase

Low causer control

In terms of the relation between the formal characteristic of the causative expression and the semantic notion, Comrie stated:

> ....when one contrasts different causative constructions that differ on the analytic - morphological - lexical continuum, then it becomes clear that the construction closer to the analytic end is more appropriate for the distant (indirect) causative, while the one closer to the lexical end is more appropriate for the direct causative (Comrie, 1989: 173).

For example, in the following pairs, (10a) is direct causation, whereas (10b) is more indirect.

(10) a. Ken-wa Naomi-o korosi-ta.
Ken-TOP Naomi-ACC kill-PAST
'Ken killed Naomi.'

b. Ken-wa Naomi-o sin-ase-ta.
Ken-TOP Naomi-ACC die-CAUS-PAST
'Ken made Naomi die.'

The difference here is this: if Naomi killed herself in grief because Ken did not love her, (10b) is more appropriate. This is because (10a) is a lexical causative, which denotes direct causation, whereas (10b) is morphological and is more indirect. Bowerman (1987: 453) also highlights the difference in English between *John stood the baby up* (lexical) and *John made the baby stand up* (analytic). This lexical-grammatical asymmetry holds true for Inuktitut (Allen, 1995).

Note that in both Japanese (Shibatani, 1976) and Inuktitut (Allen, 1995), morphological causatives can express both direct and indirect causation. Nonetheless, most of the early morphological causatives used

by the children reported by Allen are indirect causatives of the assistive/permissive type, not direct, manipulative causatives. This appears to be also true of the Japanese data. We checked the causative tokens in the cross-sectional and longitudinal data, and indeed the use of *-(s)ase* by Japanese children predominantly indicates indirect causation of assistive/permissive type.

More specifically, in the cross-sectional data, only 2 out of the 22 tokens were direct causation: *hukuramasite* 'Please inflate (the balloon)'. All the rest are either assistive or permissive. Note that the two examples of direct causatives *hukuramasu* are in 'short form', which is closer to the lexical end of the continuum than the standard morphological causative *-(s)ase* (Teramura, 1982: 317), which is *hukuramaseru*. Thus it is quite likely that children treat them as merely lexical causatives.

Regarding the longitudinal data, the trend is the same. For Tai, of the 5 tokens, 3 were permissive *tooraseru* 'let (someone/thing) pass through', and 2 were possibly manipulative (*hasiraseru* 'make the toy train run'), but could well be assistive, since it is quite likely that he regards the train as self-locomotive and was possibly helping it run, in which case it is assistive.

For Kii, the trend is much clearer. Between 1;6 and 1;11, all 23 causative tokens are the permissive/assistive type. The first direct causative token was at 2;0, when Kii said *Nande tabesaseru to*? 'Why are you going to make me eat?'[6] Other than this, 11 tokens of *nakaseru* 'make (someone) cry' were the only direct causation tokens observed in Kii's speech. The development of the two types of causative notions is listed in Table 2.

Table 2. The Use of Causative Morphology by Semantic Type (Kii)

	1;6	1;7	1;8	1;9	1;10	1;11	2;0
indirect	1	1	9	2	6	2	1
direct	0	0	0	0	0	0	1
	2;1	2;2	2;3	2;4	2;5	2;6	2;7
indirect	1	3	3	4	8	5	16
direct	0	0	0	0	2	2	8

Why do children assign a more restricted meaning to the morphological causative? It appears that this is partly motivated by pre-emption (e.g., Clark, 1987); that is, children tend to avoid synonyms, and since by this time they already know that lexical causatives denote direct causation (and manipulative causation in particular), they thus assign a distinct meaning (i.e. indirect causation) to the newly acquired form (i.e., morphological causative), even though there is an overlap of the semantic domains for lexical and morphological causatives in adult language. More specifically, Japanese causative morphology *-(s)ase* can denote both direct and indirect causation:

(11) Ken-wa Naomi-ni miruku-o nom-ase-ta
Ken-TOP Naomi-DAT milk-ACC drink-CAUS-PAST
'Ken made Naomi drink milk.'

Such a sentence, often used as a typical example of directive causative, when used by children, would be more likely to denote 'permissive or assistive' meaning, in a context where Naomi wants to drink milk, and Ken lets or helps her drink milk. Therefore, within the semantic space of causativity, children first assign lexical causative to direct causation, and then morphological causative to indirect causation.

We further argue that this restricted mapping created by children is also input-based and pragmatically determined. We analyzed the input data from the cross-sectional data, and it turned out that all the tokens of causative *-(s)ase* used by caretakers were of permissive/assistive type, which presumably helped children create a representation of the causative form with permissive/assistive meaning.[7] This is the input explanation for the restricted use of causatives by the children.

In terms of the pragmatic needs of children in interactional settings, when one requests something, one does not want one's own action controlled by someone else; rather, one wants permission or assistance, as in *tabesasete* 'Let/help me eat'. Also, a child at this age is a helpless being and often needs to ask permission or assistance, which results in early production of *-(s)asete* form, i.e., causative request form, which requests permission or assistance.

Thus, a restricted association in the input as well as children's frequent needs to ask for permission or assistance leads to a restricted semantic representation of causative morphology. This study shows the importance of analyzing input data and considering pragmatic context in research on semantic development.

Even though children's naturalistic production is restricted, one may suspect that children already have the adult-like semantic representation but that they do not use causative morphology simply because it is less frequently needed in discourse context that children are in. However, this is not the case. Experimental studies show that children indeed associate causative morphology with indirect causation. Although the focus of his study was the production of lexical causative, Suzuki (1999) found that the 3- and 4-year-old children in his experiment produced 9 tokens of causative *-(s)ase* regardless. All the tokens are assistive causative, often used with benefactive *ageru* (e.g. *orisasete ageta* 'helped (it) get off').[8] In Morikawa & Ono's (1997) experiment with 4-, 5-, and 6-year olds, only 37, 48, and 68% of the children's responses involved the morphological causative *-(s)ase* in obligatory contexts for where 100% of the adult control group responded with morphological causative. These results show that children's restricted use in natural conversation data is not just an artifact of discourse/pragmatic context, but the result of restricted semantic representation, and that even at age 6, it is far from adult-like.

5.2. Crosslinguistic Comparison

Here, we would like to discuss the implication of the current study for the general issue of causative development in Japanese and other languages. What seems to be happening in Japanese acquisition is the following: First, children acquire causative verbs, although they make transitivity errors once in a while (Nomura & Shirai, 1997). At this point, the lexical causative frame is strongly associated with direct causation (such as manipulative/directive). Then at some point, children

begin to express the notion of indirect causation (assistive/permissive), often in the frame of *-te* requests. Gradually this restriction is lifted, and children approximate the adult norm to include the meaning of directive causation in their use of *-(s)ase.*[9]

Let us compare this with English, for which extensive discussion of causativity acquisition is available (e.g., Bowerman, 1974; Lord, 1979). In English, as in Japanese, children acquire lexical causatives first. However, children's transitivity errors are not conspicuous at early stages for English compared to Japanese. This may be mainly because zero derivation (such as *open, drop*) is very common in English, whereas in Japanese causative and non-causative verbs have two distinct forms, making it easier for errors to be detected. The fact that causative-noncausative pairs mostly share word-initial sounds (such as *aku* 'open:intransitive' vs. *akeru* 'open:transitive') increases the likelihood of lexical retrieval errors at early stages. After that, transitivity errors of this type are very infrequent throughout (Morikawa, 1997; Morikawa & Ono, 1997). In English, on the other hand, transitivity errors become frequent around the time when children start to use productive causative forms such as *make, get* etc. (Bowerman, 1974). At this point, it appears that children tend to associate 'direct causation' to lexical causative, including both manipulative and directive. In fact, most of the innovative lexical causatives reported by Bowerman (1974) are of this type, with only a few that are possibly of the assistive type. Thus, directive causatives, which are normally reserved for analytic causative 'make', is expressed by children by lexical causative (e.g., *I sing the doll,* meaning 'I make the doll sing') probably induced by high frequency of English zero derivation (e.g., *I walk --> I walk the dog*; *The door opened --> He opened the door*) and the parallel observed between lexical and analytic causative (*open the door* equals *make the door open*).[10]

Japanese does not have such productive zero derivation, and since Japanese causative *-(s)ase* is predominantly used in the input for indirect causation (permissive/assistive), children do not use *-(s)ase* for direct causation until later, nor do they confuse it with lexical causatives and use it to refer to manipulative causation. Causative *-(s)ase* is not confused with lexical causative because unlike productive causative *make* in English, which is close in meaning to lexical causative in that it expresses directive causation. Japanese *-(s)ase* is semantically very different from lexical causative, at least as it is used in child-directed

speech. Thus, for children it appears for a long time that *-(s)ase* is an indirect causative.

Now, let us get back to Inuktitut, the starting point of this study. Children acquiring Inuktitut initially have a very restricted use of causative morphology -- mostly permissive/assistive in terms of semantics, and imperative in terms of the form. This latter correlation is much stronger than in Japanese. Later, children begin to use causative *-tit-* with other verb forms. The examples Allen (1995, 1996) provided for this later period included both direct and indirect causatives. She also reported that the causative morpheme is not used with imperative form anymore, even though the adult input exhibits a correlation between the imperative and causative morphology. This also parallels the Japanese data for Kii.

It appears that because of their typological similarity, Japanese- and Inuktitut-speaking children exhibit a similar developmental pattern, whereas children acquiring English, which makes use of analytic causatives like *make* that are more associated with direct causation, show a different type of development. Although in the past research on the development of causativity focused on direct causatives, it is important to look at the total semantic space of causativization. Depending on how a language divides up the causative space, the pattern of development differs. Thus, English acquisition should be investigated together with the development of *let*, which takes up the permissive causative space.[11]

6. Conclusion: A Prototype Account

Finally, we would like to discuss the present study in relation to the general theory of grammatical development. Similar developments of closed class items have been reported in other areas of child language acquisition. That is, children do not have adult-like semantics at the beginning stage of acquiring grammatical categories, presumably because of the frequency distribution in input. As Budwig (1996) claimed, although developmental psycholinguists have long noted that children's early form-meaning relationships are often not adult-like, not much research has been done on the distribution of forms and meanings in the input as a possible source of such initial mappings. She attributes idiosyncratic use of first person pronouns *I, my*, and *me* by some children to skewed input. In the same vein, Shirai & Andersen (1995) found that bias of about 60% in the distribution in the input resulted in

almost 100% restriction in children's use of past tense and progressive morphology in the acquisition of English. Both these results can be explained by input-based prototype formation by children, and the present study of Japanese causative morphology can be interpreted exactly along the same lines.

Importantly, both these phenomena have previously been explained without reference to input (Shirai, 1997, in press). Earlier, Budwig (1986, 1989) attributed children's idiosyncratic use of the first person pronouns to cognitively salient grammaticizable notions, and claimed children are marking high agentivity and control by the forms *my* and *me*, and low agentivity and control by the form *I*. The acquisition pattern of tense-aspect morphology, as is well known, was attributed to innate knowledge in the Language Bioprogram Hypothesis proposed by Bickerton (1981). Although many child language researchers (e.g. Bowerman, 1985; Lieben, 1994) have emphasized the importance of input language as a source for children's acquisition patterns, not much empirical research has been done to examine what children are actually hearing in the input. The study of input has been neglected for historical reasons. On the one hand, the lack of correlation in some influential studies (Brown, 1973; Newport, Gleitman, & Gleitman, 1977) concerning the relationship between particular grammatical items and input frequency has contributed to the loss of interest in input as a driving force in grammar acquisition. On the other hand, emphasis on innateness as well as on grammaticizable notions discounted the importance of input at the theoretical level. However, input research is not very useful if we just correlate input and output on various grammatical items (Valian, 1999). As this study shows, it would be more fruitful to take a particular linguistic domain and assess the effect of input in that particular domain.

Furthermore, as corpus-based functional linguistic research has abundantly shown, there is a big discrepancy between our intuition and actual language use (e.g., Hopper, 1997). The causative morphology in Japanese has mostly been discussed in the literature as an equivalent of causative 'make' to express directive causation and it is not until we look at the input data that we realize that it is being used almost exclusively for indirect causation. The same is true for the Inuktitut causative -- all the invented examples in Allen (1995) are 'make' type directive causatives, whereas most of children's causative morphemes were used for indirect causation, which may be due to the use in the

input. Had Budwig & Shirai not looked at input regarding pronominal case and tense aspect respectively, the acquisitional patterns for these closed class items would still be attributed to non-input factors. To attain a better understanding of the mechanism of grammar acquisition, we should pay more attention to input distribution. We need to embark on a systematic research program on input with regard to various grammatical structures. That would help us better understand the mechanism of language acquisition.

Notes

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1 For a cross-linguistic comprehension study of productive causative forms, see Ammon & Slobin (1979). Berman (1993, 1994) also discusses the total picture of causative acquisition in Hebrew, including morphological causative, although with a different focus from the present paper.

2 The following abbreviations are used:
1sO=first person singular object
2sS=second person singular object
ACC=Accusative
ADV=Adverbial form of the verb
BEN=Benefactive
CAUS=Causative
DAT=Dative
IMP=Imperative
NONPAST=Nonpast tense marker

PAST=Past tense marker
POL=Polite form
TOP=Topic marker

3 It is possible that Morimoto's child is not necessarily a case of individual variation, but rather that she had already passed the stage when she associated the causative affix with *-te* form. This is a real possibility considering her age (3;4-3;7), and the fact that Kii also showed the same lack of association at a later stage of her development, as reported in 4.2.1. To establish this, we need a more systematic comparison, with a developmental index such as MLU. Note also Kato & Kato's child (2;9-3;10) is as old as Morimoto's, but about 90% of the reported tokens are in request form.

4 Data for Aki and Ryo (see Miyata, 1992, 1995) were also analyzed. There were apparent cases of causative morphology (1 for Aki and 3 for Ryo), but it was not clear whether they are actually causative *-(s)ase*.

5 Manipulative causative is normally expressed by a lexical causative, although it can also be expressed by productive causative forms (Shibatani, 1976). This is why *-(s)ase* is in brackets here. In this connection, it should be noted here that my definition of 'direct causation' is broader than Pinker's (1989: Ch.2), which restricts direct causation to manipulative causatives. Mine is more in line with Shibatani (1976) who made a clear distinction between manipulative and directive causation, both of which are considered 'direct' causation (see also Matsumoto, 1996: 166).

In the cross-sectional data, there was a total of 26 tokens of causative *-(s)ase* used by caretakers, of which 2 were excluded since they did not constitute the normal use of the causative suffix -- a verb inflected for *-(s)ase*. They are noun or onomatopoeia + *-(s)ase*, and interestingly, they both consisted of direct causation (*oto saseru* 'make noise' and *gatagata saseru* 'make a rattling sound'. In addition to these cases, there were four cases of *saseru* 'make/let (someone) do' used as a verb, and they all indicated indirect causation (e.g., *asita kara sasenai yo* 'I won't let you do (it) from tomorrow').

The particle *-to* at the end of this sentence is a dialectal form; in standard Modern Japanese, this should be *-no*.

8 Takaaki Suzuki, personal communication, April 1999.

9 Note that manipulative causation can be denoted by a morphological causative only if a lexical causative is not available in the language (Shibatani, 1976).

At early stages of development, the fact that zero derivation is common in English makes their task of learning transitivity of verbs easier compared to Japanese. For example, English children can use the same verb form for *He opened the door* and *The door opened*, whereas Japanese children have to learn to use different verb forms, *akeru* for transitive and *aku* for intransitive. Later at the stage where children generalize about how causativity is incorporated in verbs, the ubiquity of zero derivation results in overgeneralization of lexical causative where productive causative is obligatory. Thus, the same characteristics of the target language work differently depending on the child's developmental stages. The scenario presented here, of course, needs to be confirmed with comparable data from Japanese and English.

Ammon (1981) is a notable exception that looked at the whole spectrum of the causativity space, although her results are difficult to interpret in relation to the present study.

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