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**Encounters with Japanese Verbs:
The Categorization of Transitive and Intransitive Action Verbs***

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This paper deals with the acquisition of two classes of action verbs in Japanese, transitive and intransitive. Action verbs refer to visually verifiable physical transformations of the state or location of an entity. Sentences A and B serve as illustrations.

A) *kodomo ga kugi o ana no naka ni ire-ta*
child NOM nail ACC hole's inside LOC put-PAST
Child put nail inside hole.

B) *kugi ga ana no naka ni hait-ta*
nail SUBJ hole's inside LOC go-PAST
Nail went inside hole.

In Japanese, transitive action verbs take nominative subjects that are semantically causers and accusative direct objects that are semantically figures or patients. Intransitive action verbs take nominative subjects that are semantically figures and patients. Unlike English which has verb pairs such as *open* transitive and intransitive, in Japanese a transitive verb cannot have an homophonous intransitive counterpart. In active sentences, nominative case is marked by the postposition *ga*, and the accusative case is marked by the postposition *o*.

The Japanese child comes to know that intransitive action verbs like *hair*- "go in" cannot take a causer argument, and that their figure arguments are marked by *ga*. Conversely, the child comes to know that transitive action verbs like *ire*- can take a causer argument and that their figure arguments are marked by *o*.

Accounts of how the child specifies these characteristics of an action verb are not well detailed. Pinker (1984) proposes a mechanism termed Direct Learning from Positive Evidence, by which the child hears a verb in a sentence with its array of NP arguments, and constructs a "phrase structure tree for the sentence from already acquired phrase structure rules" (p. 295). The child uses the phrase structure tree to determine the lexical entry of a new verb. Pinker also saw a problem: Direct Learning works with preexisting phrase structure trees. The child must first discover legitimate instances of subjects and objects in the target language before Direct Learning may start. This is why Pinker proposed that the first lexical entries are filled out by Canonical Mapping, which induces syntactic subcategorization directly from thematic roles. However, to make canonical

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mapping work, Pinker (1984) stated that the child must "recover thematic roles inherent in the described action" (p. 297). The problem with this hypothesis is that actions do not come labeled "transitive" or "intransitive" in the environment. The child may recover an agent from the context when a verb is intransitive. This point led Borer and Wexler (1987) to posit the Thematic Inference Principle, which states that, "when a learner is computing thematic roles from situations, s/he assumes a thematic role only if it can be related to an appropriate phrase in the sentence" (p. 135). Thus, when the child hears an intransitive sentence, the child will not associate a causer role with the verb.

These views of the acquisition of the subcategorization of action verbs are challenged by the facts of caregiver speech in Japanese. Action sentences in caregiver speech exhibit a remarkable rate of noun phrase ellipsis. The two-year-old Japanese child seldom hears an input action sentence with the full complement of noun phrases needed to specify the correct number and type of thematic roles for a verb. When noun phrases are explicit in a sentence, they are seldom accompanied by case marking. To illustrate this point, a sample of 300 action sentences spoken by six Japanese caregivers to four children was analyzed to estimate the availability of explicit causer, figure and patient NPs, and the availability of case marking for nominative and accusative case. Two hundred and fifty of the sentences come from the author's observations of three boys, H (22-24 months), J (22-24 months), and T, J's elder brother (28-30 months). Approximately 50 sentences were taken from the transcripts of six caregivers: H's father and mother interacting with H, J's father and mother interacting with J, and T's babysitter interacting with T. These interactions occurred while the children were playing or snacking at home. In addition to these 250 sentences, 50 more caregiver action sentences were taken from the published transcripts of a Japanese boy, Taachan, interacting with his mother on his second birthday (Okubo 1981, p. 1-6). The observations of Taachan and mother were made at home, in contexts quite similar to the author's observations. To increase the independence of these sentences as data points repetitions of a sentence spoken by the child or self-repetitions were not used.

The sentences were coded for: 1) Explicit causer, figure or patient NPs, and 2) the case marking of these explicit NPs. There were 155 intransitive sentences and 145 transitive sentences (Table 1). Pooled results are reported as the individuals all showed the same basic pattern of results. Of the transitive sentences, 70% (101) lacked an explicit causer NP. Only 6% (9) of the transitive sentences had causer NPs marked with the nominative case postposition *ga*. Only 7% (10) of the transitive sentences had figure or patient NPs marked with the accusative case postposition *o*. Of the intransitive sentences, only 5% (8) had an NP marked with nominative case *ga*.

The results call into question the efficacy of Direct Learning from Positive Evidence (Pinker 1984) because of the tremendous rate of ellipsis and infrequency of case marking postpositions. The effectiveness of the Thematic Inference Principle (Borer & Wexler 1987) is also doubtful. There are so many missing causer NPs, that a child could end up assigning transitive verbs to the intransitive class. These procedures could be saved by the addition of a verb sampling

procedure, whereby the child stores in memory a number of examples of a verb, and constructs from the sample a full description of the verb's thematic roles and their syntactic encoding. Even with verb sampling intransitive verbs will be problematic. When does the child stop looking for a causer role with an intransitive verb? However, as we shall see, such augmentation may not be necessary.

Recall that Pinker's (1984) position assumes that the child knows a great deal about intentionality, causality, figure-ground relations, and changes of state. Assuming the same things, an account can be drawn of the acquisition of the transitive and intransitive verb classes without reference to explicit NPs. This account makes use of semantic causal types such as those discussed by Talmy (1976) in his description of causative types.

Around the time of their second birthday children identify the figure or patient of an action, non-linguistically. The child also differentiates between entities with intentions and objects without intentions (Golinkoff, Harding, Carlson, & Sexton, 1984). These two sets of distinctions, the perceptual and psychological are orthogonal. Their intersection is necessary for the formation of three semantic causal types: self-agentive, causal agentive and non-agentive. The semantic causal types have specialized contexts of use (Figure 1). The self-agentive type is used when the intention to act is attributed to the figure or patient. In order to know that a verb has a self-agentive use, the child must have confirming evidence that such is the case. There must be an animate figure or patient in the context. Additional evidence is the presence of a verb inflection or auxiliary, such as an imperative or desiderative, that implies the intentional origin of an action. Research on the acquisition of morphology in Japanese, indicates that the two-year-old Japanese child understands at least some of these morphemes (Okubo 1967, Clancy 1986, Rispoli, in press). In contrast, to establish that a verb can be used as a causal-agentive, the attribution of intention to the figure or patient must be blocked, as for example when the figure or patient is inanimate. If the child finds a morpheme that implies intention in a sentence with an inanimate figure or patient in the context, the child deduces that there is an intentional causer participant relevant to the meaning of the verb. This deduction occurs without regard to the lexical instantiation of an agent noun phrase. Finally, without evidence from morphology that a verb can express the self-agentive or causal-agentive types, a verb is taken to express only the non-agentive type.

The next analysis illustrates how the use of an action verb in specialized contexts can predict its syntactic classification. The same sample of 300 caregiver sentences used in the previous analysis were coded for 1) figure or patient referent animacy (including implicit figures and patients) and 2) the presence of a verb suffix or auxiliary that implied the intentional origin of an action. Animacy had three levels, 1) true animate beings, 2) animate surrogates (dolls and pictures of animates) and 3) inanimate objects. The suffixes and auxiliaries implying the intentional origin of an action were: *verb+te* "request", *verb+tai* "desiderative", *verb+(y)o* "hortatory", *verb+cha dame* "prohibitional", *verb+te ii* "permissive", *verb+te kure-* and *verb+te age-* "benefactive" (Soga 1983, p. 87-98). Recall that the semantic causal types have specialized contexts (Figure 1) defined by figure or patient referent animacy and the presence of morphemes that imply intentional

action. The observed contexts for individual verbs were fitted to the array of expected contexts for each of the three semantic causal types.

Let us take the fitting of the verbs *suwar-* "sit" (intransitive), *ire-* "put in" (transitive) *hair-* "go in" (intransitive) as examples (Figure 2). There were eight examples of the verb *suwar-*, seven with animate figure referents, and one animate surrogate referent. *Suwar-* appeared four times with morphemes that imply intention. Each of these sentences had animate figure referents. Since *suwar-* appeared in the expected context for a self-agentive type, and not in the expected context for a causal-agentive type, the verb *suwar-* was matched to the self-agentive type. There were seven examples of the verb *ire-* "put in", and all seven had inanimate figure referents. Two of the sentences with *ire-* had morphemes that imply intentional action. Since the verb *ire-* appeared in the expected context for the causal-agentive type, and did not appear in the context for the self-agentive type, the verb *ire-* was matched to the causal-agentive type. There were 11 examples of the verb *hair-*, but none had inflections or auxiliaries that imply intentional action. Therefore, the verb *hair-* was matched to the non-agentive type.

Fifteen other action verbs were fitted in the same manner. In order to reduce the effects of sampling error, only verbs that occurred five times or more were fitted. The most frequent verb, *ik-* "go" (intransitive), had 17 examples. As one can see from Table 2, there were 11 intransitive verbs and seven transitive verbs. All of the transitive verbs were matched to the causal-agentive type. All of the intransitive verbs were matched to either the self-agentive type or to the non-agentive type. These results show that there is information in the input, not contained in either case marking or explicit NPs, that can allow a semantic grouping of action verbs predicting later syntactic classification.

This approach steers a course through two extreme theoretical positions. One extreme holds that children "recover thematic roles inherent in the described action" (Pinker 1984 p. 297). The other extreme holds that a child "assumes a thematic role only if it can be related to an appropriate phrase" (Borer & Wexler, 1987 p. 135). Both of these extremes lead to problems. The middle course charted in this paper holds that the two-year-old child assumes that one participant, the figure or patient, is related to an action predicate. The child does not assume that causers in the context are destined to become thematic roles. The child assumes that the intentionality of the figure or patient will be important, and pays attention to inflections and auxiliaries that imply the intention to act. When the child is faced with an inanimate figure or patient in the context and the morphological expression of intention, the child deduces that an agent is relevant to the predicate, even if the agent NP is missing from the sentence. Thus, the child may go beyond explicit NPs.

This account also makes developmental predictions for the acquisition of Japanese. First, the acquisition of inflections and auxiliaries that imply intention should proceed more rapidly than the acquisition of the case marking postpositions. Second, since the number and type of arguments a verb takes are related to semantic causal types, then errors in producing the correct number and type of

arguments should be fewer than errors in the production of case marking. Finally, one would not expect young Japanese children to use intransitive action verbs in the causal-agentive context, or transitive verbs in the self-agentive context.

As a first check on the plausibility of these predictions the action sentences of two Japanese children were examined, T and H. Each of the children were observed for a three month period: T (28-30 mo.) and H (22-24 mo.). One hour of tape recorded interaction with caregivers was transcribed per month for both boys. The sentences were coded in the same manner as adult sentences, and similar procedures were followed to increase the independence of these sentences as data points.

As can be seen from Table 1, T was very adult-like in the sparseness of explicit NPs and the rarity of case marking postpositions. Only 4% of T's intransitive sentences had NPs with nominative case marking. Only 8% (9) of T's transitive sentences had either nominative or accusative case marking. Not reported in Table 1 is the fact that T unconventionally produced two nominative case markers on figures and patients of transitive sentences. In contrast to the production of case marking, 36% (80) of T's sentences had inflections that imply intentional action. All uses of such inflections were appropriate. Also in contrast to the acquisition of case marking, T never produced an intransitive verb with a causer NP. The number and type of arguments were entirely appropriate. T produced 13 verbs five times or more: six intransitive and seven transitive verbs (Table 3). All of T's seven transitive verbs were matched to the causal-agentive type. None of T's intransitive verbs appeared in the causal-agentive context, and none of T's transitive verbs appeared in the self-agentive context.

As one can see from Table 1, H, the younger child, produced neither nominative nor accusative case marking. H never produced an intransitive verb with a causer NP. The number and type of arguments were always appropriate. Not reported in Table 1 is the fact that, H produced 10 inflections that imply intention, and all of these inflections were found on transitive verbs. All were used appropriately. The low number of such morphemes had an effect on the matching of H's verbs to semantic causal types. H produced 11 verbs five times or more, seven intransitive and four transitive verbs (Table 3). Of H's four transitive verbs, two were matched to the causal-agentive type. The other two were classified as non-agentive verbs. Still, there is evidence of semantic grouping. None of the intransitive verbs appeared in the causal-agentive context, and none of the transitive verbs appeared in the self-agentive context.

The course of development followed by H and T is consonant with this account of how action verb subcategorization is acquired. First, the acquisition of inflections and auxiliaries that imply intention proceeded more rapidly than the acquisition of the case marking postpositions. Second, the number and type of arguments which a verb took were always appropriate. In contrast there were two case marking errors in T's sample. Such errors have also been reported by Clancy (1986), but to the author's knowledge errors in the number and type of arguments have not been reported in the literature. Finally, these children did

not use intransitive action verbs in the causal-agentive context, or transitive verbs in the self-agentive context. Taken individually, none of these observations provide strong support for the present hypothesis. However, taken together, in conjunction with the facts of Japanese input, this account of the acquisition of action verb subcategorization seems quite plausible.

References

- Borer, H. & Wexler, K. (1987) The maturation of syntax. In T. Roeper and E. Williams (eds.) *Parameter setting*. Boston, Reidel.
- Clancy, P. (1986) The acquisition of Japanese. In D. Slobin (ed.) *The crosslinguistic study of language acquisition*. Hillsdale, Erlbaum.
- Golinkoff, R., Harding, C., Carlson, V., & Sexton, M. (1984) The infant's perception of causal events: the distinction between animate and inanimate objects. In L. Lipsitt & C. Rovee-Collier (eds.) *Advances in infancy research*, 3, 145-151. Norwood, Ablex.
- Kuno, S. (1973) *The structure of the Japanese language*. Cambridge, MIT Press.
- Okubo, A. (1967) *Yooji Gengo no Hattatsu*. Tokyo: Tookyoodoo.
- Okubo, A. (1981) *Yooji no Kotoba Shiryou (1): Nisai-Sansai Tanjoobi no Kotoba no Kiroku*. Kokuritsu Kokugo Kenkyuujoo.
- Pinker, S. (1984) *Language learnability and language development*. Cambridge, Harvard University Press.
- Rispoli, M. (in press) The acquisition of the transitive and intransitive action verb categories in Japanese. *First Language* v. 7, pt. 3.
- Soga, M. (1983) *Tense and aspect in modern colloquial Japanese*. Vancouver, University of British Columbia Press.
- Talmy, L. (1976) Semantic causative types. In M. Shibatani (ed.) *Syntax and Semantics*, 6, pp 43-113.

Table 1					
Frequency of Explicit Causer, Figure or Patient NPs and Case Marking in the Action Sentences of Japanese Caregivers and Two Children					
Sentence Type	Caregivers		Children		
			H (22-24 mo.)		T (28-30 mo.)
Intransitive Sentences	Freq.	%	Freq.	%	Freq. %
- figure / patient NP	97	.63	91	.92	77 .71
+ figure / patient NP					
- <i>ga</i>	50	.32	8	.08	27 .25
+ <i>ga</i>	8	.05	0	.00	4 .04
Total	155	1.00	99	1.00	108 1.00
Transitive Sentences	Freq.	%	Freq.	%	Freq. %
- causer, - figure / patient NP	44	.30	32	.56	44 .38
+ causer NP only					
- <i>ga</i>	19	.13	20	.35	6 .05
+ <i>ga</i>	6	.04	0	.00	1 .01
+ figure / patient NP only					
- <i>o</i>	48	.33	3	.05	51 .44
+ <i>o</i>	9	.06	0	.00	4 .03
+ causer, + figure / patient NPs					
- <i>ga</i> , - <i>o</i>	15	.10	2	.04	6 .05
+ <i>ga</i> , - <i>o</i>	3	.02	0	.00	4 .03
+ <i>o</i> , - <i>ga</i>	1	.01	0	.00	0 .00
+ <i>ga</i> , + <i>o</i>	0	.00	0	.00	1 .01
Total	145	1.00	57	1.00	117 1.00

Note: *ga* is the nominative case marking postposition, *o* is the accusative case marking postposition

Figure 1		
Expected Contexts for Semantic Causal Types		
Verb Morphology	Figure or Patient Animacy	
	Animate	Inanimate
Intentional	Self-Agentive	Causal Agentive
Non-intentional	Non-Agentive	Non-Agentive

Figure 2		
Observed Contexts of <i>hair</i> - "go in" (intransitive) <i>suwar</i> - "sit" (intransitive), and <i>ire</i> - "put in" (transitive) in Caregiver Sentences		
Verb Morphology	Figure or Patient Animacy	
	Animate	Inanimate
Intentional	<i>suwar</i> - (intransitive)	<i>ire</i> - (transitive)
Non-intentional	<i>suwar</i> - (intransitive) <i>hair</i> - (intransitive)	<i>ire</i> - (transitive) <i>hair</i> - (intransitive)

Table 2			
Observed Contexts of Verbs Used Five Times or More By Caregivers			
Verb Type	Observed Contexts		
Transitive Verbs	Causal-Agentive	Self-Agentive	Non-Agentive
age- "give"	y	0	y
ire- "put in"	y	0	y
kake- "hang"	y	0	y
tabe- "eat"	y	0	y
tor- "take"	y	0	0
nom- "drink"	y	0	y
mot- "hold"	y	0	y
Intransitive Verbs			
asob- "play"	0	y	y
ik- "go"	0	y	y
kaer- "come back"	0	y	y
ne- "go to sleep"	0	y	y
suwar- "sit"	0	y	y
hair- "go in"	0	0	y
hashir- "run"	0	0	y
koware- "break"	0	0	y
shin- "die"	0	0	y
tore- "come off"	0	0	y
tsuk- "stick to"	0	0	y

Note: y = appeared in context at least once, 0 = did not appear in context

Table 3			
Observed Contexts of Verbs Used Five Times or More By Children H and T			
Child H's Verbs			
Verb Type	Observed Contexts		
Transitive Verbs	Causal Agentive	Self-Agentive	Non-Agentive
nom-"drink"	y	0	y
tsukur-"make"	y	0	y
kak-"write"	0	0	y
mot-"hold"	0	0	y
Intransitive Verbs			
de-"go out"	0	0	y
hair-"go in"	0	0	y
ik-"go"	0	0	y
koware-"break"	0	0	y
mawar-"turn"	0	0	y
tomar-"stop"	0	0	y
tat-"stand"	0	0	y
Child T's Verbs			
Verb Type	Observed Contexts		
Transitive Verbs	Causal-Agentive	Self-Agentive	Non-Agentive
har-"spread"	y	0	y
ire-"put in"	y	0	y
kak-"write"	y	0	y
mot-"hold"	y	0	y
tabe-"eat"	y	0	y
tor-"take"	y	0	y
tsuke-"put on"	y	0	y
Intransitive Verbs			
ik-"go"	0	y	y
kaer-"come back"	0	y	y
ne-"go to sleep"	0	y	y
nor-"ride"	0	y	y
hair-"go in"	0	0	y
tomar-"stop"	0	0	y

Note: y = appeared in context at least once, 0 = did not appear in context