Early use of the past marker *-ta* in L1 speakers of Japanese

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Abstract

This paper has two aims: first, to provide a unified representation that explains the various uses of the past form in Japanese and, second, to describe how the semantic range of the past tense form expands in the course of L1 acquisition by children. We argue that in all its uses the Japanese past tense is essentially a perfect. Its apparent range of uses can all be derived pragmatically from this basic use. We then use this account to analyse the course of the development of past tense usage by Japanese children. The results of an analysis of three longitudinal corpus data (Miyata 1992, 1995, 2000) reveal that all children followed the same path. Initially they used the past form to refer to a situations that happened just before the time of utterance, then to refer to situations which occurred well before the time of the utterance, and finally, to refer to the post phase of situation which exists at the time of utterance. We argue that the knowledge of aspectualities plays a role in this path of acquisition.

1. Introduction

Over the last thirty years the acquisition of tense and aspect markers has been widely discussed in many languages. A great deal of this research has focused on the correlation between the appearance of tense/aspect marking and situation/lexical aspect. This research eventually led to the formulation of the Aspectual Hypothesis (Andersen & Shirai 1996, Shirai 1991, 1993, 1994, 1998, 2002, Shirai & Andersen 1995, Shirai & Kurono 1998). The Aspectual Hypothesis proposes that there is a cross-linguistic tendency early in the acquisition process for a correlation between past marking and telic verbs like *fall* or *break*, encoding a change of state, and between nonpast imperfective marking and non-telic verbs like *eat* or *drink*.

Shirai & Miyata (2006) studied cases of verbs in which both past and other forms were used at the same developmental stage in order to examine children's cognitive development of past concept. Their results reveal that the initial use of the past form is not to denote the "deictic past", but rather the "perfect".

In their analysis, Shirai & Miyata (2006) draw a distinction between the past use and perfect use. However, as argued elsewhere in the literature (Kudo 1995), the two meanings "perfect" and "past" cannot be clearly separated. Moreover, the choice between the two interpretations often depends on linguistics and non-

linguistic context. In order to understand how the use of the past form "expands" during acquisition in a fashion that does not depend on it having truly distinct "meanings", it is crucial to have a unified representation that can account for various meanings of Japanese past forms in *-ta*. With this in mind the two objectives of this paper are first to offer a unified representation of the meaning of the past form in Japanese, and second, to use this representation to develop an account of the process of meaning expansion during acquisition for past tense forms in *-ta*.

2. Tense in Japanese

Both tense and aspect are expressed by affixes and auxiliary verbs in Japanese. The simplest version of the tense and aspect paradigm in Japanese is often summarised as in Table 1 (Kudo, 1995: 36). In this paradigm the tense system is divided into past–nonpast, and aspect into perfective–imperfective.

Table 1: Japanese tense and aspect paradigm (Kudo 1995: 36)

	perfective[1]	imperfective
nonpast	*-ru*	*-teiru*
past	*-ta*	*-teita*

The past form *-ta* in Japanese evolved from an earlier perfect morpheme and now serves both as the perfect and past. In the following section, we suggest a unified representation that covers both its past and perfect meanings, and we argue that all uses can be represented as PERFECT. Nonetheless, we continue to refer to *-ta* as the "past form" in keeping with the term generally used in the literature.

2.1 Framework

This section employs Klein's (1992) framework for the representation of tense and aspect. Klein's framework is fundamentally an extension of the classic framework proposed initially by Reichenbach (1947). Klein maintains a ternary representation, TU (the time of utterance), TSit (the time of situation) and TT (the topic time), corresponding to Reichenbach's S (speech point), E (event point) and R (reference point) respectively, as shown in Table 2.

Table 2: Comparison between Reichenbach and Klein

Reichenbach (1947)	Klein (1992)
Reference point (henceforth R)	Topic Time (henceforth TT)
Speech point (henceforth S)	Time of Utterance (henceforth TU)
Event point (henceforth E)	Time of Situation (henceforth TSit)

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[1] Tense is expressed by the nonpast/past pairs *-ru/-ta* for verbs, *i/katta* for adjectives and *da/datta* for nouns. In verbal, copular and adjectival clauses, speakers must choose between the unmarked nonpast and the marked past forms; gerunds and bare nouns by contrast are understood as nonpast.

Apart from the change in terminology, Klein's (1992) categorisation differs from Rechenbach's in three respects. Firstly, instead of using a point of time as the basic unit, Klein uses the time interval. Secondly, Klein gives a detailed definition of TT, which corresponds to Reichenbach's R. TT is defined as "the time span to which the claim made on a given occasion is constrained" (p. 537) or "the time to which the assertion made by the utterance is confined" (Klein 2000: 364). Secondly, Klein argues for the strict separation of tense from aspect. "Tense imposes a temporal constraint on the claim made in an utterance. Aspect relates the time of the situation to the time for which a claim is made" (1992: 537-8). In other words, tense is the category that represents the relation between TU and TT, while aspect is the category that represents the relation between TT and TSit. In Klein's system, the basic tense and aspect distinctions are defined as follows:

(1)   Klein's representation of tense and aspect (Klein 1992: 536-537)

Tense : the relation between TT and TU
    PAST: TT before TU
    FUTURE: TT after TU
    PRESENT: TT includes TU

Aspect : the relation between TT and TSit
    PERFECTIVE: TT including end of TSit and beginning of time after TSit[2]
    IMPERFECTIVE: TT properly included in TSit

2.2   The past form in Japanese

This section argues that the past form *-ta* can be semantically represented as PERFECT based on Klein's (1994) characterisation of perfect as 'TT is in the posttime of TSit'. The term posttime refers to "the time after Tsit" (Klein 1994: 109); that is, 'perfect' can also be interpreted as TT situated in a time subsequent to Tsit.

This representation raises two questions. First, how can this representation of 'perfect' be made to cover both the perfect and the past readings? Second, how can this representation be compatible with the tense-aspect paradigm shown above in Table 1. Due to limitations of space, however, we only deal with the first question. The additional question will be dealt with in a future paper (see Kubo submitted).

(2)   PERFECT: TT is in the posttime of Tsit (Klein 1994: 109)

The representation of *-ta* by (2) allows it to have both past and perfect interpretations. For example, (3) can have both a perfect (3a) and a past (3b) interpretations.

(3)   *wokka o   takusan nonda   no*
    vodka ACC a lot   drink.PST FP
    a. 'I've drunk a lot of vodka'
    b. 'I drank a lot of vodka'

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[2] In Klein's discussion, PERFECT differs from PERFECTIVE. For further discussion see Klein (1992: 109).

A speaker would use the meaning (3a) when trying to explain why she is a bit 'tipsy'. The same sentence can be understood as (3b) when, for instance, she was talking about a particular time in her youth and some of the activities she engaged in. Following Klein's (2000) account of the past and perfect readings of the German Perfekt (perfect), we claim that two readings of (3) can be obtained respectively by focusing on differences in the scope of a temporal operator POST (Klein 2000: 369) arising from the representation of the perfect (2). POST is the temporal operation that maps posttimes onto temporal intervals that is a part of the given property of an argument. In the perfect reading (3a), the scope of POST can be represented as (4a) and in the past reading (3b) as (4b).

(4)   *wokka o   takusan nonda   no*
        vodka ACC a lot   drink.PST FP
        a. I [POST [drink vodka]]
        b. POST [I drink vodka]

In the perfect reading, represented as (4a), POST is only assigned to the verb phrase, that is *drinking vodka*. The subject *I* is at TT. By contrast, in the past reading, represented as (4b), POST is assigned to the entire predicate of the speaker drinking a bottle of vodka. Which interpretation is assigned to the sentence is a matter of pragmatic inference, of the context in which it was uttered and/or the intention of the speaker.

Figure 1 represents a model of the structure of aspectual phases of situations. It is clear that all aspectual phases and boundaries are not necessarily involved in all situations. When unbounded situations (e.g. 'run'), which do not inherently have either an inception and a final boundary, are used with the past form *-ta*, a final boundary is inserted pragmatically to create the posttime of the situation.

Figure 1: The structure of aspectual phases of situations (Ritz 2007: 143)
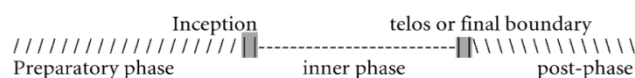
Let us now turn to the details of the uses of *-ta*. Again because of limitations of space, we will only examine the three uses of *-ta* that were observed in the child language data.

2.2.1 Remote past

The remote past use is illustrated by (5), which exemplifies a typical past tense clause. TT is in the posttime of Tsit, which is the time of the action of going to the zoo. At the same time, TU is interpreted as remote from TSit.

(5)   *kinou   doobutsuen ni itta*
        yesterday zoo   DIR go.PST
        'I went to zoo yesterday'

This explanation of the past form *-ta* as a perfect can be problematic in explaining the past form with a stative situation such as (6) where the situation "crow being black" holds true unchangingly (7a). In order to put TT in the posttime of Tsit, then,

it is necessarily to have Tsit hypothetically bounded, giving rise to the speaker's subjective situation (7b).

(6)   *Karasu wa   kurokatta*
         Crow   TOP   black.PST
         'The/A crow was black'

(7)   (a) objective situation
        (b) subjective situation

CROW	BEING	BLACK
	CROW BEING BLACK	posttime of Tsit
	Tsit	TT

In (6), a speaker makes a claim with a topic time confined to a time after interval when he or she recognised the crow as black (that is, TT in the posttime of Tsit) (7b). For example, (6) might possibly be a statement by a person who has just seen a crow for the first time. However, this subjective situation is not necessary if the colour of the bird is now white, that is the final boundary naturally arises. But if it is the case that a speaker is making a claim about the colour of crows in general independent of any particular experience, the adjective should not be in the past form.

2.2.2 Recent past

In contrast to the previous example, where a TSit was understood to be located in a past time relatively distant from TU, example (8) is intended to refer to a situation that occurred just before TU. This use is often employed in one-word sentences without any explicit argument(s). For example, a speaker sees that something has just dropped, and says:

(8)   *Ochita*
         drop.PST
         'It dropped/has dropped'

Consider now a situation in which a speaker has just found a book she had been looking for (9). As noted in the discussion of (7) above, when an unbounded situation is expressed with a past form, a posttime must pragmatically be inferred in the subjective situation corresponding to the objective situation of an existing a book. Example (9) only expresses the fact that the time concerning which the speaker is making the claim is in the posttime of the situation for which the book's existence is relevant.

(9)   *Atta*
         exist.PST
         'It was there!'

In order to understand this sentence correctly, the situation that 'a book exists' must be given a subjective final boundary. Given that the situation is expressed as a one-word sentence, in the context in which the speaker is perhaps surprised to have just found the book and the way the sentence is uttered as one-word sentence, it can be inferred that the speaker intends only a certain limited time of "book existing". The inference that he has found the book then arises.

2.2.3 Post phase reference

This use is different from the two previous uses. These earlier uses locate the situation actually named at some point in the recent or more remote past. The post-phase use, by contrast, refers to a situation subsequent to, and consequent on the situation named in the asserted clause, though that post-phase situation is not itself explicitly identified in the clause. Consider a situation in which the speaker is hungry. Sentence (10) semantically asserts that, at some unspecified time, the speaker's stomach has emptied itself. This is stated in order to invite hearers to assume that currently the speaker is in a state which is the most likely post-phase of the asserted situation; that is, that the speaker is in fact currently hungry, although this is not stated. In order to use and understand this sentence, a speaker needs to understand both the causal and the temporal relation between the situation asserted and the likely subsequent post phase situation.

(10) *Onaka   suita*
       stomach empty.PST
       'My stomach emptied itself' = (I am hungry)

3.   Corpus study

3.1   Data

As we have seen, a range of uses of the past form can be explained in a unified manner using a representation of *-ta* as a perfect. We now turn to an analysis of the child language data. We have analysed the data in three longitudinal studies from CHILDES (MacWhinney 1985, 2000). These three data sets (TAI, AKI, RYO[3]) were originally recorded and coded by Miyata (1992, 1995, 2000). The data were recorded approximately once a week, and each session lasted almost one hour. All data are interactions between parents, the experimenter and the individual children. These same data have also been analysed by Shirai & Miyata (2006).

A selection from the data was made in order to isolate those instances in which the children used the past form spontaneously. Firstly, we excluded past forms which appeared with other aspectual forms, such as the imperfective form *-tei(ru)*. Secondly, we excluded forms that appeared as a result of repetition. Repetition here means a word or phrase contained in an immediately preceding declarative or interrogative utterance by the child or caregiver. In some cases, a child repeated an earlier utterance, but not immediately preceding utterances of a parent or caregiver. Unless it was completely clear that this was a repetition, we did not exclude those cases. We also ruled out past forms that appeared as part of songs or stories children recited.

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[3] Each set of data is named after the child that was being recorded.

Table 3: Details of analysed data

	Age analysed	Number of analysed data	Average rate of analysed past form out of all past forms	Rate of the analysed data as a whole
AKI	1;05-3;00	54	43.46%	52.78% (561/1063)
RYO	1;05-3;00	69	40.91%	38.14% (344/902)
TAI	1;05-3;00	76	45.41%	43.41% (1109/2555)

Data were grouped according to each child's age in months. The forms analysed under the restrictions described above were between 38.95% and 51.24% of the total number of past forms in the data, averaged over the individual monthly samples.

Table 4: Details of the past form analysed

|	AKI		TAI		RYO	
	N of recording	N of targeted forms	N of recording	N of targeted forms	N of recording	N of targeted forms
1;05	1	0	2	18	2	0
1;06	1	0	3	17	4	0
1;07	1	0	3	44	3	0
1;08	1	1	2	47	3	0
1;09	1	0	4	86	4	0
1;10	1	0	4	63	5	12
1;11	1	0	4	50	3	3
2;00	3	1	4	81	4	35
2;01	3	9	5	75	4	25
2;02	4	56	4	62	4	27
2;03	5	76	4	79	4	20
2;04	4	42	3	50	3	10
2;05	3	31	4	51	5	41
2;06	3	33	4	67	4	25
2;07	4	57	5	94	4	30
2;08	4	35	2	26	5	33
2;09	5	52	5	72	4	28
2;10	4	89	3	48	4	17
2;11	4	52	3	51	4	21
3;00	1	10	2	28	3	16

As explained above, targeted forms were grouped into three categories: remote past, recent past, and post phase use, based on the most likely interpretation in context. The recent past was identified when the sentence was uttered immediately upon the situation occurring. The remote past was identified when the sentence referred to a past situation that was further removed from the 'here and now'. Finally, the post phase use was identified when it was clear that the result of the situation was in force at TU. In instances where the context was not clear, the datum was categorised as "unidentifiable".

3.2 Results

The results show that all children expand the uses of *-ta* in the same order, first the recent past, then the remote past, and finally the post phase use (See Table 5 and Figure 2). That is, children begin using *-ta* to mark situations as occurring just prior to TU. They then extend its use to include all situations occurring prior to TU, whether or more remote from TU. Finally, *-ta* is used to label the post phase of a situation even though that post phrase is not explicitly asserted in the clause.

Table 5: Distribution of each use (Recent past/Remote past and Post phase) of *-ta* observed in Aki, Tai and Ryo data

AGE	AKI			TAI			RYO		
	Recent Past(%)	Remote Past(%)	Post Phase(%)	Recent Past(%)	Remote Past(%)	Post Phase(%)	Recent Past(%)	Remote Past(%)	Post Phase(%)
1;05				72.22	0.00	0.00			
1;06				82.35	0.00	0.00			
1;07				88.64	2.27	0.00			
1;08	100.00	0.00	0.00	78.72	10.64	0.00			
1;09				82.56	5.81	0.00			
1;10				68.25	3.17	0.00	100.00	0.00	0.00
1;11				92.00	2.00	0.00	66.67	0.00	0.00
2;00	100.00	0.00	0.00	86.42	4.94	1.23	94.29	2.86	0.00
2;01	77.78	0.00	0.00	68.00	8.00	1.33	84.00	24.00	0.00
2;02	98.21	0.00	0.00	56.45	12.90	9.68	85.19	11.11	0.00
2;03	81.58	13.16	0.00	74.68	16.46	1.27	70.00	5.00	5.00
2;04	88.10	11.90	0.00	76.00	12.00	0.00	70.00	20.00	10.00
2;05	83.87	3.23	0.00	80.39	7.84	1.96	56.10	24.39	7.32
2;06	66.67	21.21	9.09	71.64	14.93	0.00	48.00	36.00	4.00
2;07	50.82	14.75	26.23	73.40	18.09	5.32	76.67	13.33	0.00
2;08	48.57	11.43	28.57	92.31	7.69	0.00	48.48	30.30	12.12
2;09	53.45	18.97	13.79	72.22	16.67	2.78	32.14	46.43	7.14
2;10	57.30	21.35	15.73	54.17	29.17	8.33	58.82	29.41	5.88
2;11	54.24	15.25	18.64	68.63	21.57	3.92	61.90	33.33	4.76
3;00	80.00	0.00	10.00	46.43	39.29	10.71	56.25	25.00	0.00

Figure 2: Distribution of each use of *-ta* observed in Aki, Tai and Ryo data
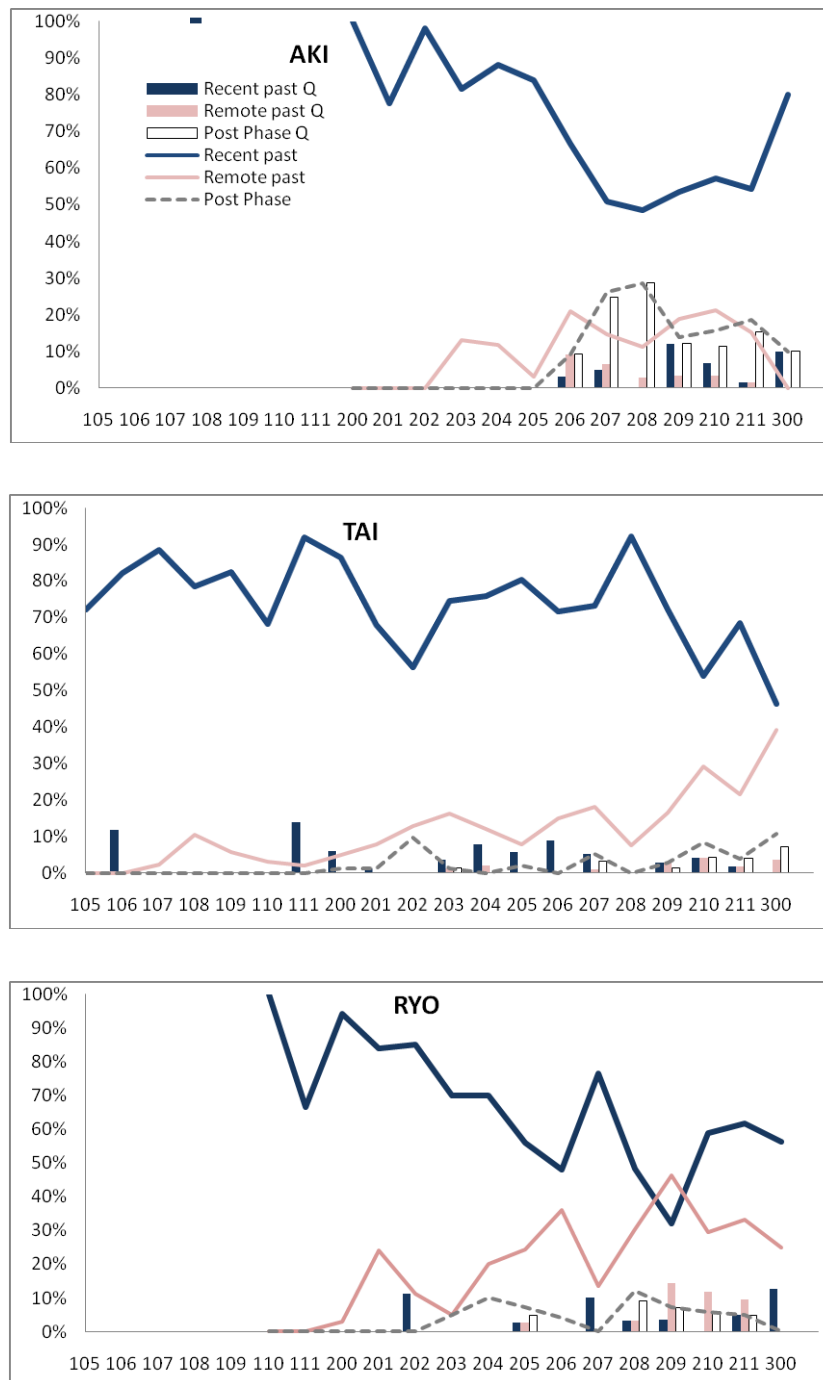
After the children begin to develop other uses the frequency of the recent past decreases, however, a consistent decrease of recent past use is not observed. For example, the Ryo data showed the strongest tendency toward a gradual decrease in the use of the recent past. However at 2;07 his use of the recent past increased markedly. Similar phenomena can be observed at 3;00 in the Aki data. This may be attributable to the nature of the data. Recording were made approximately one hour per a week. That is, data may have been strongly affected by the topic they engage in at the time of the recording. Given these considerations, our focus of attention rests on the order in which the different uses appear, rather than on the relative frequency of each use in the data.

Example (11) below exemplifies the recent past use. The verb *atta* 'exist' was particular frequent in this use at the initial stages. For example, the past form used in the first two months of Aki and Ryo data, 9 out of 11 instances of the past form in the Aki data between 1;08 and 2:01 and 5 out of 15 instances in the Ryo data between 1;10 and 1;11 involved *atta*.[4]

(11)[5] They are looking at photos. Tai is looking for a photo of his father. Finally he finds it.

Mum: *Taishoo, ue. soko. shashin. Totto no shashin aru jan, Taishoo, soko.*
    'Tai up there. That photo. There is a photo of daddy. Tai. There.'

Tai: *koko* **ita**   (he found daddy's photo)
       here   exist.PST
       'There he was (intended meaning: There he is)'   [TAI 1;05.20]

The remote past use is very clear in example (12) below. This is one of the earliest examples in which Tai uses the remote past. Mother mentions an occasion in which strawberries were carried at Tai's grandparents' home, which reminds Tai of the rice cake making which also happened when he visited them.

(12) A toy truck reminded them of the day they visited Tai's grandparents.

Mum: *baachan to Jiichan to hakonda desho, ichigo. torakku de*
    'you carried strawberries by a truck with granny and grandpa, didn't you?'

Tai: *omochi*   **tsuita.**
       rice cake   stick.PST
       '(We) made a rice cake'

Mum: *omochi tsuita? soo soo soo. omochi tsuita yo ne, ano toki ne.*
    '(We) made a rice cake? Right, right, we made a rice cake that day didn't we?'   [TAI 1;08.17]

The post phase use is exemplified by (13). Such examples are rare in the normal speech of adults. Adults would simply say "*tabemono* (food)" rather than Tai's more complex utterance. Note that Tai corrects himself in the second part of his utterance. It is clear that what Tai has in mind here is a reference to the post phrase of the asserted "stomach emptying" situation and not that situation itself.

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[4] It was evident that 6 of the 18 occurrences of the past form observed in the first month of the Tai data (1;05) were *atta*. However, it appears that Tai's development occurs earlier in comparison to the other children. In addition his corpora do not include the initial phase of his use of the past form.

[5] In these examples, the target expressions are in bold and are given a morpheme by morpheme gloss. However, only the translation is given for the other utterances.

(13)   Tai and mother are playing with plastic foods and animals. Tai is preparing food.

Tai: *onaka*   ***suita***   *no*   *aru*   *yo*
       stomach empty.PST   GEN   exist. NONPST   FP
       'There is something for hungry stomach' (intending that 'there is food')

       koko wa tabemono
       'here is (for) food'   [TAI 2;07.07]

Note that this use tends to appear first with a limited number of verbs: *suita* (empty.PST) and *itta* (go.PST) appeared in all three children's data. The question is whether these cases are formulas which have been learned as unanalysed wholes, rather than spontaneous instances of the post phase past. *Suita* (empty.PST) was only used in combination with stomach. *Itta* (go.PST) also appeared in "*doko itta*", "where go.PST" to indicate that some object the child is looking for is currently not present. In the Tai data, however, *itta* (go.PST) was used as a recent past and as a remote past before it was used in post phase past constructions. It can be argued, therefore, that Tai's post phase uses are not exclusively a result of rote learning. Even though children may have learned some of these phrases as unanalysed 'chunks', it is still interesting to find that the post phase use appeared much later than other uses.

We observed that there appears to be a relation between the frequency of the post phase use and that of yes/no-questions.[6] In the earliest data, question forms were not often observed, but they become more evident in later data. Bar graphs in Figure 2 represent the proportions of instances of recent and remote past yes/no-questions, as well as of post phase yes/no- and wh-questions. These graphs show that the use of yes/no-questions increases once the post phase usage begins to appear. In other words, the children employ all past form uses in statements much earlier than in questions. In statements, speakers are typically describing situations they have experienced directly, while in yes/no-questions, speakers are constructing utterances based on their assumptions about a hearers' experience.

The post phrase past and yes/no-questions are similar in that the speaker is relying on assumptions about the situation named, in the former case about its likely consequence and in the latter about the hearer's ability to verify the content.

4.   Discussion

Why do all children demonstrate the same path of past form use acquisition? One possible explanation can be located in the development of knowledge relating to the aspectual phase structure of situations.

Children initially used the past form when referring to situations which happened just before the utterance. They later apply it to refer to situations which occurred a great deal earlier than the time of the utterance. Finally, the past form is used to refer to the post phase of a situation which exists at the time of the utterance.

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[6] Yes/no-questions are marked by a rising tone without any syntactic marking or movement.

The recent past requires the direct experience of a situation that is present at the time of utterance, whereas the remote past demands that speakers bring to consciousness as topic in which the situation was far removed from the time of the utterance. That is, speakers are required to have an image of the situation as a whole. The post phase past demands that speakers are capable of inferring the likely present consequence of some past situation. Thus, the acquisition of tense and aspect should also be argued from the knowledge of aspectualities.

This conclusion is supported by observations regarding the rate of usage of question forms. In question forms, speakers refer to situations they may not have directly experienced. In affirmative sentences observed here, children construct an utterance based on their direct experience. On the other hand, in yes/no-questions, children have to construct an event in their mind without necessarily having directly experienced it.

The conclusions drawn from this research do not contradict the claims that have been made in past studies. Indeed, the data presented here are much in accord with that presented in studies such as Smith (1980) and Weist (1986). Weist (1986) proposed that children use the recent past before the remote past cross-linguistically. This observation follows from the restricted conceptual world of early childhood. Initially, a child's conceptual system is limited to the "here and now", a fact that influences possible uses of the past form in early child acquisition (Smith 1980, Weist 1986). The present paper highlights the importance of knowledge of aspect phases in explaining the course of past form development, in particular the relatively late development of the post phase past. Furthermore, we also note the importance of the development of the ability to make inferences about situations based on their aspectual phases. We therefore suggest that more attention should be paid to these two elements in future research.

One possible direction for future research might be to further investigate relation of the development of pragmatic knowledge to that of the past form. Stative situations which are reported in the recent past require both speakers and hearers to consider one another's epistemic domains. In Vinnitskaya & Wexler's (2001) study of the acquisition of the Russian aspect, children (3yrs–6yrs) showed an understanding of pragmatic meanings different from that of adult speakers, even after they had acquired the core semantic meaning of the imperfective aspect. Until now, there has been no research on the relation of the development of the past form in Japanese. One hopes that such research, especially in an experimental setting, will be useful to this field.

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Abbreviations

The following abbreviations have been used in the glosses in this paper: PST Past tense form; NONPST Non past tense form; COP Copula; TOP Topic marker; LOC Locative; DIR Directional; GEN Genitive; FP Final particle.

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