

**Determining without Determiners:  
A Discourse-Level Approach to Interpreting Japanese NPs**

by John Manna

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Dr. Maria Bittner

## Determining without Determiners: A Discourse-Level Approach to Interpreting Japanese NPs

### I. Introduction

In English, pronouns are used to reintroduce centered NP referents into the discourse, as in (from Bittner 2003):

- (1) *Pedro*<sup>1</sup> owns *a donkey*<sup>2</sup>.  
*It*<sup>2</sup> kicked *him*<sup>1</sup>.

Here we see a classic example where we are able to unambiguously interpret the reference of ‘it’ and ‘him’ as the highest (= ‘most salient’) NPs in the stacks that each could possibly refer to:

- (2a) It...  
[ | ¬PERSON<sub>r</sub><*dβ*>];...
- (2b) ...him.  
[ | MALE<sub>r</sub><*dα*>];... (Bittner 2003)

These logical translations capture the ability of a single pronoun ‘it’ to refer to the last-mentioned NP that fulfills the characteristics of not being a person as well as being a  $\beta$ -entity, here the ‘donkey’ introduced in the first sentence. Likewise, ‘him’ can be interpreted as referent to the centered male personified  $\alpha$ -entity, here ‘Pedro.’

In Japanese, however, there is no such system; in fact, it could be argued that Japanese does not even have determiners at all. There are no determiners used with NPs:

- (3) *Aoki wa inu o mita.*  
Aoki-TOP dog-ACC see-PST  
‘Aoki saw a/the dog.’

and the words that would translate into languages such as English as “pronouns” do not act as pronouns do in other languages:

- (4) *Kono shizuka na watashi ga*  
 this-GEN silent-ADJ 1SG-NOM  
 “this silent I...”

as is here evidenced by the ability of Japanese pronouns to be modified by both a demonstrative and an adjective.

In light of this evidence, it follows that the role of pronouns in (1) is not filled by overt morphological pronouns in Japanese. Rather, the language uses null-pronounced elements to take on this role, as in:

- (5a) *Kouen ni aruita toki, Aoki wa inu o mita.*  
 Park-LOC walk-PST when Aoki-TOP dog-ACC see-PST  
 ‘When **he** was walking through the park, Aoki saw a dog.’
- (5b) *Soredemo, neko wa minakatta.*  
 However cat-TOP see-NEG-PST  
 ‘However, **he** didn’t see any cats.’

Here we see that the word ‘he’ in English is used where Japanese uses no NP to refer to the centered topic, ‘Aoki.’ Since we have only one centered topic, it is unnecessary to use an NP in order to convey the right meaning.

Furthermore, the difference between a kind-level, general meaning of an NP and a specific entity NP is not overtly marked in Japanese either:

- (6) *Kouen ni aruita toki, Aoki wa inu o mita.*  
 Park-LOC walk-PST when Aoki-TOP dog-ACC see-PST  
 ‘When he was walking through the park, Aoki saw a dog.’ OR  
 ‘When he was walking through the park, Aoki saw the dog.’ OR  
 ‘When he was walking through the park, Aoki saw his dog.’ OR  
 ‘When he was walking through the park, Aoki saw some dog.’ OR  
 ‘When he was walking through the park, Aoki saw some dogs.’ OR  
 ...

I propose that the meaning of empty NP slots in Japanese is interpreted according to discourse-level factors such as centering and topic, just as pronouns do in English. In a

similar fashion, semantic elements such as “in/definiteness” can also be interpreted on a discourse level without the help of overt DPs.

## II. Predictions from the data

Using a simple set of discourses, where some include previous introduction of NPs, such as specific vs. general referents, while others do not, we can show that the discourse markings (TOPIC, notably) can force interpretation even without the presence of an overt determiner. To begin with, we will start with a plain discourse (repeated from (5)):

- (7a) *Kouen ni aruita toki, Aoki wa inu o mita.*  
 Park-LOC walk-PST when Aoki-TOP dog-ACC see-PST  
 ‘When **he** was walking through the park, Aoki saw a dog.’
- (7b) *Soredemo, neko wa minakatta.*  
 However cat-TOP see-NEG-PST  
 ‘However, **he** didn’t see any cats.’

Without any background, the discourse can be interpreted in any of the following ways:

- (7c) When he was walking through the park, Aoki saw **a** dog.  
 However, he didn’t see **a** cat/**any** cats.<sup>1</sup>
- (7d) When he was walking through the park, Aoki saw **the** dog.  
 However, he didn’t see **the** cat.
- (7e) When he was walking through the park, Aoki saw **some** dogs.  
 However, he didn’t see **any** cats.

(7c-e) illustrate an anaphor-like relationship in terms of “in/definiteness” between sentences (7a-b), so this could be seen as an instance of modal anaphora as in Stone (1997). Henceforth I will refer to instances like (7c,e), with a general/non-specific dog or cat referent under the general term “**kind noun**” (as per Bittner 2003) and instances like (7b) under the term “**specific noun**” in order to remove other implications of using “in/definite NPs,” as this is the distinction I will focus on in this paper.

<sup>1</sup> The difference between “a cat” and “any cats” here is less a difference in the targeted “in/definiteness” relationship than a difference in what wording is most comfortable in English to convey the general, non-specific meaning of the indefinite article.

If the discourse is changed slightly, removing the topic marker from the second sentence and replacing it with the plain accusative marker, we see the following results:

- (8a) *Kouen ni aruita toki, Aoki wa inu o mita.*  
 Park-LOC walk-PST when Aoki-TOP dog-ACC see-PST
- (8b) *Soredemo, neko o minakatta.*  
 However cat-ACC see-NEG-PST

The referential abilities of these NPs are thus reduced to exclude the kind-level reading:

- (8c) When he was walking through the park, Aoki saw **the** dog.  
 However, he didn't see **the** cat.

is the only possible interpretation, which presupposes that such a construction is only allowed if a specific dog and a specific cat exist in the common ground of the speaker and hearer.

### III. Logical Predictions

The predictions outlined in the previous section follow from a proper set of logical calculations in LCC<sub>7</sub>. If we begin by introducing a specific dog and a specific cat into the discourse, both (7a-b) and (8a-b) can continue the discourse:

- (9) *Aoki no inu to neko wa kouen ni dekaketa.*  
 Aoki-GEN dog-&-cat-TOP park-to run.away-PST  
 'Aoki's dog and cat ran away to the park.'

- $i = \langle w_i, \top_0, \perp_0 \rangle$  (after start up)
- $\top_0$
- dε**  $e_0$   $\varepsilon$  in  $w_i$ : speech event
- dα**  $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*
- $\perp_0$
- *Aoki...*
- [ | NAME.OF<sub>r</sub>  $\langle \mathbf{d}\alpha, Aoki \rangle$  ]; ... (presupp. Aoki)
- Con* • NAME.OF<sub>wi</sub> ( $a_0, Aoki$ ) (test  $i$ : ✓)
- [in  $w_i$ ,  $a_0$  is a man named *Aoki*.]

- $\dots^1 no$   
 $\dots^1 [s \ b | own_r \langle s, \mathbf{d}\alpha, b \rangle];$  (update to  $j_1$ )  
 $j_1 = \langle w_i, \top_1, \perp_1 \rangle$   
 $\top_1$
  - d $\varepsilon$**   $e_0$   $\varepsilon$  in  $w_i$ : speech event
  - d $\alpha$**   $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*  
 $\perp_1$
  - d $\sigma$**   $s_0$   $\sigma$  in  $w_i$ :  $a_0$  own  $b_0$
  - d $\beta$**   $b_0$   $\beta$
  - Con** • OWN $_{w_i}(s_0, a_0, b_0)$   
[in  $w_i$ ,  $s_0$  is a state in which  $a_0$  owns  $b_0$ ]
- $\dots^1 inu$   
 $\dots [ | dog_r \langle d\beta \rangle];$  (test  $j_1$ )  
 $j_1 = \langle w_i, \top_1, \perp_1 \rangle$   
 $\top_1$
  - d $\varepsilon$**   $e_0$   $\varepsilon$  in  $w_i$ : speech event
  - d $\alpha$**   $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*  
 $\perp_1$
  - d $\sigma$**   $s_0$   $\sigma$  in  $w_i$ :  $a_0$  own  $b_0$
  - d $\beta$**   $b_0$   $\beta$  (surviving  $j_1$ )
  - Con** • DOG $_{w_i}(b_0)$   
[in  $w_i$ ,  $b_0$  is a dog]
- $\dots^2 to$   
 $\dots^2 [ b | own_r \langle s, \mathbf{d}\alpha, b \rangle];$  (update to  $j_2$ )  
 $j_2 = \langle w_i, \top_2, \perp_2 \rangle$   
 $\top_2$
  - d $\varepsilon$**   $e_0$   $\varepsilon$  in  $w_i$ : speech event
  - d $\alpha$**   $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*  
 $\perp_2$
  - d $\sigma$**   $s_0$   $\sigma$  in  $w_i$ :  $a_0$  own  $b_0 \& b_1$
  - d $\beta$**   $b_0$   $\beta$  in  $w_i$ :  $b_0$  is a dog
  - d $\beta$**   $b_1$   $\beta$
  - Con** • OWN $_{w_i}(s_0, a_0, b_0 \& b_1)$   
[in  $w_i$ ,  $s_0$  is a state in which  $a_0$  owns  $b_0$  and  $b_1$ ]
- $\dots^2 neko$   
 $\dots [ | cat_r \langle d\beta \rangle];$  (test  $j_2$ )

		$j_2 = \langle w_i, T_2, \perp_2 \rangle$	
		$T_2$	
<b>dε</b>	$e_0$	ε in $w_i$ : speech event	
<b>dα</b>	$a_0$	α: $w_i$ -man named <i>Aoki</i>	
		$\perp_2$	
$d\sigma$	$s_0$	σ in $w_i$ : $a_0$ own $b_0$	
$d\beta$	$b_0$	β in $w_i$ : $b_0$ is a dog	
$d\beta$	$b_1$	β	(surviving $j_2$ )
<i>Con</i>	•	$CAT_{w_i}(b_1)$ [in $w_i$ , $b_1$ is a cat]	
	•	... <i>wa</i> ...[ $s E \mid E_{1r} \langle s, d\beta \rangle$ ];	(update to $j_3$ )
		$j_3 = \langle w_i, T_3, \perp_3 \rangle$	
		$T_3$	
<b>dε</b>	$e_0$	ε in $w_i$ : speech event	
<b>dα</b>	$a_0$	α: $w_i$ -man named <i>Aoki</i>	
		$\perp_3$	
$d\sigma$	$s_0$	σ in $w_i$ : $b_0 \& b_1 E_1$	
	$s_1$	σ in $w_i$ : $a_0$ own $b_0$	
$d\beta$	$b_0$	β in $w_i$ : $b_0$ is a dog	
$d\beta$	$b_1$	β in $w_i$ : $b_1$ is a cat	
<i>Con</i>	•	[in $w_i$ , $s_0$ is a state in which $b_0$ and $b_1$ did $E_1$ ]	
	•	... <i>kouen ni dekaketa.</i> ...[   <i>into(park)(run.away<sub>r</sub>(<math>E_1</math>))</i> ];	(test $j_3$ )
		$j_3 = \langle w_i, T_3, \perp_3 \rangle$	
		$T_3$	
<b>dε</b>	$e_0$	ε in $w_i$ : speech event	
<b>dα</b>	$a_0$	α: $w_i$ -man named <i>Aoki</i>	
		$\perp_3$	
$d\sigma$	$s_0$	σ in $w_i$ : $b_0 \& b_1 E_1$	
	$s_1$	σ in $w_i$ : $a_0$ own $b_0$	
$d\beta$	$b_0$	β in $w_i$ : $b_0$ is a dog	
$d\beta$	$b_1$	β in $w_i$ : $b_1$ is a cat	(surviving $j_3$ )
<i>Con</i>	•	[in $w_i$ , $s_0$ is a state in which $b_0$ and $b_1$ ran away into the park]	

And so we have an info state that includes a dog and cat that have already been introduced. Continuing into the second sentence of the discourse (beginning in the matrix):

- (10) *Kouen ni aruita toki, Aoki wa inu o mita.*  
 Park-LOC walk-PST when Aoki-TOP dog-ACC see-PST  
 ‘While he was walking in the park, Aoki saw his dog.’

- $j_3 = \langle w_i, \top_3, \perp_3 \rangle$   
 $\top_3$   
**dε**  $e_0$   $\varepsilon$  in  $w_i$ : speech event  
**dα**  $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*  
 $\perp_3$   
**dσ**  $s_0$   $\sigma$  in  $w_i$ :  $b_0$ & $b_1$  ran away into the park  
 $s_1$   $\sigma$  in  $w_i$ :  $a_0$  own  $b_0$   
**dβ**  $b_0$   $\beta$  in  $w_i$ :  $b_0$  is a dog  
**dβ**  $b_1$   $\beta$  in  $w_i$ :  $b_1$  is a cat
  
- *Aoki...*  
 $[ \mid \text{NAME.OF}_r \langle \mathbf{d}\alpha, \textit{Aoki} \rangle ]; \dots$  (presupp. *Aoki*)
  
- Con* •  $\text{NAME.OF}_{w_i}(a_0, \textit{Aoki})$  (test  $j_3$ : ✓)  
 $[\text{in } w_i, a_0 \text{ is a man named } \textit{Aoki}.]$
  
- $\dots wa$   
 $\dots [s E \mid E_{2r} \langle s, \mathbf{d}\alpha \rangle ];$  (update to  $j_4$ )  
 $j_4 = \langle w_i, \top_4, \perp_4 \rangle$   
 $\top_4$   
**dε**  $e_0$   $\varepsilon$  in  $w_i$ : speech event  
**dα**  $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*  
 $\perp_4$   
**dσ**  $s_0$   $\sigma$  in  $w_i$ :  $a_0 E_2$   
 $s_1$   $\sigma$  in  $w_i$ :  $b_0$ & $b_1$  ran away into the park  
 $s_2$   $\sigma$  in  $w_i$ :  $a_0$  own  $b_0$   
**dβ**  $b_0$   $\beta$  in  $w_i$ :  $b_0$  is a dog  
**dβ**  $b_1$   $\beta$  in  $w_i$ :  $b_1$  is a cat
  
- Con* •  $[\text{in } w_i, s_0 \text{ is a state in which } a_0 \text{ did } E_2]$
  
- $\dots inu$

	...	[   DOG <sub>r</sub> ( $d\beta$ );...	(presup. <i>inu</i> )
<i>Con</i>	•	DOG <sub>w<sub>i</sub></sub> ( $b_0$ )	(test $j_4$ : ✓)
	•	... <i>o</i> ...[   E <sub>2r</sub> ( $s, \mathbf{d}\alpha, d\beta$ );... $j_5 = \langle w_i, \top_5, \perp_5 \rangle$ $\top_5$	(update to $j_5$ )
<b>dε</b>		$e_0$ ε in $w_i$ : speech event	
<b>dα</b>		$a_0$ α: $w_i$ -man named <i>Aoki</i> $\perp_5$	
<i>dσ</i>		$s_0$ σ in $w_i$ : $a_0 E_2 b_0$ $s_1$ σ in $w_i$ : $b_0 \& b_1$ ran away into the park $s_2$ σ in $w_i$ : $a_0$ own $b_0$	
<i>dβ</i>		$b_0$ β in $w_i$ : $b_0$ is a dog	
<i>dβ</i>		$b_1$ β in $w_i$ : $b_1$ is a cat	
<i>Con</i>	•	[in $w_i$ , $s_0$ is a state in which $a_0 E_2 b_0$ ]	
	•	... <i>mita</i> . ...[   see <sub>r</sub> ( $E_2$ )] $j_5 = \langle w_i, \top_5, \perp_5 \rangle$ $\top_5$	(test $j_5$ : ✓)
<b>dε</b>		$e_0$ ε in $w_i$ : speech event	
<b>dα</b>		$a_0$ α: $w_i$ -man named <i>Aoki</i> $\perp_5$	
<i>dσ</i>		$s_0$ σ in $w_i$ : $a_0 E_2 b_0$ $s_1$ σ in $w_i$ : $b_0 \& b_1$ ran away into the park $s_2$ σ in $w_i$ : $a_0$ own $b_0$	
<i>dβ</i>		$b_0$ β in $w_i$ : $b_0$ is a dog	
<i>dβ</i>		$b_1$ β in $w_i$ : $b_1$ is a cat	(surviving $j_5$ )
<i>Con</i>	•	[in $w_i$ , $s_0$ is a state in which $a_0$ saw $b_0$ ]	

Through this derivation, we see that the dog Aoki sees is the specific  $b_0$  introduced in the first sentence. In the second sentence, we can use either the TOP or ACC to extract the bottom-stack cat back into the discourse:

- (11) *Soredemo, neko o minakatta.*  
 However cat-ACC see-NEG-PST  
 ‘However, he didn’t see his cat.’

- $j_5 = \langle w_i, \top_5, \perp_5 \rangle$   
 $\top_5$
- d** $\varepsilon$   $e_0$   $\varepsilon$  in  $w_i$ : speech event
- d** $\alpha$   $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*  
 $\perp_5$
- d** $\sigma$   $s_0$   $\sigma$  in  $w_i$ :  $a_0$  saw  $b_0$   
 $s_1$   $\sigma$  in  $w_i$ :  $b_0$ & $b_1$  ran away into the park  
 $s_2$   $\sigma$  in  $w_i$ :  $a_0$  own  $b_0$
- d** $\beta$   $b_0$   $\beta$  in  $w_i$ :  $b_0$  is a dog
- d** $\beta$   $b_1$   $\beta$  in  $w_i$ :  $b_1$  is a cat

Because there is no overt subject, the understood (*Aoki wa*) from the previous sentence, coupled with the fact that there is a new utterance, creates a new state  $s_0$ , which the accusative modifies to include itself:

- $\dots neko$   
 $\dots [ \mid \text{CAT}_r \langle d\beta \rangle ]; \dots$  (presup. *neko*)
- Con** •  $\text{CAT}_{w_i}(b_1)$  (test  $j_5$ : ✓)
- $\dots o$   
 $\dots [ \mid E_{3r} \langle s, \mathbf{d}\alpha, d\beta \rangle ]; \dots$  (update to  $j_6$ )  
 $j_6 = \langle w_i, \top_6, \perp_6 \rangle$   
 $\top_6$
- d** $\varepsilon$   $e_0$   $\varepsilon$  in  $w_i$ : speech event
- d** $\alpha$   $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*  
 $\perp_6$
- d** $\sigma$   $s_0$   $\sigma$  in  $w_i$ :  $a_0 E_3 b_1$   
 $s_1$   $\sigma$  in  $w_i$ :  $a_0$  saw  $b_0$   
 $s_2$   $\sigma$  in  $w_i$ :  $b_0$ & $b_1$  ran away into the park  
 $s_3$   $\sigma$  in  $w_i$ :  $a_0$  own  $b_0$
- d** $\beta$   $b_0$   $\beta$  in  $w_i$ :  $b_0$  is a dog
- d** $\beta$   $b_1$   $\beta$  in  $w_i$ :  $b_1$  is a cat
- Con** • [in  $w_i$ ,  $s_0$  is a state in which  $a_0 E_3 b_1$ ]
- $\dots mi \dots$   
 $\dots [ \mid \text{see}_r \langle E_3 \rangle ]; \dots$  (test  $j_6$ : ✓)  
 $j_6 = \langle w_i, \top_6, \perp_6 \rangle$

	$\top_6$		
<b>dε</b>	$e_0$	ε in $w_i$ : speech event	
<b>dα</b>	$a_0$	α: $w_i$ -man named <i>Aoki</i>	
	$\perp_6$		
<b>dσ</b>	$s_0$	σ in $w_i$ : $a_0 E_3 b_1$	
	$s_1$	σ in $w_i$ : $a_0$ saw $b_0$	
	$s_2$	σ in $w_i$ : $b_0 \& b_1$ ran away into the park	
	$s_3$	σ in $w_i$ : $a_0$ own $b_0$	
<b>dβ</b>	$b_0$	β in $w_i$ : $b_0$ is a dog	
<b>dβ</b>	$b_1$	β in $w_i$ : $b_1$ is a cat	(surviving $j_6$ )

*Con* • [in  $w_i$ ,  $s_0$  is a state in which  $a_0$  saw  $b_1$ ]

• ...-*nakatta*.  
 ...[ | **not**  $\langle d\sigma \rangle$ ] (update to  $j_7$ )

$j_7 = \langle w_i, \top_7, \perp_7 \rangle$

	$\top_7$		
<b>dε</b>	$e_0$	ε in $w_i$ : speech event	
<b>dα</b>	$a_0$	α: $w_i$ -man named <i>Aoki</i>	
	$\perp_7$		
<b>dσ</b>	$s_0$	σ in $w_i$ : $a_0$ did not see $b_1$	
	$s_1$	σ in $w_i$ : $a_0$ saw $b_0$	
	$s_2$	σ in $w_i$ : $b_0 \& b_1$ ran away into the park	
	$s_3$	σ in $w_i$ : $a_0$ own $b_0$	
<b>dβ</b>	$b_0$	β in $w_i$ : $b_0$ is a dog	
<b>dβ</b>	$b_1$	β in $w_i$ : $b_1$ is a cat	

*Con* • [in  $w_i$ ,  $s_0$  is a state in which  $a_0$  did not see  $b_1$ ]

In the topic-variant of (11), it is possible to use the following formulation of *wa* to refer

to a specific *dβ*; this topic marker creates the state  $s_0$ :

(11') *Soredemo, neko wa minakatta.*  
 However cat-TOP see-NEG-PST  
 'However, he didn't see his cat.'

• ...  
 ...*wa*  
 ...[  $s E$  |  $E_{3r} \langle s, \mathbf{d}\alpha, d\beta \rangle$  ]; ... (update to  $j_6$ )  
 $j_6 = \langle w_i, \top_6, \perp_6 \rangle$

	$T_6$	
<b>dε</b>	$e_0$	ε in $w_i$ : speech event
<b>dα</b>	$a_0$	α: $w_i$ -man named <i>Aoki</i>
	$\perp_6$	
<b>dσ</b>	$s_0$	σ in $w_i$ : $a_0 E_3 b_1$
	$s_1$	σ in $w_i$ : $a_0$ saw $b_0$
	$s_2$	σ in $w_i$ : $b_0 \& b_1$ ran away into the park
	$s_3$	σ in $w_i$ : $a_0$ own $b_0$
<b>dβ</b>	$b_0$	β in $w_i$ : $b_0$ is a dog
<b>dβ</b>	$b_1$	β in $w_i$ : $b_1$ is a cat

*Con* • [in  $w_i$ ,  $s_0$  is a state in which  $a_0 E_3 b_1$ ]

This relation is warranted, as the null subject can be retrieved as the topical agent **dα**, while the topic marker reintroduces **dβ** just as the accusative marker<sup>2</sup> would. Because we have a specific cat in mind, the topic and accusative markers work in the same way.

#### IV. *Starting a discourse cold*

When we start a discourse “cold” in Japanese—that is, without an introductory utterance—we allow only for the “kind” reading in this pair of sentences due to the anaphoric nature of the kind/specific reading. When uttering (10) without introducing the dog and cat as in (9), we cannot allow *inu o* to refer to a specific dog, but rather only to a generic dog-kind:

(10') *Kouen ni aruita toki, Aoki wa inu o mita.*  
 Park-LOC walk-PST when Aoki-TOP dog-ACC see-PST  
 ‘While he was walking in the park, Aoki saw a dog/some dogs.’

<sup>2</sup> The topic marker may take the place of the accusative in this instance, due to the contrastive nature of not only the word ‘however’ but also the negation at the end. A method of capturing these characteristics in LCC<sub>7</sub> is at present beyond me.

- $i = \langle w_i, \top_0, \perp_0 \rangle$  (after start up)
- $\top_0$
- d** $\varepsilon$   $e_0$   $\varepsilon$  in  $w_i$ : speech event
- d** $\alpha$   $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*
- $\perp_0$
- $\dots Aoki$
- [ | NAME.OF<sub>r</sub>  $\langle \mathbf{d}\alpha, Aoki \rangle$  ]; ... (presupp. Aoki)
- Con* • NAME.OF<sub>w<sub>i</sub></sub> ( $a_0, Aoki$ ) (test  $i$ : ✓)
- [in  $w_i, a_0$  is a man named *Aoki*.]
- $\dots wa$
- $\dots [s E | E_{1r} \langle s, \mathbf{d}\alpha \rangle]$ ; (update to  $j_1$ )
- $j_1 = \langle w_i, \top_1, \perp_1 \rangle$
- $\top_1$
- d** $\varepsilon$   $e_0$   $\varepsilon$  in  $w_i$ : speech event
- d** $\alpha$   $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*
- $\perp_1$
- d** $\sigma$   $s_0$   $\sigma$  in  $w_i$ :  $a_0 E_1$
- Con* • [in  $w_i, s_0$  is a state in which  $a_0$  did  $E_1$ ]
- $\dots inu$
- $\dots [ | DOG_r \langle k^\beta \rangle ]$ ; ... (*inu*)
- Con* • DOG<sub>w<sub>i</sub></sub> ( $k^\beta$ ) (test  $j_1$ : ✓)
- $\dots o$
- $\dots [ | E_{1r} \langle s, \mathbf{d}\alpha, k^\beta \rangle ]$ ; ... (update to  $j_2$ )
- $j_2 = \langle w_i, \top_2, \perp_2 \rangle$
- $\top_2$
- d** $\varepsilon$   $e_0$   $\varepsilon$  in  $w_i$ : speech event
- d** $\alpha$   $a_0$   $\alpha$ :  $w_i$ -man named *Aoki*
- $\perp_2$
- d** $\sigma$   $s_0$   $\sigma$  in  $w_i$ :  $a_0 E_1 k^\beta$
- Con* • [in  $w_i, s_0$  is a state in which  $a_0 E_1 k^\beta$ ]
- $\dots mita.$
- $\dots [ | see_r \langle E_1 \rangle ]$  (test  $j_2$ : ✓)

	$j_2 = \langle w_i, \top_2, \perp_2 \rangle$	
	$\top_2$	
<b>dε</b>	$e_0$	ε in $w_i$ : speech event
<b>dα</b>	$a_0$	α: $w_i$ -man named <i>Aoki</i>
	$\perp_2$	
<b>dσ</b>	$s_0$	σ in $w_i$ : $a_0 E_1 k^\beta$ <span style="float: right;">(surviving <math>j_2</math>)</span>
<i>Con</i>	•	[in $w_i$ , $s_0$ is a state in which $a_0$ saw $k^\beta$ ]

Failing a specific  $d\beta$ , the accusative has no choice but to point to a kind-noun. Since there is no specific cat having been introduced, it is only natural to assume that the cat to be mentioned in (11) or (11') will also be a kind-noun. Unfortunately, it is impossible to introduce a second  $k^\beta$  without using the topic marker to reassign the value of  $k^\beta$ , since the accusative marker cannot change the state  $s_0$  on its own:

	(11)	<i>*Soredemo, neko o minakatta.</i>	
		However cat-ACC see-NEG-PST	
		*'However, he didn't see any cats.'	
•		$j_2 = \langle w_i, \top_2, \perp_2 \rangle$	
		$\top_2$	
<b>dε</b>		$e_0$	ε in $w_i$ : speech event
<b>dα</b>		$a_0$	α: $w_i$ -man named <i>Aoki</i>
		$\perp_2$	
<b>dσ</b>		$s_0$	σ in $w_i$ : $a_0$ saw $k^\beta$
•		<i>...neko</i>	
		$\dots[   \text{CAT}_r \langle k^\beta \rangle ]; \dots$	( <i>inu</i> )
<i>Con</i>	•	$\text{DOG}_{w_i}(k^\beta)$	(test $j_1$ : $\bullet^{\text{sc}}$ )
•		<i>...o</i>	
		$\dots[   E_{2r} \langle s, \mathbf{d}\alpha, k^\beta \rangle ]; \dots$	(update to $j_2$ )
		$j_2 = \langle w_i, \top_2, \perp_2 \rangle$	
		$\top_2$	
<b>dε</b>		$e_0$	ε in $w_i$ : speech event
<b>dα</b>		$a_0$	α: $w_i$ -man named <i>Aoki</i>
		$\perp_2$	
<b>dσ</b>		$s_0$	σ in $w_i$ : $a_0 E_1 k^\beta$

*Con* • [in  $w_i$ ,  $s_0$  is a state in which  $a_0 E_1 k^\beta$ ]  
 ...

However, with the ability of the topic marker to change the kind of  $k^\beta$ , we can achieve a kind-noun reading of the contradictory phrase:

(11') *Soredemo, neko wa minakatta.*  
 However cat-TOP see-NEG-PST  
 'However, he didn't see any cats.'

...

• ...*wa*  
 ...[  $s E | E_{2r} \langle s, \mathbf{d}\alpha, k^{\beta 2} \rangle$ ];... (update to  $j_2$ )  
 $j_2 = \langle w_i, \top_2, \perp_2 \rangle$

$\top_2$   
**dε**  $e_0$  ε in  $w_i$ : speech event  
**dα**  $a_0$  α:  $w_i$ -man named *Aoki*  
 $\perp_2$   
**dσ**  $s_0$  σ in  $w_i$ :  $a_0 E_2 k^{\beta 2}$   
 $s_1$  σ in  $w_i$ :  $a_0$  saw  $k^\beta$

*Con* • [in  $w_i$ ,  $s_0$  is a state in which  $a_0 E_2 b_1$ ]  
 ...

## V. Conclusion

Since Japanese doesn't have the morphological clues to kind versus specific reading that languages with definite/indefinite determiners have, a hearer must rely on other methods to pick up the same type of meaning from an utterance. By using the ability of the topic marker to redefine an information state, coupled with the anaphoric nature of the kind/specific reading across sentences, and contrasting it with the accusative marker's inability to change the information state in such a way, it is possible to achieve a similar kind/specific dichotomy, even without the use of a determiner.

*References:*

- Bittner, Maria. 2001. "Topical Referents for Individuals and Possibilities". *Proceedings of SALT XI*, 36-55. CLC. [pdf at <http://www.rci.rutgers.edu/~mbittner/Pages/DynamicXLS.html>]
- Bittner, Maria. 2003. "Word Order and Incremental Update". To appear in *Proceedings of CLS 39*. [pdf at <http://www.rci.rutgers.edu/~mbittner/Pages/DynamicXLS.html>]
- Stone, Matthew. 1997. "The Anaphoric Parallel between Modality and Tense". IRCS Report 97—06. [pdf at <http://www.cs.rutgers.edu/~mdstone/compsem.html>]