

A-chain Maturation Reexamined:

Research on A-chain in Japanese: floated numeral quantifiers.

- (0-1) a. Gakusei-ga san-nin sake-o nonda.
student-NOM 3-CL_{SUB} sake-ACC drank
'Three students drank sake.'
- b. *Gakusei-ga sake-o san-nin nonda.
student-NOM sake-ACC 3-CL_{SUB} drank
'Three students drank sake.' (Haig 1980; Kuroda 1980)
- c. Hon-o gakusei-ga go-satu katta.
book-ACC student-NOM 5-CL_{OBJ} bought
'Students bought five books.' (Haig 1980, Kuroda 1980)
- (0-2) a. Kuruma_i-ga doroboo-ni t_i san-dai nusum-are-ta.
cars-NOM thief-by 3-CL steal-PASS-PST
'Three cars were stolen by a thief.'
- b. Doa_i-ga konokagi-de t_i futa-tu aita.
door-NOM this key-with 2-CL opened
'Two doors opened with this key.'
- c. *Kodomo-ga geragerato san-nin waratta.
kids-NOM loudly 3-CL laughed
'Three kids laughed.' (Miyagawa 1989)

Case drop in acquisition (Miyamoto, Wexler, Aikawa, Miyagawa (1999))

1. Introduction

Sano (2000), Sano, Endo, & Yamakoshi (2001), Okabe & Sano (2002), and Sano (2003) argue against the A-Chain Deficit Hypothesis (hereafter, the ACDH) (Borer & Wexler 1987, 1992), which states that A-chains are ungrammatical for a child until a certain age or level of maturation. Their major argument against the ACDH is based on experiments using what they call "Full unaccusatives" and "Full passives" in Japanese, which are shown in (1).

- (1) a. Buta-san ga zou-san ni tukamat-ta. (full unaccusative)
Pig NOM elephant by catch (unacc.)-PAST
'The pig was caught by the elephant.'

- b. Buta-san ga zou-san ni tukamae-rare-ta. (full passive)
 Pig NOM elephant by catch (v.t.)-PASS-PAST
 'The pig was caught by the elephant.'
 (Sano, 2000:7)

Children have much easier time with unaccusatives than with the passive.

Two possibilities, both rejected by Sano, etc.

(A) The “unergative misanalysis” in which unaccusatives are misanalyzed as unergatives, hence ACDH does not inhibit comprehension (Borer and Wexler (1987), Babyonyshev, Ganger, Pesetsky and Wexler (2001)). Sano (2000) and Sano, Endo & Yamakoshi (2001) suggest that this cannot account for the early development of Full unaccusatives because children behave differently between unaccusatives and unergatives concerning the omission of nominative *ga*.

(B) Sano (2000) and Sano, Endo, and Yamakoshi (2001) argue against the non-raising misanalysis (Miyamoto, Wexler, Aikawa and Miyagawa (1999)), in which the nominative NP of the unaccusative sometimes (when *ga* is missing) does not raise. They point out that children do not produce sentences such as (2a) and they do not have any problem in interpreting transitives with null objects as in (2b).

- (2) a. *Zou-san ga buta-san ga sizume-ta.
 elephant NOM pig * sank
 'The elephant sank the pig.'
 (Sano 2000: 16)
- b. Zou-san ga (~~buta-san-ø~~) umeta ka na?
 Elephant NOM (pig ACC) buried Q
 'Did the elephant bury (pro)?'
 (Sano, Endo, & Yamakoshi 2001: 674)

If it is possible for the nominative NP of an unaccusative to stay in its complement position, we should also see the nominative case marking on the direct object of transitives as in (2a), according to Sano, etc., something that is not attested in any significant measure.

2. A-chain maturation in Japanese

Taken from “A-chain Maturation Reexamined: Why Japanese Children Perform Better on “Full” Unaccusatives Than on Passives,” Nanako Machida, Nanzan University/Massachusetts Institute of Technology, Shigeru Miyagawa, Massachusetts Institute of Technology, Kenneth Wexler, Massachusetts Institute of Technology
 2005, Aniko Csirmaz, Andrea Gualmini and Andrew Nevins (Eds.)
 "Plato's problems. Papers in language acquisition" MITWPL 48

2.1 Unaccusatives and the nominative case drop phenomenon

Miyamoto et al.(1999) and Ito and Wexler (2002

- (3) Rates of Nom omission for NPs according to verb type

Lexical unaccusatives	<i>aru</i> (there's)	<i>nai</i> (there isn't)	Other verbs
63%(47/75)	76%(25/33)	95%(42/44)	23%(13/57)

(Miyamoto et al.: 450, Table 4)

Nom *ga* omission is much higher with lexical unaccusatives and existentials than with other verbs.

Ito and Wexler (2002) did a similar study of nominative marker omission. They used a different corpus—the transcripts of a Japanese child, Sumihare, during ages 1;11-3;7 (MacWhinney 2000; Noji 1973-77). Their study is particularly important in examining the nominative case omission at a later stage. (4) shows the results of their study that are relevant here.

- (4) Rates of nominative omission according to verb type

	unaccusatives	existentials	unergatives/ transitives
1;11-2;1	90.6	88	80.8
2;2-3;0	34.2	32.7	17.6
3;1-3;7	9.1	11.0	7.9

(Ito and Wexler 2002: 36, Table 7, raw frequencies omitted)

- (5) Three stages of nominative Case-marker omission in child Japanese

The first stage, ages 1;11-2;1

Nominative case marking is omitted both in unaccusatives and unergatives/transitives.

The second stage, ages 2;2-3;0

Nominative case marking is much more frequently omitted for unaccusatives than for unergatives/transitives.

The third stage, ages 3;1-3;7.

The omission rate of nominative markers is not different between the two categories.

3. Development of A-chains

Sano's (2000) comprehension experiment: two native speakers of Japanese act out scenarios with two animal puppets in front of a subject and one experimenter asks the subject a yes-no question about what happened.

(6) Unaccusatives and passives

	G1 3;1 – 3;8	G2 3;10 – 4;7	G3 4;6 – 6;0	Total
tukamaeru (v.t.)	58.3% (7/12)	87.5% (14/16)	87.5% (14/16)	79.5% (34/44)
tukamaru (unacc.)	53.8% (7/13)	76.9% (10/13)	87.5% (14/16)	73.8% (31/42)
tukamaerareru (pass)	54.5% (6/11)	50% (7/14)	62.5% (10/16)	56.1% (23/41)

(Sano, 2000:14, Table 4)

Sano presents this as evidence against the ACDH because both unaccusatives and passives involve an A-chain.

There are at least two problems here. First, Sano (2000) uses only *tukamaru* 'catch_{unaccusative}' as an example of a "full" unaccusative. In fact "full" unaccusatives – those that allow an "agentive" *-ni* phrase — are extremely rare. Sano, Endo and Yamakoshi (2001) also use *mitukaru* 'find', which they claim has the same pattern of acquisition as *tukamaru* 'catch'. We are not aware of other "full" unaccusatives in the language. Second, while giving up on the ACDH is one option, that per se can only explain the pattern in (6). It would have nothing to say about the discovery in Ito and Wexler (2003) that the pattern of nominative case marker drop suggests that unaccusatives begin behaving like unergatives at around the age of three. As mentioned already, a plausible way to explain this is that at this stage ACDH is still in effect, hence there is no grammatical A-chain. The children therefore "misanalyze" the unaccusatives as unergatives in order to avoid violation of the ACDH.

There is one crucial point Sano does not mention concerning the unaccusative verb *tukamaru* 'get caught'. There exists a homophone of the unaccusative verb *tukamaru*. Note that *tukamaru* in (7) is an unergative verb that means 'hold on to (something).'

- (7) Taroo-wa sikkari roopu-ni tukamat-ta.
Tao—Nom firmly rope-to catch-Past
'Taroo took a firm hold on the rope.'

- (8) (=1a) Buta-san-ga zoo-san-ni tukamat-ta. (full unaccusative)
 Pig-NOM elephant-by catch (unacc.)-PAST
 'The pig was caught by the elephant.'

The unergative verb *tukamaru* 'hold on to (something)' in (7) is not tested in Sano (2000), but the children would not have a problem in interpreting (7) because it does not involve an A-chain

Observe other unaccusative verbs in (9). They further confirm that children can start interpreting unaccusatives early, at the age of three. Even G1 children perform well in understanding unaccusatives, which is consistent with our hypothesis that the unergative misanalysis is available once children reach the age of three.

- (9) Unaccusatives

	G1 3;1 – 3;8	G2 3;10 – 4;7	G3 4;6 – 6;0	Total
sizumu 'sink'	78.6% (11/14)	87.5% (14/16)	100% (16/16)	89.1% (41/46)
agaru 'rise'	92.9% (13/14)	100% (16/16)	100% (16/16)	97.8% (45/46)
Unaccusative (total)	85.7% (24/28)	93.8% (30/32)	100% (32/32)	93.5% (86/92)

(Sano, 2000:12, Table 2)

The children in Sano's (2000) experiment performed almost perfectly on the unergatives as shown in (10), which is expected.

- (10) Unergatives

	G1 3;1 – 3;8	G2 3;10 – 4;7	G3 4;6 – 6;0	Total
naku 'cry'	100% (14/14)	100% (16/16)	93.8% (15/16)	97.8% (45/46)
warau 'laugh'	76.9% (10/13)	100% (16/16)	100% (16/16)	93.3% (42/45)
Unergative: (total)	88.9% (24/27)	100% (32/32)	96.9% (31/32)	95.6% (87/91)

(Sano, 2000:10, Table 1)

Note that the unaccusative verb *agaru* 'rise' has a homophone, the unergative verb *agaru* 'go up, climb'. *Sizumu* 'sink' arguably has a homophone *sizumu* 'go down'.

Summary:

- (11) a. Nominative case omission shows that the NP is not raised for unaccusatives because A-chains are not fully formed for young children under three. (Miyamoto et al. 1999, Ito and Wexler 2002);
- b. Children start utilizing the structure of unergatives to interpret unaccusatives in the third year. Therefore, nominative case omission reduces to the level of transitive/unergatives at this stage. Their interpretation of unaccusatives improves once they acquire the unergative strategy.
- c. Passives are delayed because A-chains are not fully formed throughout the three stages.

4. Syntax of Full Unaccusatives

- (12) a. Buta-san ga zou-san ni tukamat-ta. (full unaccusative)
Pig NOM elephant by catch (unacc.)-PAST
'The pig was caught by the elephant.'
- b. Buta-san ga zou-san ni tukamae-rare-ta. (full passive)
Pig NOM elephant by catch (v.t.)-PASS-PAST
'The pig was caught by the elephant.'
- (Sano, 2000:7)
- (13) a. Buta-san ga zou-san ni mitukat-ta. (full unaccusative)
pig Nom elephant found (unacc.)-Past
'The pig was found by the elephant.'
- b. Buta-san ga zou-san ni mituke-rare-ta.
pig Nom elephant-by find (v.t.)-Pass-Past(full passive)
'The pig was found by the elephant.'
- (Sano, Endo and Yamakoshi 2001)

Sano (2000) and Sano, Endo and Yamakoshi (2001) show that the children in their experiment perform better with Full unaccusatives than with Full passives. They claim that this poses a problem for the ACDH because both Full unaccusatives and Full passives involve an A-chain.

4.1 *Ni*-phrase as PP

- (14) *gakusei-ga sake-o san-nin nonda.
student-Nom sake-Acc 3-CL drank
'Three students drank sake.'

Miyagawa argues that the same requirement accounts for the distinction between NP and PP, as seen in (15) (cf. Shibatani 1978).

- (15) a. *boku-wa sono hanasi-o gakusei-kara san-nin kii-ta.
I-TOP that story-ACC student-from three-CL hear-PAST
'I heard the story from three students.'
- b. gakusei-ga san-nin sono hanasi-o sensei-kara kii-ta.
Students-NOM three-CL story-ACC teacher-from hear-PAST
'Three students heard the story from the teacher.'

Examples in (16) show that the *ni*-phrase with both the Full unaccusative and the Full passives are PPs.

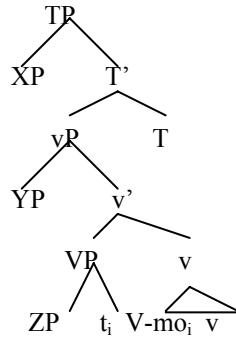
- (16) a. *gakusei-ga sensei-ni san-nin tukamat-ta.
student-NOM teacher-by three-CL catch (unacc.)-PAST
'The students are caught by three teachers.'
- b. *gakusei-ga sensei-ni san-nin tukamae-rare-ta.
student-NOM teacher-by three-CL catch-PASS-PAST
'The students are caught by three teachers.'

4.2 Syntactic positions of the *ni*-phrases

- (17) a. Taroo-wa nani-o kai-mo si-nakat-ta.
Taroo-TOP what-ACC buy-Q do-NEG-PAST
'Taroo did not buy anything.'
- b. *Dare-ga Hanako-o home-mo si-nakat-ta.
Anyone-NOM Hanako-ACC admire-NEG-PAST
'Anyone did not admire Hanako.'
- (Kishimoto 2001:600)

- (18) Y is in the domain of a head X if it is contained in Max (X), where Max (X) is the least full-category maximal projection dominating X.
(Kishimoto 2001: 601)

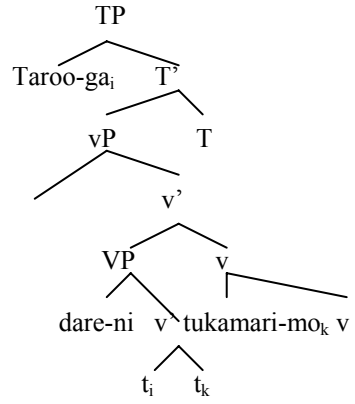
(19)



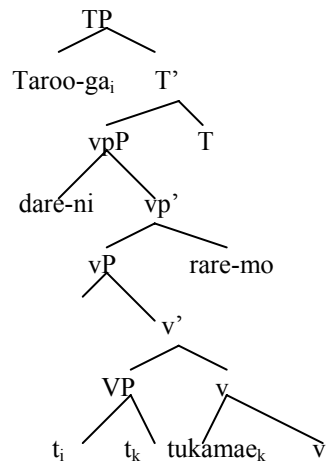
(Kishimoto: 602 (10))

- (20) a. Taroo-wa dare-ni tukamari-mo si-nakat-ta.
Taroo-TOP anyone-by caught-Q do-NEG-PAST
'Taroo was not caught by anyone.'
- b. Taroo-wa dare-ni tukamae-rare-mo si-nakat-ta.
Taroo-TOP anyone-by catch-Pass-Q do-NEG-PAST
'Taroo was not caught by anyone.'
- c. *Taroo-wa dare-ni tukamae-mo s-are-nakat-ta.
Taroo-TOP anyone-by catch-Q do-PASS-NEG-PAST
'Taroo was not caught by anyone.'

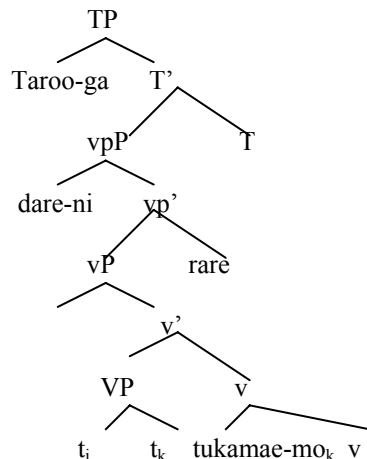
(21) Full unaccusative (=20a)



(22) Full passive (=20b)



(23) Full passive (20c)



When a focus element such as *-sae* ‘even’/ *-dake* ‘only’ attaches to the verb, the scope of the focus element is limited to the VP (Kuroda 1970, Ogino 1990, Aoyagi 1999).

- (24) Taroo-ga [VP hon-o kaesi]-sae sita.
 Taro-NOM [VP book-ACC return]-even did
 (i) ‘Taro returned even the book.’
 (ii) ‘Taro even returned the book.’
 (iii) *‘Even Taro returned the book.’

- (25) a. Taroo-ga omawari-san-ni tukamari-sae sita.
 Taro-NOM policeman-DAT caught(unacc.)-even light-verb
 ‘Taro was caught even by a policeman.’

- b. Taroo-ga omawar-san-ni tukamae-sae s-are-ta.
 Taro-Nom policeman-DAT caught (tr.)-even light-verb-PASS
 ‘Taro was even CAUGHT by the policeman.’

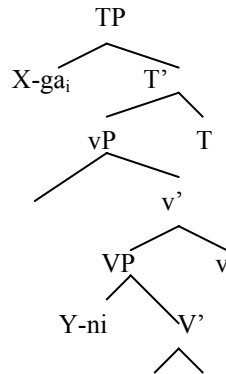
In (25a) with the unaccusative *tukamari* ‘catch’, the *ni*-phrase “by the policeman” is clearly in the scope of *-sae* ‘even’, showing again that the *ni*-phrase is selected by the unaccusative and occurs in the VP headed by the unaccusative. In (25b), *-sae* ‘even’ attaches to the transitive verb *tukamae* ‘catch’, which is passivized. As we can see, the *ni*-phrase here is outside the scope of the verb, so that the only item that can be focused is the verbal head.

- (26) Taroo-ga omawari-san-ni tukamae-rare-sae sita.
 Taro-NOM policeman-DAT catch-PASS-eve light-verb

‘Taro was caught even by a policeman.’

4.3 The unergative misanalysis and the structure of Full unaccusative

(27) Full unaccusative



Since the *ni*-phrase lies within the VP and is selected by the unaccusative verb (a very small number in the language, as it turns out), it is plausible that children utilize the structure of unergatives to interpret the Full unaccusative. The *ni*-phrase is just like a locative or a goal PP selected by unergative verbs

5. Development of passives in Japanese

What about passives? We suggest that Japanese children show difficulty with actional passives because there are no homophonous adjectival passives in Japanese.

Wasow (1977)

Borer and Wexler (1987), for example, propose that English speaking children do much better with passives of actional verbs than non-actional (experiencer verb) passives (Maratsos et al., 1985) because they interpret actional verb passives as adjectival passives).

(28) A phrase α is an s-homophone of β if α and β have distinct structure but common pronunciation.

(Babyonyshev et al. 2001:7)

If their language has s-homophone adjectival passives, children under certain age substitute the structure of adjectival passive for the verbal passive — this is how they get around the ACDH.

Machida (2004) argues that the passive of psychological verbs followed by an aspect morpheme *-te i (ru)* (resultative) is the only possible adjectival passive in Japanese. The degree adverb *totemo* ‘very’, which typically modifies adjectives, can modify the passive of the psychological verb *ais* ‘love’ with *-te i (ru)* as we can see in (29a). But it cannot modify a verbal passive such as ‘was eaten’ as shown in (29b).

- (29) a. Taro-wa kazoku-ni totemo ais-are-te i-ru.
Taro-Top family-by very love-Pass-Past-te i-Pre
‘Taro is loved by his family very much.’
- b. Kaeru-ga hebi-ni *totemo tabe-rare-ta.
frog-Nom snake-by very eat-Pass-Past
‘lit. A frog was very much eaten by a snake.’

Terzi and Wexler’s (2002) finding that in Greek, which also does not have s-homophone adjectival passives of the verbal passive, children’s comprehension of even the actional passive is delayed.