41st GLOW Colloquium
Research Institute of Linguistics
Hungary Academy of Science
Budapest, Hungary, April 11–13, 2018

On Syntactic Head Movement in Japanese and Its Interpretive Consequences: A New Perspective from Verb-Echo Answers and Negative Scope Reversal

Yosuke Sato
National University of Singapore
ellys@nus.edu.sg

Masako Maeda
Kyushu Institute of Technology
maeda@dhs.kyutech.ac.jp

1. Introduction

- The proper locus of head movement has been the subject of considerable debate within the contemporary minimalist literature.

  → HM is syntactic.
  (Lechner 2007; Roberts 2010; Hartmann 2011; Iatridou and Zeijlstra 2013; Keine and Bhatt 2016)

  → HM is post-syntactic.
  (Chomsky 2001, 2004; Boeckx and Stepanović 2001; Hale and Keyser 2002; Harley 2004)

- The issue becomes doubly challenging when a researcher attempts to contribute to it from the perspective of head-final languages such as Japanese, where the effect of HM, if any, is always string-vacuous (Otani and Whitman 1991; Hoji 1998; Koizumi 2000; Fukui and Sakai 2003).

- This talk intends to shed new light on these two thorny issues – the existence of HM in Japanese and its proper grammatical locus – through the previously unexplored perspective of verb-echo answers (VEAs) (Holmberg 2016).

Today's Take-Away?
(Certain instances of) Japanese HM is syntactic! Evidence? Negative scope reversal!

- We will first present three arguments to show that VEAs in Japanese are best analyzed through string-vacuous V-T-C movement, followed by TP-ellipsis at PF (Sato and Hayashi 2017). This result, in turn, shows that Japanese at least has HM (Section 2).
- We will then report our new finding that the otherwise consistent wide scope reading of various expressions marked with disjunction/focus markers over negation (Shibata 2015a, b) is systematically reversed under VEAs – which we dub the *Negative Scope Reversal* (Section 3, Part I).
- Based on this robust interpretive outcome created by HM, we conclude that (at least certain instances of) HM in Japanese occur in the narrow syntactic component (Section 3, Part II).

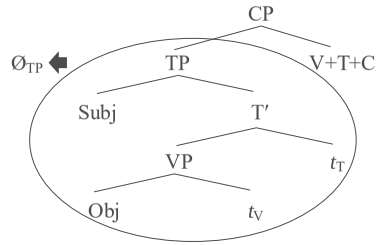
An earlier version of this work was presented at the linguistic colloquium at the Indian Institute of Technology (October 2016) and at the advanced syntax seminars at the National University of Singapore/NUS (Fall 2016 and Spring 2018). We thank Mike Barrie, Yoshi Dobashi, Nobu Goto, Shintaro Hayashi, Hideki Kishimoto, Shin-Ichi Kitada, Keely New, Nobuaki Nishioka, Chandra Pritha, Matthew Reeve and our bright *pro* students at NUS for helpful comments and questions. A preliminary version of this work appeared as Sato and Hayashi (2017). This research has been supported by the Singaporean Ministry of Education Academic Research Fund Tier 1 Grant (grant #: R-103-000-152-115) awarded to Yosuke Sato as well as by the Japan Society for the Promotion of Science Grants-in-Aid for Young Scientists (#18K12412) awarded to Masako Maeda. A complete version of this work is available as Sato and Maeda (2018).

2. VEAs in Japanese and String Vacuous V-T-C Movement[1]

(1) Q: Moo tuki-masi-ta-ka?
already arrive-POL-PAST-Q
'Did you arrive already?'
A1: Tuki-masi-ta-yo. (VEA)
arrive-POL-PAST-PRT
'Intended: I arrived already.'
A2: Hai. (polarity-based answer)
yes
'Yes.'

- We argue, following Holmberg's (2016:ch3) "big-ellipsis" theory of VEAs, that the derivation of a VEA involves V-T-C movement in the syntactic derivation, followed by TP-ellipsis in the post-syntactic phonological component, as schematically depicted in (2).

(2)



Three arguments for the head movement + clausal ellipsis analysis

Evidence #1: Interaction among disjunctive (Sakamoto 2016), quantificational (Takahashi 2008a, b) and adverb-inclusive interpretations (Oku 1998)

Evidence #2: Impossibility of voice-mismatches under VEAs on a par with sluicing, an instance of TP-ellipsis (Merchant 2001, 2008, 2013; Sugisaki 2014)

Evidence #3: Partial vernal ellipsis in the V-*te morau*/V-*te iku* construction (Hayashi and Fujii 2015).

2.1. *Evidence for the Clausal Ellipsis Analysis: Disjunction, Quantifiers and Adverbs*

- It is widely acknowledged since Kuroda (1965) (see also Ohso 1976, Hoji 1985, and Saito 1985) that Japanese allows so-called radical *pro*-drop. One analysis that immediately comes to mind, then, is that VEAs simply involve silent pronominals/*pro*'s, as illustrated in (3).

(3) [TP pro_{subjet} pro_{object} Verb] (*pro-drop*) → VEA

- Alternatively, research over some past 20 years or so (Oku 1998; Saito 2007; Takahashi 2008a, b) has amassed considerable empirical evidence that Japanese possesses AE, as illustrated in (4).

(4) [TP ~~Subj~~ ~~Object~~ Verb] (Argument Ellipsis) → VEA

[1] Abbreviations: ACC, accusative case; CL, classifier; COP, copula; DAT, dative case; GEN, genitive case; NEG, negation; NOM, nominative case; PASS, passive; PAST, past tense; PRT, particle; POL, politeness marker; Q, question marker; TOP, topic marker.

- Three considerations below show, however, that neither *pro*-analysis nor AE analysis can provide a completely satisfactory account for the three interpretations permitted by VEAs – disjunctive interpretations, quantificational interpretations, and adverb-inclusive interpretations.

	Pro_{DP} analysis	Pro_{NP} analysis	Argument Ellipsis Analysis	TP-Ellipsis Analysis
Disjunctive interpretation (8)	NO	NO	YES	YES
Quantificational interpretation (10)	NO	NO	YES	YES
Adverb-inclusive interpretation (12)	NO	NO	NO	YES

Table 1: Various Interpretations Available under VEAs in Japanese

(A) Disjunctive Interpretations of Null Arguments (Sakamoto 2016)

(5) a. Last year, either John or Bill visited UConn.
b. This year too, *he* visited UConn.
(✓Disjunctive E-type reading; *Disjunctive reading) (Sakamoto 2016:6)

(6) John scolded either Mary or Nancy, and Bill did [$_{VP}$ Ø], too. (✓Disjunctive reading)
(Sakamoto 2016:7)

(7) a. Kinoo Taroo ka Ziroo-ga Kanako-o sikat-ta.
yesterday Taro or Jiro-NOM Kanako-ACC scold-PAST
'Yesterday, either Taro or Jiro scolded Kanako.'
b. Kyoo-wa *e* Ayaka-o sikat-ta. (✓Disjunctive reading)
today-TOP Ayaka-ACC scold-PAST
'lit. Today, *e* scolded Ayaka.'
c. Kyoo-wa *kare-ga* Ayaka-o sikat-ta. (*Disjunctive reading)
today-TOP he-NOM Ayaka-ACC scold-PAST
'Today, he scolded Ayaka.' ((7a, b) from Sakamoto 2016:7)

(8) Q: Kinoo Taroo ka Ziroo-ga Kanako-o sikat-ta-no?
yesterday Taro or Jiro-NOM Kanako-ACC scold-PAST-Q
'Did Taro or Jiro scold Kanako yesterday?'
A: Sikat-ta-ne. (✓Disjunctive reading)
scold-PAST-PRT
'lit. Scolded.'

(B) Quantificational Interpretations of Null Arguments (Takahashi 2008a, b)

(9) a. Taroo-wa gonin-izyoo-no gakusei-o syootai-sita.
Taro-TOP five-more.than-GEN student-ACC invitation-did
'Taro invited more than five students.'
b. Hanako-mo *e* syootai-sita. (✓E-type; ✓Quantificational)
Hanako-also invitation-did
'lit. Hanako also invited.'

c. Hanako-mo *gakusei-o* syootai-sita. (*Quantificational)
Hanako-also student-ACC invitation-did
'Hanako also invited (an indefinite number of) students.'
d. Hanako-mo *karera-o* syootai-sita. (✓E-type; *Quantificational)
Hanako-also they-ACC invitation-did
'Hanako also invited them.'

→ Hoji's (1998) indefinite *pro*-NP analysis would not be able to accommodate the quantificational interpretation in (9b) since (9c) does not permit this interpretation. Note further that *karera-o* 'them' also blocks the same interpretation, as shown in (9d).

(10) A: Taroo-wa kinoo gonin-izyoo-no gakusei-o syootai-sita-no ?
Taro-TOP yesterday five-more than-GEN student-ACC invitation-did-Q
'Did Taro invite more than five students yesterday?'
B: Syootai-sita-ne. (✓Quantificational)
invitation-did-PRT
'lit. Invited.'

(C) Adverb-Inclusive Interpretations Associated with Null Arguments (Oku 1998)

→ It has been widely accepted since Oku (1998) that adjuncts *themselves* cannot undergo ellipsis in Japanese (see also Simpson et al. 2013 and Funakoshi 2016)

(11) a. Taroo-wa zibun-no yarikatade toodai-ni ukat-ta-yo.
Taro-TOP self-GEN way Univ. of Tokyo-to pass-PAST-PRT
'Taro passed the entrance exam to the University of Tokyo in his own way.'
b. Hanako-mo kyoodai-ni ukat-ta-yo. (*Adverb-inclusive interpretation)
Hanako-also Univ. of Kyoto-to pass-PAST-PRT
'Lit. Hanako also passed the entrance exam to Kyoto University.'

→ Manner adverbs such as *zibun-no yarikatade* 'one's own way' cannot be elliptic (Saito 2007) nor substituted by *pro* (Murasugi 1991). If so, the *pro*-/AE- analysis would predict that the adverb-inclusive interpretation should be unacceptable under VEAs. Example (12) shows that this prediction is false.

(12) Q: Hanako-wa zibun-no yarikatade toodai-ni ukat-ta-no?
Hanako-TOP self-GEN way Univ. of Tokyo-to pass-PAST-Q
'Did Hanako pass the entrance exam to the University of Tokyo in his own way?'
A: Ukat-ta-yo. bekkaku-da-yo-ne. (✓Adverb-inclusive interpretation)
pass-PAST-PRT special-COP-PRT-PRT
'Yes. She is truly special.'

- A single VEA can exhibit more than one of the three interpretive signatures introduced thus far.

(13) Q: Taroo ka Ziroo-ga zibun-no yarikatade toodai-ni ukat-ta-no?
Taro or Jiro-NOM self-GEN way Univ. of Tokyo-to pass-PAST-Q
'Did Taro or Jiro pass the entrance exam to the University of Tokyo in his own way?'
A: Ukat-ta-ne. (✓Disjunctive + ✓Adverb-inclusive)
pass-PAST-PRT
'lit. Passed.'

(14) Q: Anata-no daigaku-de-wa kotosi gonin-izyoo-no gakusei-ga
you-GEN university-in-TOP this.year five-more.than-GEN student-NOM
zibun-no yarikatade Google Japan-no saiyoo-siken-ni ukat-ta-no?
self-GEN way Google Japan-GEN recruitment-exam-to pass-PAST-Q
'Did more than five students pass the recruitment exam to Google Japan?'
A: Ukat-ta-ne. Sugoi-yo-ne. (✓Quantificational + ✓ Adverb-inclusive)
pass-PAST-PRT terrific-PRT-PRT
'lit. Passed. Terrific news, isn't it?'

- Recall from (2) that our analysis of VEAs assumes HM as its central analytical premise for TP-ellipsis to apply to yield VEAs. Our results in Table 1, thus, show that Japanese has V-T-C movement.

2.2. *A New Prediction of the Clausal Ellipsis Analysis: Voice Mismatches under VEAs*[2]

Prediction: VEAs, an instance of TP-ellipsis, should resist voice-mismatches on a par with sluicing.

- Merchant (2001, 2008, 2013) and Chung (2013) point out that sluicing in English, an instance of TP-ellipsis, blocks voice mismatches between the antecedent clause and the sluiced clause.

(15) * Someone shot Ben, but I don't know by who(m)$_i$ [$_{TP}$ ~~Ben was shot t_{pp}~~]. (Merchant 2001:35)

- Sugisaki (2014) observes that sluicing in Japanese also does not tolerate voice mismatches, as illustrated in (16b). Note that voice mismatch does not yield any loss of grammaticality if the elided part is pronounced fully, as shown in (16c).

(16) a. Dareka-ga John-o yatot-ta-rasii-ga, boku-wa dare-ga-ka
someone-NOM John-ACC hire-PAST-seem-but I-TOP who-NOM-Q
sira-na-i. (active antecedent → active elliptical clause)
know-NEG-PRES
'Someone hired John, but I don't know who.'
b. * Dareka-ga John-o yatot-ta-rasii-ga, boku-wa dare-ni-ka
someone-NOM John-ACC hire-PAST-seem-but I-TOP who-by-Q
sira-na-i. (active antecedent → passive elliptical clause)
know-NEG-PRES
'*Someone hired John, but I don't know by whom.'

[2] Our assumption here is that the impossibility of voice-mismatches in VEA entails the application of TP-ellipsis in this construction, following the general approach to this phenomenon as manifested in sluicing laid out by Merchant (2008, 2013). One might question this move and say that the assumption here is not a valid diagnostic tool in light of the recent observation made by Sailor (2014), who shows that there are certain cases of VP-ellipsis – what Sailor calls "big VP-ellipsis" – which nonetheless are allergic to voice-mismatches. Examples (ia, b) illustrate the big VP-ellipsis configuration, which disallows voice mismatches, whereas examples (iia, b) illustrate the small VP-ellipsis configuration, which allows voice mismatches.

(i) a.* The janitor removed the trash, but the recycling wasn't [~~removed~~].
b.* This guy's tape should be scrutinized by John, and Bob also should [~~scrutinize it~~]. (Sailor 2014:4)

(ii) a. The janitor must remove the trash whenever it is apparent that it should be [~~removed~~].
b. This guy's tape obviously should be scrutinized more than you did [~~scrutinize it~~]. (Merchant 2013: 78, 80)

We are aware of the complication which Sailor's work may effect on our argument on voice mismatches, but we are agnostic on whether his empirically rich English paradigm can be reconstructed in Japanese, a language which may not possess the same cline/layer of VP-ellipsis he has claimed to discover for English. We will thus not delve into this complication in this paper, leaving further investigations of this point for another occasion.

c. Dareka-ga John-o yatot-ta-rasii-ga, boku-wa dare-ni
someone-NOM John-ACC hire-PAST-seem-but I-TOP who-by
yatow-are-ta-ka sira-na-i. (active antecedent → passive full-fledged clause)
hire-PASS-PAST-Q know-NEG-PRES
'Someone hired John, but I don't know by whom he was hired.'
((16b, c) from Sugisaki 2014:6)

(17) Q: Anata-no kaisya-wa kotosi gonin-izyoo-no gakusei-o
you-GEN company-TOP this.year five-more.than-GEN student-ACC
konede saiyoosi-masi-ta-ne? (active antecedent)
through.personal.connection recruit-POL-PAST-PRT
'Did your company recruit more than five students this year through personal connections?'
A1: Saiyoosi-masi-ta-yo. (active elliptical clause)
recruit-POL-PAST-PRT
'lit. Recruited.'
A2:* Saiyoos-are-masi-ta-yo. (passive elliptical clause)
recruit-PASS-POL-PAST-PRT
'lit. Was recruited.'

- There is independent evidence that *pro*-drop and AE in Japanese do permit voice mismatches.

(18) Q: Gonin-izyoo-no gakusei-ga kotosi anata-no kaisya-ni
five-more than-GEN student-NOM this year you-GEN company-to
oobosi-ta-yoo-desu-ga, kekka-wa doo-nari-masi-ta-ka?
apply-PAST-seem-POL-but result-TOP how-become-POL-PAST-Q
'It seems that more than five students applied for your company. How was the result?"
A1: Uti-no kaisya-ga saiyoosi-masi-ta-yo. (✓E-type; ✓Quantificational)
our-GEN company-NOM recruit-POL-PAST-PRT
'Our company recruited them.'
A2: Uti-no kaisya-ni saiyoos-are-masi-ta-yo. (✓E-type; ✓Quantificational)
our-GEN company-DAT recruit-PASS-POL-PAST-PRT
'They were recruited.'

→ The two replies in (18A1, A2) allow the E-type interpretation or the quantificational interpretation for the elided argument. This fact itself indicates *pro*-drop/AE or TP-ellipsis. However, the latter possibility is controlled for here by keeping intact the subject *uti-no kaisya* 'my company' (recall (2)).

- Consequently, the contrast in (17A1) vs. (17A2), together with the lack thereof in (18A1) vs. (18A2) supports the view endorsed here that the syntax of VEAs involves TP-ellipsis, and by extension, that Japanese has string-vacuous V-T-C movement.

2.3. *Evidence for Head Movement in Syntax from Partial Predicate Ellipsis*

- Here, we present our third preliminary evidence for V-T-C movement from partial predicate ellipsis in the V-*te morau* construction recently investigated by Hayashi and Fujii (2015).

(19) Taroo-wa [Ziroo-ni piza-o tukut-te] morat-ta.
Taro-TOP Jiro-DAT pizza-ACC cook-TE get-PAST
'Taro had Ziro cook pizza.' (Hayashi and Fujii 2015:33)

(20) Taroo-wa [Ziroo-ni piza-o t_V t_T] [$_T$ [$_V$ tuku-] te] + morat-ta.

(adopted from Hayashi and Fujii 2015:34)

(21) Q: Kono yoohuku obaatyan-ni tukut-te morat-ta-no?
this cloth grandmother-DAT make-TE get-PAST-Q
'Did you have your grandmother make this cloth?'
A1: Tukut-te moratta-yo.
make-TE get-PAST-PRT
'lit. Got make. (I got her to make this cloth.) '
A2: Morat-ta-yo.
get-PAST-PRT
'lit. Got. (I got her to make this cloth.) '

→ (21A2) involves partial predicate ellipsis, namely, the ellipsis of the *te*-complement including the downstairs verb – *tsukuru* 'to make' – which fails to undergo head movement.

Is partial predicate ellipsis amenable to pro-drop and AE? No!

(22) Q: Taroo-wa gakko-ni hasitte-iki-masi-ta-ka?
Taro-TOP school-to running-go-POL-PAST-Q
'Did Taro run to school?'
A1: a. Hasitte-iki-masi-ta-ne. /Iki-masi-ta-ne.
running-go-POL-PAST-PRT /go-POL-PAST-PRT
'Yes, he ran to school.'
b. Hasitte-iki-mas-en-desi-ta-yo. / Iki-mas-en-desi-ta-yo.
running-go-POL-NEG-POL-PAST-PRT / go-POL-PAST-PRT
'No, he didn't run to school.'
A2: a. Kare-wa/Taroo-wa hasitte-iki-masi-ta-ne.
he-TOP/Taro-TOP running-go-POL-PAST-PRT
'Taro ran to school.'
b. Kare-wa/Taroo-wa hasitte-iki-mas-en-desi-ta-yo.
he-TOP/Taro-TOP running-go-POL-NEG-POL-PAST-PRT
'Taro didn't run to school.'
A3: a. * Kare-wa/Taroo-wa iki-masi-ta-yo.
he-TOP/Taro-TOP go-POL-PAST-PRT
'Intended: Taro didn't run to school.'
b. * Kare-wa/Taroo-wa iki-mas-en-desi-ta-yo.
he-TOP/Taro-TOP running-go-POL-NEG-POL-PAST-PRT
'Intended: Taro didn't run to school.'

→ Partial predicate ellipsis in (22A1a, b) cannot be derived through *pro*-drop or AE because the hypothesized underlying structures for this construction are actually ungrammatical, as shown in (22A3).

We take the possibility of partial predicate ellipsis in the V-*te morau*/V-*te iku* construction as supporting evidence in favor of syntactic head movement in Japanese, independent of the circumstantial evidence for the TP-ellipsis based on various interpretations attested under VEAs.

3. Head Movement in Japanese is Syntactic: Evidence from Negative Scope Reversal

- We have presented three arguments based on null argument interpretations, voice-mismatches and partial predicate ellipsis that Japanese has string-vacuous head movement (at least) under VEAs.
- Now, we will show here that this movement has drastic semantic effects. The otherwise stable wide scope of XPs marked with focus and disjunctive particles is systematically reversed under VEAs.
  - ➔ Negative Scope Reversal!
  - ➔ Head Movement under VEAs in Syntax!

3.1. *Shibata's (2015a, b) Theory of Obligatory Wide-Scope Effects of Focus/Disjunctive XPs*

- In Japanese, quantified objects can take scope either above or below negation.

(23) Taroo-wa [zen'in/go-nin-izyoo-no gakusei]-o sikar-anakat-ta. (Obj » Neg, Neg » Obj)
Taro-TOP all/5-CL-or.more.than-GEN student-ACC scold-NEG-PAST
'Taro didn't scold all/five or more students.'

- However, focus-sensitive particles such as *–mo* 'also', *-dake* 'only', and *–sae* 'even' as well as disjunctive marker *–ka* 'or' can only take scope above negation, as shown in (24, 25).

(24) Taroo-wa pan-dake kaw-anak-atta. (*dake* 'only': only »Neg, *Neg » only)
Taro-TOP bread-only buy-NEG-PAST
'Taro didn't buy only bread.' (Shibata 2015a:73)

(25) Taroo-wa pan ka kome-o kaw-anak-atta. (A *ka* B 'A or B': or » Neg, *Neg » or)
Taro-TOP bread or rice-ACC buy-NEG-PAST
'lit. Taro didn't buy bread or rice.' (Shibata 2015a:73)

- In this regard, Japanese behaves differently from English, in which focus-marked or disjunctive phrases can take scope *below* negation, as witnessed in (26a, b).

(26) a. John didn't buy only bread. (Neg » only)
b. John didn't buy bread or rice. (Neg » or) (cf. Shibata 2015:74)

Shibata's (2015a, b) Observations & Acyclic Merger Analysis:

- ❖ Object phrases in Japanese must undergo overt movement to a position above negation
- ❖ A focus/disjunctive particle blocks the reconstruction process – anti-reconstruction effect.[3]

- Shibata proposes that this obligatory wide scope reading with focus-sensitive and disjunctive phrases is explained by Fox's (2003) Trace Conversion, a two-step process consisting of variable insertion and determiner replacement, as defined in (27a, b), respectively.

[3] One of the significant questions Shibata (2015a, b) addresses is why objects, or all *v*P-internal materials, for that matter, must undergo movement above negation. Shibata (2015a) argues that they do so that morphological merger may apply to create the required complex predicate under the condition of structural adjacency: any *v*P-internal expression such as direct objects would necessarily block the morphological merger among V, *v*, and negation. We won't discuss Shibata's theory of the ethology of object movement any further in this paper, since it suffices for our present purposes to observe, whatever the ultimate analysis turn out to be, that focus and disjunctive phrases can only take obligatory wide scope over negation.

(27) a. Variable insertion: (Det) Pred → (Det) [Pred λy (y = x)]
b. Determiner replacement: (Det) Pred → the [Pred λy (y = x)]

(Shibata 2015a: 68)

(28) a. Only that boy didn't come.
b. [only that boy [didn't [only that boy [come]]]
c. [only that boy [didn't [only [the boy identical to x]] come]]].
↓
result of trace conversion (Shibata 2015a: 68, 69)

(29) a. [That boy] didn't [that boy] come. (movement of the subject)
b. [only [that boy] didn't [that boy] come. (acyclic adjunction of *only*)
c. [only [that boy] λx. [didn't [[the boy identical to x] come]]
(Trace Conversion)

(Shibata 2015a:69)

→ Note that the derivation in (29) crucially introduces *only* after the subject moves to [Spec, TP]. It follows then, correctly, that the subject associated with *only* can only be interpreted above negation, thereby yielding the obligatory wide scope of the focus-sensitive phrase.

- Shibata (2015a:70) extends the same acyclic merger approach to the DP modified by the disjunctive marker *–ka* 'or'. He does so by adopting Chierchia et al.'s (2012) proposal that a disjunctive expression is interpreted with a silent exhaustive operator in (30b), $O_{ALT}(S)$.

(30) a. John or Tom will come.
b. O_{ALT} (John or Tom) will come.
c. John will come or Tom will come.
d. Both John and Tom will come. (Shibata 2015a: 70)

3.2. *Negative Scope Reversal under VEAs*

- Let us now consider how the facts about scope play out under VEAs. We have seen in (24) that a phrase marked with the focus-sensitive operator *–dake* 'only' obligatorily takes scope over clausemate negation.

- The VEA response to the polarity question based on the example in (24) shows the opposite scope relationship. The VEA answer in (31), thus, has the wide scope reading of negation with respect to the *dake*-marked phrase, but it blocks the opposite reading that was available to (24)!

(31) Q: Taroo-wa pan-dake tabe-ta-no?
Taro-TOP bread-only eat-PAST-Q
'Did Taro eat only bread?'
A: Tabe-nakat-ta-yo. (??only »Neg, Neg » only)
eat-NEG-PAST-PRT
'lit. Didn't eat.'

- The negative scope reversal pattern also manifests itself in the case of VEAs in response to the disjunctive question example in (25). (32A) exhibits scope reversal: what was otherwise the impossible Neg » or interpretation is now the only interpretation available!

(32) Q: Yoichiro-wa kinoo oyatu-ni aisu ka keeki-o tabe-ta-no?
Yoichiro-TOP yesterday for.snack ice-cream or cake-ACC eat-PAST-Q
'Did Yoichiro eat an ice-cream or a cake for a snack yesterday?'
A: Tabe-nakat-ta-yo. (??or » Neg, Neg » or)
eat-NEG-PAST-PRT
'Lit. Didn't eat.'

- Below, we will furnish further data to demonstrate that negative scope reversal obtains quite generally under VEAs which are intended to answer a *yes-no* question containing either *dake* 'only or *ka* 'or', regardless of the grammatical functions that they occupy in the antecedent questions, including subjects, indirect objects, and postpositional phrases.

		Direct Object	Subject	Indirect Object	PP object
Base Scope (Control Case)	'only'	only » Neg; *Neg » only (Anti-Reconstruction Effect)			
		(24)	(33)	(37)	(41)
	disjunction	or » Neg; *Neg » or (Anti-Reconstruction Effect)			
		(25)	(35)	(39)	(43)
Derived Scope (VEA)	'only'	?? only » Neg, Neg » only (Negative Scope Reversal)			
		(31)	(34)	(38)	(42)
	disjunction	?? or » Neg, Neg » or (Negative Scope Reversal)			
		(32)	(36)	(40)	(44)

Table 2: Negative Scope Reversal with *Dake* 'only' and the Disjunctive *–Ka* 'or' under VEAs

(33) Sono toki kyoositu-ni-wa Taroo-dake-ga i-nak-atta. (only »Neg, *Neg » only)
that time classroom-in-TOP Taro-only-NOM be-NEG-PAST
'At that time, only Taro was in the classroom.' (Saito and Takita 2016:418)

(34) Q: Sono toki kyoositu-ni-wa Taroo-dake-ga ita-no?
that time classroom-in-TOP Taro-only-NOM be.PAST-Q
'At that time, was only Taro in the classroom?'
A: I-nak-atta-yo. (??only »Neg, Neg » only)
be-NEG-PAST-PRT
'Lit. Wasn't.'

(35) Sono toki kyoositu-ni-wa Taroo ka Hanako-ga
that time classroom-in-TOP Taro or Hanako-NOM
i-nak-atta-yo. (or » Neg, *Neg » or)
be-NEG-PAST-PRT
'At that time, either Taro or Hanako was not in the classroom.'

(36) Q: Sono toki kyoositu-ni-wa Taroo ka Hanako-ga
that time classroom-in-TOP Taro or Hanako-NOM
i-ta-no?
be-PAST-Q
'At that time, was either Taro or Hanako in the classroom?'
A: I-nakat-ta-yo. (??or » Neg, Neg » or)
be-NEG-PAST-PRT
'lit. Wasn't.'

(37) Hanako-wa Taroo-ni-dake nengazyoo-o okura-nakat-ta.
Hanako-TOP Taro-DAT-only New Year card-ACC send-NEG-PAST
(only » Neg, *Neg » only)
'Hanako didn't send her New Year card only to John. (Saito and Takita 2016:421)

(38) Q: Hanako-wa Taroo-ni-dake nengazyoo-o okut-ta-no?
Hanako-TOP Taro-DAT-only New Year card-ACC send-NEG-PAST
'Did Hanako send a New Year card only to John?'
A: Okura-nakat-ta-yo. (??only »Neg, Neg » only)
send-NEG-PAST-PRT
'lit. Didn't send.'

(39) Yukiko-wa Taroo ka Hanako-ni nengazyoo-o
Yukiko-TOP Taro or Hanako-DAT New Year card-ACC
okura-nakat-ta. (or » Neg, *Neg » or)
send-NEG-PAST
'Yukiko didn't send her New Year card to either Taro or Hanako.'

(40) Q: Yukiko-wa Taroo ka Hanako-ni nengazyoo-o okut-ta-no?
Yukiko-TOP Taroo or Hanako-DAT New Year card-ACC send-PAST-Q
'Did Yukiko send her New Year card to either Taro or Hanako?'
A: Okura-nakat-ta-yo. (*or » Neg, Neg » or)
send-NEG-PAST-PRT
'lit. Didn't send.'

(41) Taroo-wa Hanako-to-dake hanasi-o si-nakat-ta. (only »Neg, *Neg » only)
Taro-TOP Hanako-with-only talk-ACC do-NEG-PAST
'Taro didn't talk with more than five students.' (Saito and Takita 2016:423)

(42) Q: Anata-wa sono hi Hanako-to-dake hanasi-o si-ta-no?
you-TOP that day Hanako-with-only talk-ACC do-PAST-Q
'Did you talk only with Hanako on that day?'
A: Si-nakat-ta-yo. (??only »Neg, Neg » only)
do-NEG-PAST-PRT
'lit. Didn't do.'

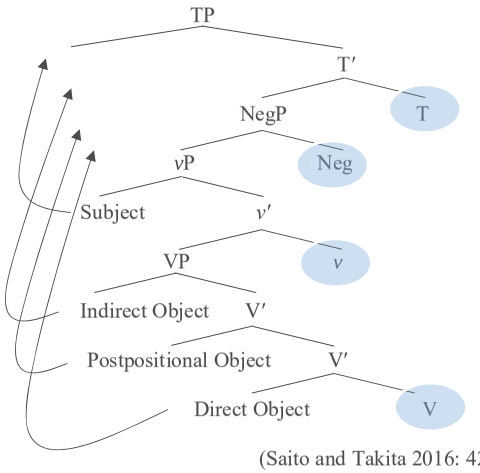
(43) Yukiko-wa Taroo ka Hanako-to-dake hanasi-o
Yukiko-TOP Taro or Hanako-with-only talk-ACC
si-nakat-ta. (or » Neg, *Neg » or)
do-NEG-PAST
'Yukiko didn't talk with either Taro or Hanako.'

(44) Q: Anata-wa sono hi Taroo ka Hanako-to-dake hanasi-o si-ta-no?
you-TOP that day Taro or Hanako-with-only talk-ACC do-PAST-Q
'Did you talk with only Taro or Hanako on that day?'
A: Si-nakat-ta-yo. (??or » Neg, Neg » or)
do-NEG-PAST-PRT
'lit. Didn't do.'

Summary: Negative Scope Reversal: mandatory surface wide scope effect with *dake* 'only' and *ka* 'or' vis-à-vis negation is systemically reversed in favor of the opposite scope pattern under VEAs.

3.3. *Negative Scope Reversal as Evidence for Syntactic Head Movement*

(45)



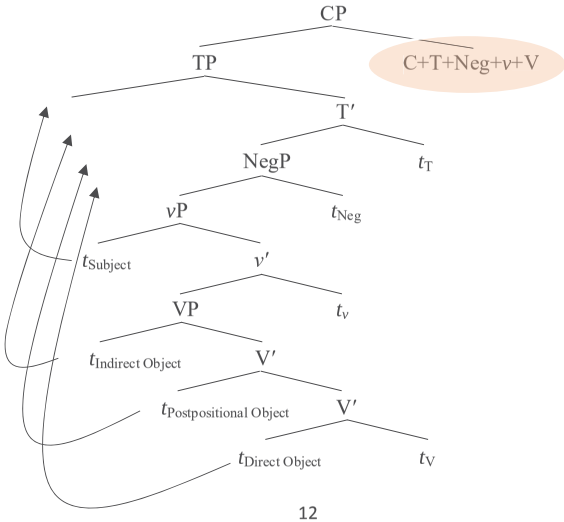
(Saito and Takita 2016: 424; cf. Shibata 2015a: 137)

➔ All *v*P-internal XPs undergo syntactic movement above negation into the TP-region for reasons to do with "merger under structural adjacency" (Shibata 2015a; see also note 3).

➔ Coupled with the acyclic late insertion of focus and disjunctive operators, this derivation yields the obligatory wide scope of the materials accompanied with these operators vis-à-vis negation.

- Now, given this derivation, the negative scope reversal indicates that the verbal complex containing negation as its subpart undergoes syntactic head movement into a position (such as the C position) which is high enough to take scope over all the derived positions of the expressions.

(46)



Since the movement to the C position undeniably changes the resulting scope interpretation, we now conclude that the movement is indeed syntactic rather than a post-syntactic phenomenon.

4. Conclusion

- We have investigated two difficult issues regarding head movement in Japanese – evidence for its very existence and its proper grammatical locus – from the new perspective of verb-echo answers.

- To address the first issue, we have proposed that VEAs in Japanese are best derived through the successive cyclic head movement of the echoed verb through intervening heads such as Neg and T all the way up to the Pol head/C head position in the left periphery.

  ➔ various interpretations associated with VEAs (disjunction, quantification and adverbs)
  ➔ impossibility of voice-mismatches under VEAs on a par with sluicing (TP-ellipsis)
  ➔ partial predicate ellipsis in the V-*te morau*/V-*te iku* construction (optional head movement)

- To address the second issue, we have shown how the Negative Scope Reversal Effect lends powerful support to our conclusion that head movement involved in VEAs is syntactic, contrary to the recent conjecture (Chomsky 2001, 2004; see also the references cited in the introduction) that it is essentially a PF phenomenon.

References

Aoyagi, Hiroshi. 2006. On morphological merger. *Nanzan Linguistics* 3:1–32.
Baker, Mark. 1988. *Incorporation: A theory of grammatical function changing*. Chicago, IL: University of Chicago Press.
Boeckx, Cedric, and Sandra Stjepanović. 2001. Head-ing toward PF. *Linguistic Inquiry* 32:345–355.
Chierchia, Gennaro, Danny Fox, and Benjamin Spector. 2012. The grammatical view of scalar implicatures and the relationship between semantics and pragmatics. In *Semantics: An international handbook of natural language meaning, vol. 2,* ed. by Claudia Maienborn, Klaus von Heusinger, and Paul Portner, 2297–2232. Boston, MA: Mouton de Gruyter.
Chomsky, Noam. 2001. Derivation by phase. In *A life in language*, ed. by Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.
Chomsky, Noam. 2004. Beyond explanatory adequacy. In *Structures and beyond: The cartography of syntactic structures*, vol. 3, ed. by Adriana Belletti, 104–131. New York: Oxford University Press.
Chung, Sandra. 2013. Syntactic identity in sluicing: How much and why. *Linguistic Inquiry* 44:1–44.
Fox, Danny. 2003. On logical form. In *Minimalist syntax*, ed. by Henderick Randall, 82–123. Oxford: Blackwell.
Fukui, Naoki, and Hiromu Sakai. 2003. The visibility guideline for functional categories: Verb raising in Japanese and related issues. *Lingua* 113:321–375.
Fukui, Naoki, and Yuji Takano. 1998. Symmetry in syntax: Merge and demerge. *Journal of East Asian Linguistics* 7: 27–86.
Funakoshi, Kenshi. 2016. Verb-stranding verb phrase ellipsis in Japanese. *Journal of East Asian Linguistics* 25: 113–142.
Goldberg, Lotus. 2005. *Verb-stranding VP-ellipsis: A cross-linguistic study*. Doctoral dissertation, McGill.
Hale, Kenneth, and Samuel Jay Keyser. 2002. *A prolegomenon to a theory of argument structure*. Cambridge, MA: MIT Press.
Harley, Heidi. 2004. Merge, conflation, and head movement: The first sister principle revisited. In *Proceedings of NELS 34*, ed. by Keir Moulton and Matthew Wolf, 239–254. Amherst, MA: GLSA.
Hartman, Jeremy. 2011. The semantic uniformity of traces: Evidence from ellipsis parallelism. *Linguistic Inquiry* 42:367–388.
Hayashi, Shintaro, and Tomohiro Fujii. 2015. String vacuous head movement: The case of V-*te* in Japanese. *Gengo Kenkyu* 147:31–55.
Hoji, Hajime. 1985. *Logical form constraints and configurational structures in Japanese*. Doctoral dissertation, University of Washington, Seattle.
Hoji, Hajime. 1998. Null objects and sloppy identity in Japanese. *Linguistic Inquiry* 29:127–152.
Holmberg, Anders. 2016. *The syntax of yes and no*. Cambridge: Cambridge University Press.
Horn, Laurence. 1989. *A natural history of negation*. Chicago, IL: University of Chicago Press.
Iatridou, Sabine, and Hedde Zeijlstra. 2013. Negation, polarity and deontic modals. *Linguistic Inquiry* 44:529–568.
Keine, Stefan, and Rajesh Bhatt. 2016. Interpreting verb clusters. *Natural Language and Linguistic Theory* 34:1445–1492.
Kishimoto, Hideki. 2007. Negative scope and head raising in Japanese. *Lingua* 117: 247–288.
Kishimoto, Hideki. 2008. On the variability of negative scope in Japanese. *Journal of Linguistics* 44:379–435.
Koizumi, Masatoshi. 2000. String vacuous overt verb raising. *Journal of East Asian Linguistics* 9:227–285.

Koopman, Hilda. 2005. Korean (and Japanese) morphology from a syntax perspective. *Linguistic Inquiry* 36:601–633.
Kuroda, S.-Y. 1965. *Generative grammatical studies in the Japanese language*. Doctoral dissertation, MIT.
Lechner, Winfried. 2007. Interpretive effects of head movement. Ms., University of Stuttgart. [available at http://ling.auf.net/lingbuzz/000178]
Matushansky, Ora. 2006. Head movement in linguistic theory. *Linguistic Inquiry* 37:69–109.
Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford: Oxford University Press.
Merchant, Jason. 2008. An asymmetry in voice mismatches in VP-ellipsis and pseudogapping. *Linguistic Inquiry* 39: 169–179.
Merchant, Jason. 2013. Voice and ellipsis. *Linguistic Inquiry* 44: 77–108.
Murasugi, Keiko. 1991. *Noun phrases in Japanese and English: A study in syntax, learnability and acquisition*. Doctoral dissertation, University of Connecticut, Storrs.
Ohso, Mieko. 1976. *A study of zero pronominalization in Japanese*. Doctoral dissertation, Ohio State University.
Oku, Satoshi. 1998. *A theory of selection and reconstruction in the minimalist perspective*. Doctoral dissertation, University of Connecticut, Storrs.
Ota, Akira. 1980. *Hitei no imi* [The meaning of negation]. Tokyo: Taishukan.
Otani, Kazuyo, and John Whitman. 1991. V-raising and VP-ellipsis. *Linguistic Inquiry* 22:345–358.
Pollock, Jean-Yves. 1989. Verb movement, universal grammar and the structure of IP. *Linguistic Inquiry* 20:365–424.
Roberts, Ian. 2010. *Agreement and head movement: Clitics, incorporation, and defective goals*. Cambridge, MA: MIT Press.
Rooth, Mats. 1985. *Association with focus*. Doctoral dissertation, University of Massachusetts, Amherst.
Sailor, Craig. 2014. *The variables of VP-ellipsis*. Doctoral dissertation, University of California, Los Angeles.
Saito, Mamoru. 1985. *Some asymmetries in Japanese and their theoretical implications*. Doctoral dissertation, MIT.
Saito, Mamoru. 2007. Notes on East Asian argument ellipsis. *Language Research* 43:203–227.
Saito, Mamoru. 2010. On the Scope Properties of Nominative Phrases in Japanese. In *Universals and Variation*, ed. by Rajat Mohanty and Mythili Menon, 313-333, EFL University Press, Hyderabad.
Saito, Mamoru, and Kensuke Takita. 2016. Hiteiji to suuryoosi no sayooiki: Shibata Yoshiyuki-shi no kenkyu [Negation and quantifier scope: Research by Yoshiyuki Shibata]. In *Nihongo handobukku: Gengo riron to Gengo kakutoku no kanten kara* [The handbook of Japanese grammar: Perspectives from linguistic theory and language acquisition], ed. by Keiko Murasugi, Mamoru Saito, Yoichi Miyamoto and Kensuke Takita, 408–443. Tokyo: Kaitakusha.
Sakai, Hiromu. 1998. Feature checking and morphological merger. In *Japanese/Korean Linguistics 8*, ed. by David James Silva, 189–201. Stanford, CA: CSLI.
Sakamoto, Yuta. 2016. Scope and disjunction feed an even more argument for argument ellipsis in Japanese. In *Japanese/Korean Linguistics* 23, ed. by Michael Kenstowicz, Theodore Levin and Ryo Masuda. Stanford: CSLI Publications.
Sato, Yosuke, and Shintaro Hayashi. 2017. String-vacuous head movement in Japanese: New evidence from verb-echo answers. *Syntax* 21:72–90.
Sato, Yosuke, and Masako Maeda. 2018. Syntactic head movement in Japanese: Evidence from verb-echo answers and negative scope reversal. Ms., National University of Singapore/Kyushu Institute of Technology. [available at http://ling.auf.net/lingbuzz/003769]
Shibata, Yoshiyuki. 2015a. *Exploring syntax from the interfaces*. Doctoral dissertation, University of Connecticut, Storrs.
Shibata, Yoshiyuki. 2015b. Negative structure and object movement in Japanese. *Journal of East Asian Linguistics* 24: 217–269.
Simpson, Andrew, Arunima Choudhury, and Mythili Menon. 2013. Argument ellipsis and the licensing of covert nominals in Bangla, Hindi and Malayalam. *Lingua* 134: 103–128.
Sugimura, Mina. 2012. *Domain extension: A study of restructuring predicates in Japanese and the role of head movement.* Doctoral dissertation, McGill University.
Sugisaki, Koji. 2014. Sluicing and its identity conditions in Child Japanese: A preliminary report. Paper presented at the workshop on Korean-Japanese Linguistics, Seoul National University, October 17–18.
Takahashi, Daiko. 2008a. Quantificational null objects and argument ellipsis. *Linguistic Inquiry* 39: 307–326.
Takahashi, Daiko. 2008b. Noun phrase ellipsis. In *The Oxford handbook of Japanese linguistics*, ed. by Shigeru Miyagawa and Mamoru Saito, 394–422. New York: Oxford University Press.
Travis, Lisa. 1984. *Parameters and effects of word order variation*. Doctoral dissertation, MIT.
Takano, Yuji. 2004. Coordination of verbs and two types of verbal inflection. *Linguistic Inquiry* 35: 168–178.

Contact Details:

Yosuke Sato (email: ellys@nus.edu.sg)
Department of English Language and Literature
National University of Singapore, AS Block 5
7Arts Link, 117570 SINGAPORE
http://profile.nus.edu.sg/fass/ellys/

Masako Maeda (email: maeda@dhs.kyutech.ac.jp)
Institute of Liberal Arts, Kyushu Institute of Technology
1-1 Sensui-cho, Tabata-ku, Kitakyushu-shi, Fukuoka
804-8550 JAPAN
https://sites.google.com/view/masakomaeda/home