

Syntactic Head Movement in Japanese:

Evidence from Verb-Echo Answers and Negative Scope Reversal

1. Introduction

The theoretical status of head movement, once a mainstay of generative theoretical syntax in the 1980s (Travis 1984; Baker 1988; Pollock 1989), has been the subject of considerable debate within the more recent contemporary minimalist literature. The debate has been framed with particular reference to the mechanism and locus of head movement in the overall grammatical architecture as well as its interpretive consequences, with some researchers (e.g., Lechner 2007; Roberts 2010; Hartman 2011; Iatridou and Zeijlstra 2013; Keine and Bhatt 2016) continuing to take head movement as a syntactic operation whereas other researchers (e.g., Chomsky 2001, 2004; Boeckx and Stepanović 2001; Hale and Keyser 2002; Harley 2004) propose that it be better be analysed as occurring in the post-syntactic, phonological component. One of the central motivations for the PF-theory of head movement is that this operation generally lacks appreciable semantic consequences, unlike phrasal movements (particularly, A'-movements).

The issue noted above becomes even more challenging when a researcher attempts to contribute to the ongoing debate from the perspective of head-final languages such as Japanese and Korean. Not only must she/he prove that some cases of head movement, if any, are associated with detectable LF-interpretive effects, but she/he must show that head movement does exist in Japanese elsewhere, to begin with. However, the latter task has proven one of the most difficult challenges facing researchers of Japanese syntax since the effect of such an operation, if any, is strictly

string-vacuous due to the head-final character of the language; see Otani and Whitman (1991) and Hoji (1998), and Koizumi (2000) and Fukui and Sakai (2003) for two illustrations of the debate concerning the existence of head movement from the perspective of null object constructions and coordination, respectively.

The purpose of this article is to shed light on the two thorny issues – the existence of head movement in Japanese and its proper locus in syntactic theory – from the previously unexplored perspective of verb-echo answers (henceforth, VEAs). In section 2, we will first present three pieces of novel evidence, based on the interaction of disjunction with adverb-inclusive interpretations, the impossibility of voice-mismatches, and the availability of partial verbal ellipsis in the *V-te morau* construction, to show that VEAs in Japanese is best analysed as the by-product of string-vacuous V-T-C movement, followed by TP-ellipsis in the PF component, rejecting the most likely alternative analyses by means of radical *pro*-drop and/or Argument Ellipsis (henceforth, AE). The existence of VEAs, then, proves that Japanese grammar is equipped with head movement. In section 3, we will investigate whether this movement, involved in the derivation of VEAs, yields any interpretive consequences. Specifically, we will present the hitherto unnoticed observation that the otherwise straightforward surface-rigid scope interpretation between negation and various expressions accompanied by the disjunctive marker *-ka*, additive particle *-mo*, and the association with focus marker *-dake* is completely reversed in the context of VEAs, a pattern which cuts across all grammatical positions vis-à-vis negation, including subjects, direct objects and indirect objects. We show that this ubiquitous “scope reversal” effect observed in VEAs constitutes powerful empirical support for the view that head movement in Japanese is associated with robust interpretive outcomes. Our analysis brings forth a subtle, yet

nonetheless comparatively significant implication that the application of head movement is optional in Japanese, but once obliged, it comes with semantic consequences which otherwise would not be obtained. We conclude, based on these results, that head movement in Japanese is syntactic. Section 4 is the conclusion of this article.

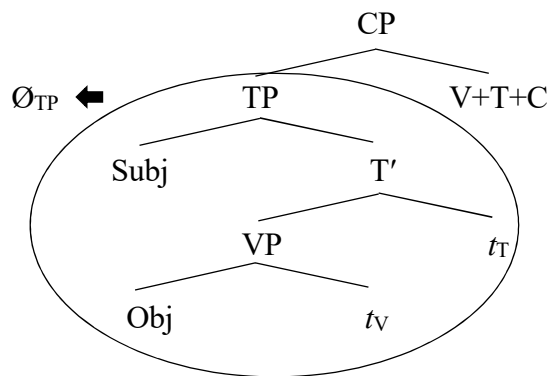
2. VEAs in Japanese and String Vacuous V-to-T-to C Movement in Syntax

VEAs are a type of stand-alone fragmentary answer to a polarity question by repeating (part of) the verb included in the question. VEAs are cross-linguistically a very widespread form of answer to a *yes-no* question, as evidenced by Holmberg's (2016:64–72) recent large-scale survey of languages which have been reported to permit this answer type. Japanese, for one, allows a VEA to a *yes-no* question, as shown in (1A1), in addition to an answer form based on polarity particles, as shown in (1A2).

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

In this section, we will argue that the derivation of a VEA involves V-to-T-to-C movement in the syntactic derivation, followed by TP-ellipsis in the post-syntactic phonological component, as schematically depicted in (2).

(2)



In this analysis, we are assuming Holmberg's (2016:ch3) recent theory of VEAs as our analytical framework. Holmberg essentially argues that the syntactic derivation of VEAs involves the overt head movement of a verb to the sentence-initial focus position to lexically support and spell-out the valued polarity feature [+Pol] borne by the focus head. This feature, as the story goes, works as an operator assigning a value to the otherwise unvalued polarity feature contained in PolP, the syntactic complement of the Foc head, whereby the CP is interpreted as a declarative sentence with a positive truth value. The surface VEA is obtained, then, when the PolP is elided at PF under identity with the PolP of the immediately preceding *yes-no* question, aside from the actual value of Pol: see Holmberg (2016: section 3.2) for his proposed formulation of the identity condition imposed on the application of ellipsis under VEAs, an extension of Merchant's (2001) condition originally developed for sluicing, a technical detail which we won't delve into here.

The reader should therefore bear in mind that, in this paper, unless otherwise indicated, we take that V-to-T-to-C movement in Japanese VEAs actually targets the Foc head position within the CP zone for the purposes of lexically supporting the valued [+Pol] feature borne by the relevant head, so that the feature, in turn, may

correctly value the unvalued polarity feature contained within the PolP, as originally assumed in Holmberg's (2016) framework.

In the rest of this section, we will present two types of empirical evidence in favor of our head movement analysis of VEAs in Japanese. One type of evidence, based on the interaction of disjunctive interpretations (Sakamoto 2016), quantificational interpretations (Takahashi 2008a, b) and adverb-inclusive interpretations (Oku 1998; Simpson et al. 2013; Funakoshi 2016), collectively proves that the head movement derivation of VEAs provides the most empirically satisfactory account of these various interpretations associated with this construction by means of a large-scale ellipsis. The other type of evidence, based on the impossibility of so-called voice-mismatches (Merchant 2001, 2008, 2013, Sugisaki 2014) under VEAs, shows that the underlying syntactic structure of VEAs involves the ellipsis of a TP-constituent. The two types of evidence, combined together, strongly supports our deletion analysis of VEAs outlined in (2). Note that this analysis, in turn, implicates head movement of verbs into the CP-region as its central analytical premise. Thus, the two types of evidence reviewed here further indicate that Japanese is equipped with string-vacuous verb raising, a point which we will further substantiate using the availability of partial verbal ellipsis in the *V-te morau* construction (Hayashi and Fujii 2015).

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

It is widely acknowledged in the literature since Kuroda (1965) (see also Ohso 1976, Hoji 1985, and Saito 1985) that Japanese allows so-called radical *pro*-drop, a rather liberal omission of grammatically required arguments in all argument positions. One

analysis that immediately comes to mind, then, is that VEAs simply involve silent pronominals/*pro*'s, as schematically illustrated in (3).

(3) [TP *pro*_{subj} *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 pointing to the conclusion that Japanese possesses AE, a grammatical phenomenon in which arguments such as subjects and objects themselves undergo ellipsis, instead of some larger constituent such as VP which contains the arguments as their parts. Under this AE-based analysis, VEAs are derived in the manner schematically depicted in (4).

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

Three considerations below show that neither analysis can provide a completely satisfactory account of various interpretations permitted by VEAs, including disjunctive interpretations, quantificational interpretations and adverb-inclusive interpretations.

Our first argument in favor of the head movement analysis of VEAs is concerned with disjunction. Sakamoto (2016) observes that in English, pronouns anaphorically linked to disjunctive arguments accept the disjunctive E-type interpretation, but not the disjunctive interpretation. To take (5), for instance, the pronoun in (5b), which is understood to be anaphoric to the disjunctive antecedent *John or Bill* in (5a), can only be interpreted as the person who actually visited Uconn last year (the disjunctive E-type

interpretation); it cannot be interpreted as *either John or Bill* (the disjunctive interpretation). Note that VP-ellipsis can yield this latter interpretation, as shown in (6).

- (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)

The interpretive contrast between (5) and (6) thus shows that the availability of disjunctive interpretation is contingent on, and hence, serves as a solid diagnostic test for ellipsis. Sakamoto shows that Japanese null arguments behave on a par with ellipsis in that they permit the disjunctive interpretation, as shown in (7b) for the null subject argument. Note that pronouns such as *kare* ‘he’ cannot give rise to this interpretation, as indicated by (7c).

- (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.’

pick up a disjunctive phrase as its antecedent (see also Saito 2007: 206–209 for other empirical problems with Hoji’s analysis in the context of AE in negative sentences). In fact, it also fails to predict so-called quantificational interpretations available to elliptic arguments (Takahashi 2008a, b). To illustrate this point, consider examples in (9).

- (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.’

(9b) permits both E-type and quantificational interpretations, according to which the set of five students whom Hanako invited are identical to, or may be different from the set of five students whom Taro invited. What is noteworthy in this example, however, is that these two interpretations are the only interpretations available for the null object. Importantly, this example cannot mean that Hanako invited an indefinite number of guests. Hoji’s analysis fails to predict that this interpretation should, in

principle, be available in (9b), because the overt counterpart of the indefinite *pro*, *gakusei* ‘student’, does allow this interpretation, as in (9c). Note, incidentally, that the third person overt pronoun *karera* also blocks the quantificational interpretation.

As Takahashi (2008a, b) argues at length, on the other hand, the interpretive restrictions imposed on the quantificational null object is consistent with the AE alternative theory: the E-type interpretation is derived through *pro*_{DP} whereas the quantificational interpretation is derived through the ellipsis of a full-fledged quantificational expression in the direct object position.

Turning now to VEAs, Example (10A) shows that this construction permits quantificational interpretations. This example thus argues against the indefinite *pro*-analysis, though it is consistent with the AE analysis and our head movement analysis.

- (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.’

Our third and final argument in favor of our clausal ellipsis analysis over the alternative small size ellipsis analyses (*pro* and AE) is concerned with the so-called adverb-inclusive interpretation (Oku 1998; Funakoshi 2016). It has been commonly held since Oku (1998) that adjuncts cannot be elliptic in Japanese. This point is

illustrated in (11), where the second clause in this example cannot be interpreted as ‘Hanako washed her car in a careful manner.’

- (11) Taroo-wa kutu-o teineini migai-ta. Hanako-wa kuruma-o migai-ta.
Taro-TOP shoe-ACC carefully polish-PAST Hanako-TOP car-ACC polish-PAST
‘Taro polished his shoes carefully. Hanako polished her car.’

Funakoshi (2016) recently argued against this standard view by pointing out certain cases of the adjunctive-inclusive interpretation and proposed that an adjunct can be null only if the clause-mate object or other VP-internal materials are also null – a pattern which he argues follows from verb-stranding VP-ellipsis (Goldberg 2005). Simpson et al. (2013) also independently came up with the same observation on the basis of their comparative investigations into the distribution of null arguments in Bangla, Hindi and Malayalam. Despite this latest controversy regarding the adverb-inclusive interpretation, the consensus still remains valid among these researchers (see both Funakoshi (2016:123) and Simpson et al. (2013:122)) that adjuncts themselves cannot undergo ellipsis, an assumption which we capitalize on below to argue for our clausal ellipsis theory of VEAs as follows.

Suppose that the derivation of VEAs in Japanese are derived through small-scale ellipsis targeting nominal constituents through *pro*-drop or AE. Then, we expect that the adverb-inclusive interpretation should never be available in such an answer form. If the derivation of VEAs involves TP-ellipsis, as it does under our alternative big ellipsis analysis, on the other hand, then the prediction is that such an interpretation should, in principle, be available under this structural environment. As first pointed out by Sugimura (2012:149–

150), the prediction of the clausal ellipsis analysis, not of the nominal ellipsis analyses, is correct.¹ Consider (12–13).

- (12) a. Taroo-wa zibun-no yarikatade todai-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 kyodai-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.’

As documented by Murasugi (1991) and Saito (2007:223–224), *pro*-drop and AE may target locative and temporal expressions, but cannot target reason and manner adverbials. The example in (12b), thus, disallows the adjunct-inclusive interpretation according to which Hanako also passed the entrance exam to Kyoto University in her (=Hanako’s) own way, a pattern which is also consistent with the consensus view mentioned above that adjunct expressions themselves cannot undergo ellipsis. Now, given that manner adverbs such as *zibun-no yarikatade* ‘one’s own way’ cannot be elided on its own, the *pro*-drop or AE-based analysis of VEAs would necessarily lead us to predict that the

¹ One of the Sugimura’s original examples to make the point is shown in (i).

- (i) Q: Ha-o shikkari migai-ta-no?
 teeth-ACC thoroughly polish-PAST-Q
 ‘Did you thoroughly brush your teeth?’
 A: Un, migai-ta.
 yes brush-PAST
 ‘Yes, I did (I thoroughly brushed my teeth). lit. Brushed.’ (Sugimura 2012:150)

Sugimura develops a VP-ellipsis analysis of this example. We agree that clausal ellipsis is a critical component of any analysis of the adverb-inclusive interpretation. However, our argument based on voice mismatches under VEAs in section 2.2 argues for the TP-ellipsis analysis over the VP-ellipsis analysis.

adverb-inclusive interpretation should be similarly unacceptable in this construction. Example (13) shows that this prediction is false, for the VEA in (13A) readily allows the interpretation in question, namely that Hanako passed the entrance exam to the University of Tokyo in her own way.

- (13) Q: Hanako-wa zibun-no yarikatade todai-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.’

This interpretive pattern, on the other hand, is straightforwardly derived under our clausal ellipsis analysis since the adjunct is included as part of the TP which undergoes ellipsis in the same way that the adjunct *carefully* is interpreted as included in the ellipsis site in English sluicing in (14), a case of TP-ellipsis

- (14) John washed something carefully, but I don’t know what; [~~TP John washed *t* carefully~~].

By way of concluding this section, let us note that a single VEA in Japanese can simultaneously exhibit more than one of the three interpretive signatures introduced thus far in this section. Example (15A) includes both the disjunctive interpretation for the subject argument and the adverb-inclusive interpretation for the manner adverb, respectively, meaning that this example can only be derived through the TP-ellipsis

analysis. The same point is made by the VEA example in (16A), which has the quantificational interpretation for the subject argument and the adverb-inclusive interpretation for the manner adverb, respectively.

(15) Q: Taroo ka Ziroo-ga zibun-no yarikatade todai-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.’

(16) 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 saiyou-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?’

To summarize our discussion thus far, we have introduced three interpretive diagnostics – disjunctive interpretations, quantificational interpretations, and adverb-inclusive interpretations – to tease apart empirical predictions of the three competing analyses of VEAs in Japanese offered by *pro*-drop, AE and TP-ellipsis. We have

demonstrated that among the three analyses, our TP-ellipsis analysis presents the most descriptively adequate explanation for the range of interpretations actually attested in VEAs. The results of our study conducted in this section are summarized in Table 1.

	<i>Pro</i> _{DP} analysis	<i>Pro</i> _{NP} analysis	Argument Ellipsis	TP-Ellipsis
Disjunctive interpretation (8)	NO	NO	YES	YES
Quantificational interpretation (10)	NO	NO	YES	YES
Adverb-inclusive interpretation (13)	NO	NO	NO	YES

Table 1: Various Interpretations Available under VEAs in Japanese

It is now to be recalled from (2) that that our theory of VEAs in Japanese critically assumes head movement as its central analytical premise for TP-ellipsis to apply to yield the verb-stranding configuration. The results of our investigation conducted in this section, therefore, implies that Japanese is equipped with string-vacuous V-to-T-to C movement in the narrow syntax. We will further substantiate the latter point regarding the proper locus of head movement in Japanese from the interaction between various focus-related expressions with clausal negation in section 3.

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

We have shown in the previous subsection that VEAs in Japanese are derived through string-vacuous head movement of the echoed verb into the C position, followed by TP-ellipsis in the PF component. This analysis makes one interesting prediction in the area of voice mismatches. Merchant (2001, 2008, 2013) and Chung (2013) point out that

sluicing in English, an instance of TP-ellipsis, blocks active-passive voice mismatches between the antecedent clause and the sluiced clause, as illustrated in (17).

(17) * Someone shot Ben, but I don't know by who(m)_i [_{TP} ~~Ben was shot~~ _{TP}].

(Merchant 2001:35)

Merchant (2008, 2013) rules out voice-mismatches as a violation of the syntactic identity condition: the example in (17) is ungrammatical because the antecedent TP does not match with the elliptical TP in terms of voice features. Sugisaki (2014) observes that sluicing in Japanese also does not tolerate active-passive voice mismatches, as illustrated by the contrast in grammaticality between (18a) and (18b). Note, of course, that the active-passive voice mismatch does not yield any loss of grammaticality if the elided part in (18b) is fully pronounced, as shown in (18c).

(18) 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.’

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.
 hire-PASS-PAST-Q know-NEG-PRES

‘Someone hired John, but I don’t know by whom he was hired.’

((18b, c) from Sugisaki 2014:6)

Our current analysis leads us to predict that VEAs, derived here as an instance of TP-ellipsis, should be allergic to voice-mismatches, on a par with sluicing, another instance of TP-ellipsis, because the latter is independently known to obey the above-mentioned syntactic identity constraint on voice. This prediction is borne out in (19). The scene-setting question in (19Q) contains an active antecedent whereas the VEA to the question contains an active response in (19A1), but a passive response in (19A2).

(19) 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.’

In this paper, we follow Merchant’s (2008, 2013) syntactic identity-based theory of voice mismatches in English sluicing noted above and assume that the response in (19A2) is ungrammatical because its passive voice feature within the elliptical clause does not match the active voice feature of the *yes-no* question in (19Q).

It is also worthy to note that the grammatical active VEA in (19A1) readily allows the combination of the quantificational and adverb-inclusive interpretation whereby the company in question recruited more than five students through its personal connections this year. Given our discussion in section 2.1 (see Table 1), the availability of these interpretations independently serves to exclude both the *pro*-based analysis and the AE analysis as analytic possibilities for this VEA. The contrast between (19A1) and (19A2), therefore, conclusively proves that Japanese VEAs cannot tolerate voice-mismatches, a fact which straightforwardly falls into place under our analysis of this construction as an instance of TP-ellipsis on a par with sluicing.²

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)

There is in fact evidence to show that *pro*-drop and AE in Japanese actually do permit voice mismatches. To illustrate, consider examples (20).

- (20) 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 polarity question in (20Q) contains an active voice structure whereas the elliptical replies to the question in (20A1) and (20A2) contain an active and passive voice structure, respectively. In addition, the two replies here allow either the E-type interpretation or the quantificational interpretation for the elided quantificational argument *gonin-izyoo-no gakusei-ga* ‘more than five students’. This indicates that their

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, a project which would require a book-length study on its own and would take us far afield here. We will thus not delve into this complication in this paper, leaving further investigations of this point for another occasion.

derivation involves either the *pro*-drop/AE or a large-scale TP-ellipsis. However, the latter analytical possibility is controlled for in these examples by keeping intact the subject *uti-no kaisya* ‘my company’, a possibility that should not be available under the TP-ellipsis theory.

Given these considerations, the grammaticality of the example in (20A2) shows that *pro*-drop and AE both permit active-passive voice mismatches in Japanese. Consequently, the contrast in grammaticality between (19A1) and (19A2), together with the lack thereof between (20A1) and (20A2) presents a strong piece of support for the view endorsed here that the syntax of VEAs involves TP-ellipsis, and by extension, that Japanese has string-vacuous V-to-T-to C movement in narrow syntax.

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


As briefly mentioned in the introduction, one of the most contentious issues for more than twenty years in the Japanese literature has been whether this language has verb raising because of its strictly head-final character making the effects of head movement, if any, completely string-vacuous. Thus, Otani and Whitman (1991) and Koizumi (2000) have argued for the existence of string-vacuous head movement in Japanese based on null object constructions and coordination, respectively. However, their empirical arguments for this position have since been questioned and disputed by much subsequent work, particularly by Hoji (1998) and Fukui and Sakai (2003) (see also Fukui and Takano 1998, Sakai 1998, Takano 2004, Koopman 2005, and Aoyagi 2006). To the extent that our results arrived at in the previous sections support the existence of TP-ellipsis, we believe we are successful in arguing that Japanese has string-vacuous V-to-T-to C movement. In section 4, we will document robust evidence from what we will

call negative scope reversal to show that the movement in question occurs in syntax. With this being said, however, it would be ideal if we could present independent empirical evidence, also internal to the context of VEAs, to show that their derivation indeed involves head movement independently of the range of permissible semantic interpretations associated with this construction. In this subsection, then, we will present our preliminary evidence for such movement from partial predicate ellipsis in the *V-te morau* construction recently investigated by Hayashi and Fujii (2015) in favor of their claim that this construction involves syntactic head movement in Japanese. The construction in question is illustrated in (21). Other predicates that can take *te*-complements include *ar* ‘to be’, *age* ‘to give’, *ik* ‘to go’, *ku* ‘to come’, *ok* ‘to put’, *mi* ‘to see’, and *simaw* ‘to finish’ (Hayashi and Fujii 2015:33).

- (21) 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)

Hayashi and Fujii introduce various data regarding the immovability of *te*-complements, the distribution of genitive-marking under nominalized *te*-complements, and the adverb-inclusive interpretation (recall our discussion in section 2.1), to show that the head element of the *te*-complement of this class of verbs – *V-te* in the T position, to be exact – undergoes syntactic head movement into one of those matrix predicates in the manner schematically depicted in (22).³

³ Hayashi and Fujii (2015:34) choose to remain silent regarding how the embedded verb and *-te* are combined together before they undergo movement into the matrix verbal head position, merely noting

(22) Taro-wa [Ziroo-ni piza-o [_T t]] tuku-te+morat-ta.


(cf. Hayashi and Fujii 2015:34)

What we wish to do here is to build on Hayashi and Fujii’s analysis of the *V-te morau* construction as our analytical point of departure in order to motivate the involvement of the head movement involved in VEAs derived from this particular construction. Example (23A) is a case in point. In response to the *yes-no* question in (23Q), Japanese speakers can accept both the complex predicate *tukut-te morau* ‘to get someone make’ in (23A1) and *morau* ‘to get’ in (23A2) as two synonymous replies.

(23) Q: Kono yoohuku obaayan-ni tukul-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. Get make. (I got her to make this cloth.)’

A2: Morat-ta-yo.
 get-PAST- PRT
 ‘lit. Got. (I got her to make this cloth.)’

We suggest that the second response in (23A2) involves partial predicate ellipsis, namely, the ellipsis of the *te*-complement including the downstairs verb – *tsukuru* ‘to

there that they “could be formed by V-to-T movement in syntax, or by morphological merger under adjacency in the embedded cycle...”. See also Matushansky (2006) for relevant discussions.

make’ – which fails to undergo syntactic head movement. Under this analysis, the VEA pattern repeating the entire complex predicate in (23A1) is obtained when the embedded verb undergoes syntactic head movement onto the matrix predicate, followed by the ellipsis of the *te*-complement. The VEA pattern repeating the matrix verb alone in (23A2), on the other hand, is derived when the verb in question fails to undergo head movement, followed by the ellipsis of the *te*-complement.

One might suspect that the partial predicate ellipsis noted above may be amenable to other analyses such as those based on *pro*-drop and AE. The distribution of partial predicate ellipsis involved in VEAs based on the *V-te iku* construction, a variant of the *V-te morau* construction investigated by Hayashi and Fujii, presents support for the view that the head movement analysis is empirically superior to those alternative analyses. Example (24Q) illustrates the *V-te iku* construction.

(24) 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.’

The grammaticality of the responses in (24A1a, b) shows that the *te-iku* construction can yield the partial predicate ellipsis configuration. As we have just seen above, this answer pattern is derived if we assume that the embedded complement verb undergoes optional head movement onto the matrix verb position. It is important to note that the partial predicate ellipsis as instantiated in (24A1a, b) cannot be derived through *pro*-drop or AE. This is so because the hypothesized underlying structures for the partial predicate ellipsis example in (24A1a, b) are actually ungrammatical, to begin with, as shown in (24A3a, b), though the two analyses can certainly predict the grammaticality of the complete complex predicate answer in (24A1a, b) given the grammaticality of the examples in (24A2a, b) with pronouns or arguments still being pronounced together with the complex verb series.

We can then take the possibility of partial predicate ellipsis in the *V-te iku* construction, as illustrated in (24A1a, b), as supporting evidence in favor of the 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

In the previous section, we have furnished new evidence from various interpretations associated with VEAs and the impossibility of voice-mismatches under this construction to show that Japanese has string-vacuous head movement. The purpose of this section is to show that this movement, involved in the derivation of VEAs, has robust semantic effects. We will present various data regarding the interaction of negation with focus-sensitive particles such as *dake* ‘only’ and disjunctive *ka* ‘or’ to show that the otherwise stable wide scope of the expressions accompanied with these particles vis-à-vis negation is reversed in the context of VEAs. This negative scope reversal pattern therefore supports the view that head movement in Japanese occurs in narrow syntactic computation.

3.1. Shibata’s (2015a, b) Legacy: Obligatory Surface Scope Effects as Anti-Reconstruction, Trace Conversion, and Acyclic Merger

In Japanese, quantified objects in the direct object position can take scope either above or below negation, as shown in (25).

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

It is well-known that 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. This observation is illustrated in (26) and (27) with *-dake* 'only' and *-ka* 'or', respectively. In this respect, Japanese behaves differently from English, in which focus-marked or disjunctive phrases can take scope below negation without any loss of grammaticality, as evidenced in (28a, b), a pattern which makes sense if objects are base-generated and remain lower in a position below negation, as is standardly assumed in the ordinarily postulated array of functional projections in English (i.e., $V < \nu < \text{Neg} < T$).

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

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

Shibata (2015a, b) takes the scope ambiguity with regular quantified expressions in (25), together with the obligatory wide scope of the DPs in (26, 27) to indicate that object phrases in Japanese must undergo overt movement to a position above negation and that the attachment of a focus-related or disjunctive particle somehow blocks the reconstruction process available in the case of regular quantified expressions – which Shibata calls an anti-reconstruction effect (p.67).⁴ Shibata then proposes that this obligatory wide scope reading associated with focus-sensitive and disjunctive phrases in Japanese receives a straightforward explanation under Fox's (2003) Trace Conversion, a two-step process consisting of variable insertion and determiner replacement, as defined in (29a, b), respectively.

- (29) a. Variable insertion: (Det) Pred \rightarrow (Det) [Pred λy ($y = x$)]
 b. Determiner replacement: (Det) Pred \rightarrow the [Pred λy ($y = x$)]
 (Shibata 2015a: 68)

Let us illustrate how Trace Conversion serves to yield the obligatory wide scope reading of focus- and disjunctive phrases, using the English examples in (30a) and (32a).

⁴ One of the significant questions Shibata (2015a, b) addresses is why objects, or all vP-internal objects, 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 vP-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 etiologic of object movement any further in this paper, since it suffices for our present purposes to note that focus- and disjunctive phrases can only take obligatory wide scope with respect to negation.

- (30) 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)

Following Rooth (1985), Shibata assumes that the focus operator *only* is adjoined to the DP it is semantically associated with. If this operator were present before the subject *that boy* undergoes movement from [Spec, ν P] to [Spec, TP], we would obtain the syntactic representation shown in (30b). Since the focus operator *only* is located outside the DP, it remains unaffected by Trace Conversion. This would then yield the LF representation shown in (30c), but this representation is semantically uninterpretable. Shibata argues that this problem can be solved if the operator in question is acyclically adjoined to the DP subject in the manner shown in (31b).

- (31) 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)

The syntactic structure in (31b) then makes an input for (31c), a well-formed semantic representation, as desired. Note that this derivation 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 reading of the focus-sensitive phrase, or its anti-reconstruction effect.

Shibata (2015a:70) extends the same acyclic merger approach to the DP modified by the disjunctive marker *-ka* ‘or’, as illustrated in the English example in (32a). He does so by adopting Chierchia et al.’s (2012) proposal that a disjunctive expression is interpreted with a silent exhaustive operator in (32b), $O_{ALT}(S)$, which expresses the conjunction of S and of the negations of all the members of ALT that are not entailed by S, which serves to yield the reading that (32a) necessarily entails the weaker disjunctive denotation in (32c), not the stronger conjunctive denotation in (32d).

- (32) 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)

Given that the semantic computation of disjunctive also involves acyclic merger as does *only*, it follows that a disjunctive phrase must necessarily take scope over negation.

In this section, we have briefly reviewed Shibata’s (2015a, b) intriguing observation that the attachment of a focus-sensitive particle such as *-dake* ‘only’ and disjunctive marker *-ka* ‘or’ eliminates the otherwise possible reconstructed interpretation available with quantificational DPs. We have seen that this observation is nicely captured by the interaction of acyclic merger of these expressions for the purposes of proper semantic interpretation with the obligatory movement of vP-internal materials such as direct objects above negation. In this next section, we will present our

new finding that this obligatory wide scope interpretation is reversed in the context of VEA, an observation that strongly supports the view that head movement involved in the derivation of this construction occurs within the syntactic derivation, not at PF.

3.2. *Negative Scope Reversal under VEAs*

Let us now consider how the facts about scope play out under VEAs. We have seen in (26) that a phrase marked with the focus-sensitive operator *-dake* ‘only’ obligatorily takes scope over clausemate negation. Interestingly, the VEA response to the polarity question based on examples such as (26) shows the opposite scope relationship. The VEA answer in (33), 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 (26). Seven native Japanese speakers we have consulted so far have unanimously expressed their strong intuition that the wide scope reading of negation over the focus phrase is dominant. We will henceforth refer to this scope shift observed under VEAs as negative scope reversal.

- (33) 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 disjunctive questions such as the one in (27). Recall that the disjunctive phrase *A ka B* ‘A or B’ in Japanese necessarily takes scope over clausemate negation, a pattern which Shibata (2015a, b) attempted to derive through the interaction of the acyclic merger operation with Fox’s (2003) Trace Conversion. Again, the example in (34A), as a response to the disjunctive question in (34Q), exhibits the scope reversal effect: what was otherwise the impossible *Neg » or* interpretation in (27) is now the only interpretation available under the VEA to the disjunctive *yes-no* question.

- (34) 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.’

The examples in (33) and (34) have illustrated the negative scope reversal effect with reference to focus and disjunctive phrases in direct object positions. Below, we will furnish further data to demonstrate that the relevant effect obtains quite generally under VEAs which are intended to answer a *yes-no* question which contains one of these phrases, regardless of the grammatical functions that they occupy in the antecedent questions, including subjects, indirect objects, and postpositional phrases.

Let us start with a case where a phrase marked with *-dake* ‘only’ or the disjunctive marker *-ka* ‘or’ occurs in the subject position in the antecedent clause. As

first noted by Saito (2010), the *dake*-marked subject must take scope above negation, as shown in (35), a pattern consistent with Shibata's (2015a, b) generalization that focus-sensitive expressions must exhibit the surface scope due to their undergoing mandatory late insertion for the purposes of proper semantic interpretation. Example (36) now shows that this scope pattern is reversed in the case of the VEA used as a response to the *yes-no* question which contains the same focus-sensitive expression in subject position.

(35) Sono toki kyoositu-ni-wa Taroo-dake-ga
 that time classroom-in-TOP Taro-only-NOM
 i-nak-atta. (only »Neg, *Neg » only)
 be-NEG-PAST

‘At that time, only Taro was in the classroom.’ (Saito and Takita 2016:418)

(36) 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.’

Unsurprisingly, the negative scope reversal effect is also observed in the case of VEAs which respond to a *yes-no* question containing a disjunctive phrase. Example (37) only has the interpretation where the disjunctive phrase *Taroo ka Hanako* ‘Taro or Hanako’

takes scope over negation. The VEA response to a *yes-no* question of this sort, by contrast, has the opposite Neg » or scope reading as its only possible interpretation. This point is illustrated in (38).

- (37) 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.’

- (38) 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.’

Continuing further on the same theme, the negative scope reversal effect is also observed when a focus or disjunctive phrase occupies an indirect object position of ditransitive verbs such as *okur* ‘to send’. In (39), the indirect object *Taroo-ni* ‘Taro-DAT’ is marked with the focus particle *-dake* ‘only’ and take obligatory wide scope with respect to negation in a way consistent with Shibata’s (2015a, b) generalization. Time

and again, we can see that the VEA, uttered as a response to a *yes-no* question with this alignment of the focus phrase in the indirect object position, has the reverse scope interpretation, namely, that it only accepts the Neg » only interpretation.

(39) 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)

(40) 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.’

Examples (41, 42) illustrate the scope reversal in the same indirect object configuration with the disjunctive phrase *Taroo ka Hanako-ni* ‘Taro or Hanako-DAT’.

(41) 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.’

(42) Q: Yukiko-wa Tarooka Hanako-ni nengazyoo-o okut-ta-no?

Yukiko-TOP Tarooor 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.’

Finally, we can see in the examples in (43–46) that the negative scope reversal effect is detected in those VEAs which answer a *yes-no* question with a focus or disjunctive phrase in the (comitative) postpositional phrase position. Examples (43, 44) are control cases to show that these phrases must take scope above clausemate negation when they occur as the postpositional phrase. With this in mind, examples (45, 46) are VEAs to respond to *yes-no* questions based on the examples in (43, 44). Here again, what was the impossible scope interpretation in (43, 44) – *Neg » only and *Neg » or, respectively – now becomes readily available in the VEA counterparts in (45, 46), yet another manifestation of what we have been referring to as the negative scope reversal.

(43) 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)

(44) 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.’

(45) 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.’

(46) Q: Anata-wa sono hi Tarooka 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.’

We have presented a wide range of data to show that the mandatory surface scope effect observed with expressions marked with the focus-sensitive operator *-dake* ‘only’ or the disjunctive particle *-ka-* an anti-reconstruction effect which Shibata (2015a, b) has captured through acyclic merger of those operators onto their host phrases – is

reversed under VEAs in favor of the opposite scope pattern where clausemate negation takes scope over these expressions in quite a transparent fashion. We summarize our data reported in this section and description thereof Table 2 for ease of reference.

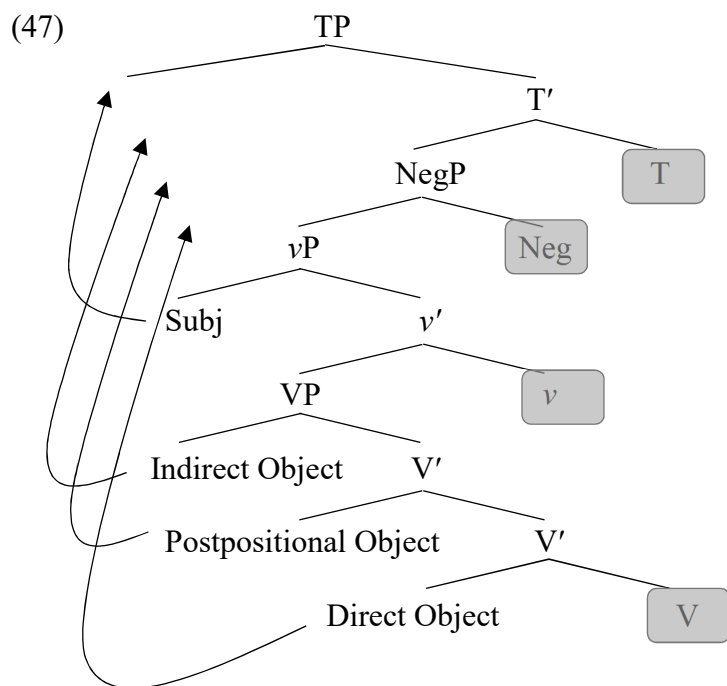
		Direct Object	Subject	Indirect Object	PP object
Base Scope (Control Case)	'only'	only » Neg; *Neg » only (Anti-Reconstruction Effect)			
		(26)	(35)	(39)	(43)
	disjunction	or » Neg; *Neg » or (Anti-Reconstruction Effect)			
		(27)	(37)	(41)	(44)
Derived Scope (VEA)	'only'	?? only » Neg, Neg » only (Negative Scope Reversal)			
		(33)	(36)	(40)	(45)
	disjunction	?? or » Neg, Neg » or (Negative Scope Reversal)			
		(34)	(38)	(42)	(46)

Table 2: Negative Scope Reversal with Reference to the Focus-Sensitive *Dake* 'only' Phrase and the Disjunctive *-Ka* 'or' Phrase under VEAs

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

We would like to show now how the negative scope reversal effect, observed under VEAs, constitutes a powerful argument that head movement, as involved in this context, occurs in the narrow syntactic computation. Recall that Shibata (2015a, b) argues that focus- or disjunctively marked expressions must take scope over negation because of their obligatory movement above negation in the syntactic derivation, followed by acyclic merger of the operator parts after the movement of their host.

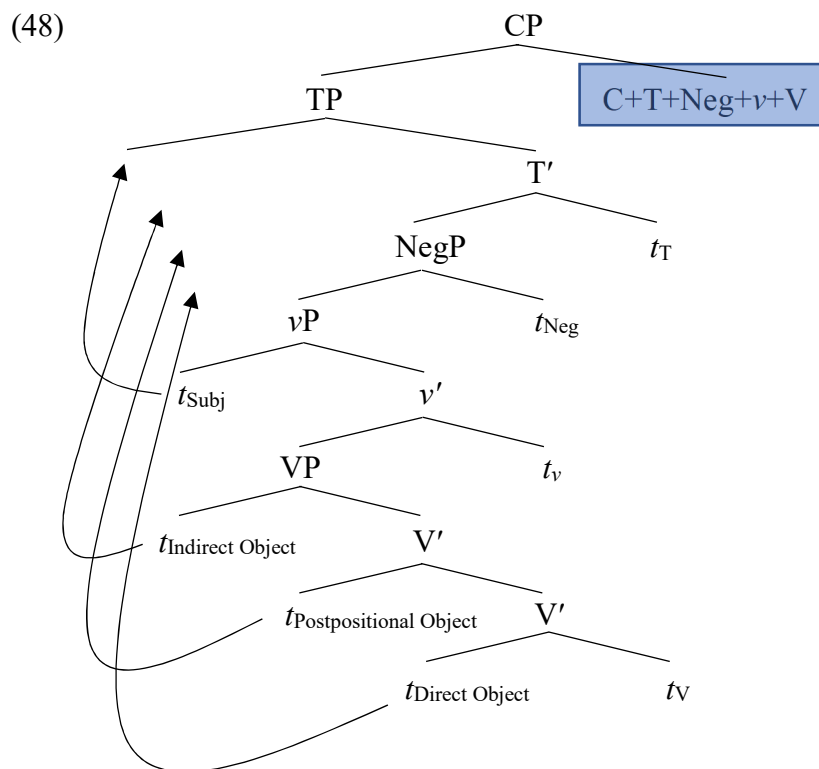
Given this analysis, we assume that the derivation of such negative sentences with surface scope effects roughly takes the form shown in (47).



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

In this derivation, all vP-internal phrases such as subjects, indirect objects, postpositional objects and direct objects undergo syntactic movement above negation into the TP-region: see footnote 4 for our brief exposition of Shibata's (2015a) explanation for the etiology of this obligatory movement from the perspective of morphological merger to create the complex predicate from the distinct heads under the condition of structural adjacency. Coupled with the mandatory late insertion of focus-sensitive 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 examples of the negative scope reversal introduced in the previous subsection strongly indicate that the verbal complex containing negation as its subpart must undergo 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 within the TP in the derivation shown in (47) in its c-command domain. The only theoretical move that we can think of to capture this architecture property is that a verb undergoes successive cyclic movement from the V position, picking up negation on its way, before it lands into the C position, as schematically represented in (48).



Since the movement to the C position here undeniably changes the resulting scope interpretation, as we have amply documented in the previous subsection, we can now

further conclude that the movement in question is indeed syntactic rather than a post-syntactic phenomenon in the phonological component.⁵

4. Conclusion

One of the most vigorously debated theoretical issues in the contemporary framework of the Minimalist Program is the nature and locus of so-called head movement. Added to this issue is a further complexity posed by strictly head final languages such as Japanese and Korean regarding the very existence of this phenomenon, given that any such movement can only yield string-vacuous outputs. The purpose of this paper has been to shed light on these two thorny issues from the previously unexplored perspective of verb-echo answers, a type of verb-based short answer to a *yes-no*

⁵ In this footnote, we would like to address briefly a potential problem with our proposed analysis of the negative scope reversal under VEAs. We have argued in this section that the head movement of the verbal complex containing negation to the C position has scope-shifting capacities. One might counter that the interpretive contrast between (i) and (ii) below raises a problem for this analysis.

- (i) Q: Taroo ka Hanako-ga ki-ta-no?
 Taro or Hanako-NOM come-PAST-Q
 'Did either Taro or Hanako come?'
 A: Ko-nakat-ta-yo. (*or » Neg, Neg » or)
 come-NEG-PAST-PRT
 'lit. didn't come.'
 (≠ Both Taro and Hanako came. / = Neither Taro nor Hanako came.)
- (ii) Taroo ka Hanako-ga ki-ta no-de-wa nai.
 Taro or Hanako-NOM come-PAST that-COP-TOP NEG
 'It is not the case that either Taro or Hanako came.'
 (= Both Taro and Hanako came. / = Neither Taro nor Hanako came.)

More specifically, the example in (ii) has two interpretations (either that both Taro and Hanako came or that that neither Taro nor Hanako came), the kind of ambiguity that should be obtained if negation takes scope over the disjunctive subject. Interestingly, though, the VEA counterpart only has the second interpretation, as shown in (i). We can only suspect for the moment that this is not necessarily a problem for our analysis since the status of negation in the two sentences is different so that (i) involves clause-internal negation, i.e., V-*v*-Neg-T, whereas (ii) involves clause-external negation, i.e., V-*v*-T-Neg (see Ota 1980 and Horn 1989, for instance). It could be, then, that the external negation status in the latter helps to yield an extra interpretation that is lacking in the former, a possibility which nonetheless needs to be more carefully investigated for another occasion for reasons of space.

question whose critical relevance to syntactic theorizing was recently brought to linguists' attention by the ground-breaking work by Holmberg (2016), as follows.

Firstly, to address the first issue, adopting Holmberg's big-ellipsis theory of VEAs, 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 to lexicalize the polarity feature of the head, followed by the ellipsis of the TP constituent in the phonological component. Our evidence for this analysis was two-fold. The first type of evidence was concerned with a wide range of interpretations associated with VEAs, including disjunctive interpretations, quantificational interpretations and adverb-inclusive interpretations, all of which serve to eliminate the otherwise plausible analyses of VEAs in terms of definite/indefinite *pro*'s or AE in favor of the large-scale ellipsis analysis we've been advocating for in this paper. The analysis further predicts that VEAs, now analyzed as a subspecies of TP-ellipsis, should exhibit some signature properties of other well-known instances of TP-ellipsis such as sluicing. We have presented novel data to show that this prediction was indeed borne out: VEAs do not accept voice mismatches whereas *pro* and AE do, a contrast that constitutes our second type of evidence for our TP-ellipsis analysis. Given these two types of evidence for the TP-ellipsis in the derivation of VEAs, it follows that the verb sequence in this construction must raise up to the C position to evade the ellipsis, following the standard constituency assumption on the application of PF-ellipsis. We have further included new data on partial predicate ellipsis of the complex *V-te-iku/V-te-morau* predicate as independent morphological support in favor of the head movement derivation of VEAs.

Secondly, to address the second issue – the locus of head movement in linguistic theory–, we have established a new descriptive generalization that the otherwise obligatory wide scope exhibited by DPs marked by focus-sensitive operators such as –*dake* ‘only’ and the disjunctive marker –*ka* ‘only’ with respect to clausemate negation is reversed in the context of VEAs, a pattern which cuts across various grammatical positions occupied by those phrases, including subjects, direct objects, indirect objects and objects of postpositions. We have shown how this generalization lends powerful support for 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. The conclusion we reached here regarding the locus of head movement, in turn, also meshes well with Kishimoto’s (2007, 2008) argument, based on negative polarity licensing, that head raising in Japanese occurs in syntax instead of PF. It remains to be seen whether Japanese grammar is endowed with some other instances of semantically active head movement.

It is our hope at the moment that the line of investigation conducted here with reference to verb echo answers will stimulate other researchers to study this construction in a wider range of typologically different languages and to seek to integrate their properties into broader theoretical questions regarding ellipsis, head movement and the interaction thereof. Therefore, rather than being anything close to the last word on VEAs in Japanese, we wish the project reported here to be seen as merely a first step into the investigation of what we find to be a surprisingly rich and intricate domain with multi-faceted, global intersections with many other areas of grammar, including theories of ellipsis, the syntax-phonology interface and the fundamental design of head movement in natural language syntax.

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