

String Vacuous Head Movement: The Case of *V-te* in Japanese

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Abstract: This study argues that verbal heads of a certain kind do undergo overt movement in a string vacuous fashion in Japanese. Evidence comes from properties of *te*-clauses. To account for significant syntactic differences between complement and adjunct *te*-clauses, we propose that the head of the complement *te*-clause, unlike the head of the adjunct one, moves to the matrix clause in a way that cannot easily be detected based on word order. Moreover, we explore predictions of the analysis for ellipsis phenomena, showing that the head of the complement *te*-clause escapes ellipsis by being extracted out of the ellipsis site. We also observe that the movement process under examination is an instance of head movement that does not feed morphological complex word formation.*

Key words: head movement, argument ellipsis, nominalizations, morphological merger, complex predicates

1. Introduction

Whether Japanese displays any instance of head movement in overt syntax has been controversial for over twenty years due to its strictly head-final nature. In this language, head movement, if any, would always take place in a string vacuous manner, and therefore no overt evidence based on word order is available, unlike in languages like French (cf. Pollock 1989). While researchers such as Otani and Whitman (1991) and Koizumi (2000) have presented arguments for the existence of head movement in Japanese based on syntactic phenomena other than word order, the validity of their arguments has been questioned by later work (cf. Sells 1995, Hoji 1998, Sakai 1998, Fukui and Takano 1998, Fukui and Sakai 2003, Takano 2004, Koopman 2005, Aoyagi 2006, Kishimoto 2006, 2013, Han, Lidz and Musolino 2007, and references cited therein). The current situation thus

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seems to be that no convincing evidence for head movement in Japanese has been submitted. The goal of this paper is to argue in favor of the claim that head movement exists in Japanese based on facts about *te*-clauses like the one in (1).¹ We argue that in (1) the string of the embedded verb *tukut* ‘cook’ and the morpheme *-te* (henceforth *V-te* complex, or *V-te* for short) undergoes head movement to the higher verb *morat* ‘get’ (see Nakau 1973: Ch. 7, Harada 1977/2000, Shibatani 1978: Ch. 3, McCawley and Momoi 1986, and Nakatani 2004: Ch. 7 for relevant discussion of *V-te*; see also Kuroda 1965: Ch. 6, Miyagawa 1987, Terada 1990: Ch. 5, Kitagawa and Kuroda 1992, Tsujimura 1993, Hoshi 1994: Ch. 4, Matsumoto 1996: Ch. 3, Takahashi 2012, and Nishigauchi 2013 for structural proposals given to (certain) *te*-complement constructions).

- (1) Taro-ga [Ziro-ni piza-o tukut-te] morat-ta.
 Taro-NOM Ziro-DAT pizza-ACC cook-TE get-PAST
 ‘Taro had Ziro cook pizza.’

The novelty of the present paper is twofold. First, we add new arguments in favor of the classical head movement analysis of complement *V-te*, based on hitherto unnoticed or less acknowledged facts (see Sections 2.2.2 and 2.2.3). We also bring adjunct *te*-clauses in perspective (see Tamori 1977, Nakatani 2004, Uchimarū 2006, Hayashi 2013 for discussion of adjunct *V-te*), demonstrating that adjunct *V-te*, unlike complement *V-te*, never moves (see Sections 2.2.1 and 2.2.2). Second, although the idea that complement *V-te* moves has been found in the literature (see the references cited above), a unified analysis of *te*-complements and *te*-adjuncts has not been fully worked out. The present paper attempts to instantiate such an analysis (see Section 2.3).

This paper is organized as follows: In Section 2 we examine properties of *te*-clauses, and argue that these properties can straightforwardly be accounted for by head movement, and propose that head movement out of the *te*-complement takes place in order to eliminate the uninterpretable tense feature on the higher predicate it adjoins to. In Section 3 we consider some possible alternatives, which do not appeal to head movement, to our analysis. Section 4 explores a theoretical implication of our analysis for the syntax-morphology interface. It is shown that the result of head movement involved in *te*-complements is somewhat unusual in that it does not feed word formation. We suggest that this unusual result of head movement supports Matushansky’s (2006) analysis of head movement, according to which head movement is actually a combination of two independent operations. Section 5 is a conclusion.

2. Properties of *Te*-clauses and Head Movement Analysis

This section introduces properties of *te*-clauses and shows that an analysis in terms

¹ Abbreviations used in this paper include: ACC (Accusative), CAUS (Causative), COP (Copula), DAT (Dative), DEF (Definite), NEG (Negation), NOM (Nominative), PAST (Past Tense), PRES (Present Tense) and TOP (Topic).

of head movement captures the data well. We will discuss alternatives to the head movement analysis in Section 3.

2.1. Cross-clausal head movement out of *te*-clauses

The purpose of this section is to lay out properties of *te*-clauses and show that the properties naturally follow if *V-te* moves into the next higher clause in the complement construction but not in its adjunct counterpart. Sections 2.2.1 and 2.2.2 deal with asymmetries that complement and adjunct *te*-clauses exhibit. In Section 2.2.3 we discuss data concerning ellipsis of *te*-complements. (2) and (3) below illustrate complement and adjunct *te*-clauses, respectively.²

- (2) a. Taro_i-wa [e_i piza-o tukut-te] kure-ta.
 Taro-TOP pizza-ACC cook-TE give-PAST
 ‘Taro cooked pizza (for me).’
 b. yatto ame_i-ga [e_i yan-de] kure-ta.
 finally rain-NOM stop-TE give-PAST
 ‘Finally the rain stopped.’
 c. Taro-wa [Ziro-ni piza-o tukut-te] morat-ta.
 Taro-TOP Ziro-DAT pizza-ACC cook-TE get-PAST
 ‘Taro had Ziro cook pizza.’
 d. [kono mise-de-wa kankodori-ga nai-te] hosiku-na-i.
 this shop-in-TOP cuckoo-NOM sing-TE want-NEG-PRES
 ‘(I) do not want this shop to be out of business.’
- (3) Taro-ga [piza-o tukut-te] okane-o morat-ta.
 Taro-NOM pizza-ACC cook-TE money-ACC get-PAST
 ‘Taro got money by cooking pizza.’

Complement *te*-clauses may involve various types of complementation. (2a) and (2b) may be analyzed as involving subject control and subject-to-subject raising, respectively. The structures of (2c) and of (2d) seem more difficult to identify. (2c), contrary to what is indicated by the bracketing notation above, could be an object control construction since it is possible to analyze the dative argument *Ziro-ni* as a matrix element.³ The grammaticality of (2d), where a clausal idiom *kankodori-ga*

² Predicates that can take *te*-complements are limited; e.g. *ar* ‘be,’ *age* ‘give,’ *ik* ‘go,’ *ku* ‘come,’ *ok* ‘put,’ *mi* ‘see,’ *simaw* ‘finish,’ etc.

³ This possibility is shown in (i) below. The representation in (i) seems plausible because the verb *moraw* ‘get’ can take a dative or ablative phrase as its source argument when it does not take a *te*-complement, as in (ii).

- (i) Taro-ga Ziro_i-ni/kara [e_i piza-o tukut-te] morat-ta.
 Taro-NOM Ziro-DAT/from pizza-ACC cook-TE get-PAST
 (ii) Taro-ga Ziro-ni/kara okane-o morat-ta.
 Taro-NOM Ziro-DAT/from money-ACC get-PAST
 ‘Taro got money from Ziro.’

The choice between (2c) and (i) does not affect the discussion made in the text in any sig-

naku ‘hardly get any customers’ is embedded under a desiderative adjective, suggests that a *te*-complement allows its subject to be case-marked by the matrix predicate that is able to license nominative objects in a ‘cross-clausal’ fashion (see Harada 1977/2000 for some discussion). To determine which of these representations are descriptively adequate is important, but it is not the primary goal of the present article. Rather, what is more important for us is that the properties examined in this section are invariably observed across *te*-complements selected by different main predicates.

Our main claim can schematically be summarized as in (4), where the *V-te* complex moves string-vacuously out of the complement clause in a cross-clausal fashion, and in (5), where the *V-te* stays inside the adjunct clause.

- (4) Taro [_{Complement *te*-clause} Ziro pizza *t*] [[cook-*te*]] +get-PAST
 (5) Taro [_{Adjunct *te*-clause} Ziro pizza [[cook-*te*]]] money get-PAST

Before we start justifying our analysis, two points need to be made. First, regarding the categorical status of *-te*, we adopt Nakatani’s (2004: 129) analysis cited in (6).

- (6) T[+past] in Japanese is realized as *-ta* when governed by C, and as *-te* otherwise.

According to (6), the morpheme *-te* is T, and *te*-clauses are TPs not immediately dominated by CPs (see Nakatani 2004 for justification of (6), and Hayashi 2013 for more discussion of *-te* as T). So when we say *V-te* moves up to the next higher clause, we mean T undergoes head movement. At this point, we are agnostic about how the embedded *V* and *-te* are combined (see, though, Section 2.2.2). It could be formed by *V-to-T* movement in syntax, or by morphological merger under adjacency in the embedded cycle (Matushansky 2006); see Section 4, where morphological merger is discussed in detail. See also the references cited in Section 1 for discussion of putative *V-to-T* movement in SOV structure.

Next, let us hasten to add that the complement/adjunct bifurcation we proposed in (4)–(5) can be motivated independently. As has been observed in the literature (see Nakau 1973, Tateishi 1994 and references cited therein), when the VP proform *soo su* ‘do so’ is present, complements of verbs must go away together with the verbs, while adjuncts may or may not. (7b) is ungrammatical when the direct object is present, whereas (8b) is grammatical regardless of whether the adjunct is present or not.⁴

- (7) a. Taro-ga piza-o tukut-ta.
 Taro-NOM pizza-ACC cook-PAST
 ‘Taro cooked pizza.’

nificant way. See Harada (1977/2000) for discussion on this matter.

⁴ As an anonymous reviewer, as well as Tateishi (1994), has pointed out, examples like (7b) become considerably better if a direct object occurring outside of the proform can be interpreted as a contrastive focus. This factor must be controlled for, as Tateishi notes, when examining constituent structures of VPs, and it actually is in our examples.

- b. Ziro-mo (*piza-o) soo si-ta.
 Ziro-also pizza-ACC so do-PAST
 ‘Ziro did so, too.’
- (8) a. Taro-ga [_{Adjunct} razio-o kiki nagara] piza-o tukut-ta.
 Taro-NOM radio-ACC listen while pizza-ACC cook-PAST
 ‘Taro cooked pizza while listening to the radio.’
- b. Ziro-mo (razio-o kiki nagara) soo si-ta.
 Ziro-also radio-ACC listen while so do-PAST
 ‘Ziro did so, too.’

If we apply this VP-replacement test to *te*-clauses, the following results are obtained: what we call ‘*te*-complements’ must disappear under *soo su* (see 9b) and what we call ‘*te*-adjuncts’ can freely remain (see 10b).

- (9) a. Taro-ga [_{TP} Ziro-ni piza-o tukut-te] morat-ta.
 Taro-NOM Ziro-DAT pizza-ACC cook-TE get-PAST
 ‘Taro had Ziro cook pizza.’
- b. Saburo-mo (*piza-o tukut-te) soo si-ta.
 Saburo-also pizza-ACC cook-TE so do-PAST
 ‘Saburo did so, too.’
- (10) a. Taro-ga [_{TP} piza-o tukut-te] okane-o morat-ta.
 Taro-NOM pizza-ACC cook-TE money-ACC get-PAST
 ‘Taro got money by cooking pizza.’
- b. Saburo-mo (piza-o tukut-te) soo si-ta.
 Saburo-also pizza-ACC cook-TE so do-PAST
 ‘Saburo did so, too.’

Given the contrast between (9b) and (10b), we can reasonably conclude that the complement/adjunct bifurcation in *te*-clauses indeed exists.

Now we are ready to examine properties of *te*-clauses relevant to the presence or absence of movement of *V-te*. They concern (i) mobility of *te*-clauses, (ii) their behavior in nominalizations, and (iii) elidability of *te*-complements.

2.2. Properties of complement and adjunct *te*-clauses

2.2.1. Mobility

Let us begin with mobility of *te*-clauses. We show that complement and adjunct *te*-clauses behave differently with respect to mobility, as stated in (11). This is a first generalization that we want to explain in our account. So call it ‘Fact 1.’

- (11) Fact 1: Adjunct *te*-clauses may be freely moved, while complement ones can never be.

This can be confirmed by the sharp contrast between (12) and (13) below. Related observations have been made by McCawley and Momoi (1986), Miyagawa (1987), Terada (1990: Ch. 5), Matsumoto (1996: Ch. 3), and Nakatani (2004: Ch. 6).

- (12) [piza-o tukut-te]_i Taro-ga okane-o t_i morat-ta.
 pizza-ACC cook-TE Taro-NOM money-ACC get-PAST
 ‘By cooking pizza, Taro got money.’
- (13) *[Ziro-ni piza-o tukut-te]_i Taro-ga t_i morat-ta.
 Ziro-DAT pizza-ACC cook-TE Taro-NOM get-PAST
 ‘Taro had Ziro cook pizza.’ (intended reading)

Our head movement analysis in (4) and (5) above correctly captures this asymmetry. In the case of adjunct *te*-clauses, phrasal movement, or scrambling, of the *te*-clause always affects the *V-te* as well as other elements in the clause because it stays inside the larger constituent that undergoes fronting, as shown in (14).

- (14) Taro $\left[\text{TP PRO } \left[\text{VP pizza } t_V \right] t_V \right] \left[\text{T } \left[\text{cook-}v \right] \text{-te} \right]$ money got

As for complement *te*-clauses, however, the *V-te* is required to move to the matrix verb under the present analysis. As a result, the *V-te* cannot occur inside the moved TP, as shown in (15), and therefore (13) cannot be derived unless the T head fails to undergo head movement.

- (15) Taro $\left[\text{TP Ziro } \left[\text{VP pizza } t_V \right] t_V \right] \left[\text{T } \left[\text{cook-}v \right] \text{-te} \right]$ +get]-PAST

Our account of (11) can be extended to the behavior of *te*-clauses in fragment answer formation (see Merchant 2004 for a discussion of the syntax of fragment answers). As demonstrated in (16b) and (17b), *te*-adjuncts can be fragments whereas *te*-complements, by contrast, can never be. See McCawley and Momoi (1986) for a similar phenomenon. They observe that *te*-complements cannot be ‘stranded’ as a whole in Right Node Raising.

- (16) a. Taro-wa [piza-o tukut-te] okane-o morat-ta no?
 Taro-TOP pizza-ACC cook-TE money-ACC get-PAST Q
 ‘Did Taro get money by cooking pizza?’
 b. iya, [suupu-o tukut-te] da.
 no soup-ACC cook-TE COP
 ‘No, by cooking soup.’
- (17) a. Taro-wa [Ziro-ni piza-o tukut-te] morat-ta no?
 Taro-TOP Ziro-DAT pizza-ACC cook-TE get-PAST Q
 ‘Did Taro have Ziro cook pizza?’
 b. *iya, [(Ziro-ni) suupu-o tukut-te] da.
 no Ziro-DAT soup-ACC cook-TE COP
 ‘No, (Taro had Ziro) cook soup.’ (intended reading)

We adopt Nishigauchi’s (2006) proposal that fragment answers in Japanese are derived from so-called *no da* sentences through focus movement to the specifier of FocP headed by the copula *da*, followed by deletion of FinP headed by *no* in the phonological component, as indicated in (18) (see Nishigauchi 2006, and Hiraiwa and Ishihara 2002 for details).

(18) [_{FocP} Fragment_i [_{FinP} [_{TP} ..._i ...V T] ~~NO~~] DA]

Coupled with this specific analysis of fragments, our head movement analysis correctly captures the asymmetry in (16)–(17) above. Since it is no problem to move an adjunct *te*-clause as a whole, as we have already seen in (12), it may be moved to [Spec, FocP], and the moved *te*-clause can survive deletion, remaining as a fragment. A complement *te*-clause, however, cannot move to [Spec, FocP] with the *V-te* complex inside. As shown in (19) below, *V-te* (=V+T) in the complement construction always ends up being inside the elided FinP as a result of head movement into the higher clause. Therefore, it is never pronounced in fragment answer formation (17b).

(19) [_{FocP} [_{TP} Ziro soup _T]] [_{FinP} [_{TP} Taro _i [_{TP} [cook-*v*]-*te*]+get-PAST] ~~NO~~] DA]

To recap, if *V-te* moves only out of complement clauses, the asymmetry between *te*-complements and *te*-adjuncts with regard to mobility is immediately expected.

2.2.2. *No*-marking under nominalizations

This subsection discusses *no*-marking under nominalizations; in particular, nominalizations headed by *-kata* ‘way.’ The subsection has three parts. First, we present a particular analysis of *kata*-nominalizations and show that it works well to account for the distribution of *no* in simple *kata*-nominals. Second, we use the analysis to reveal the representations of complement and adjunct *te*-clauses. The behavior of the two kinds of *te*-clause in nominals suggests that complement *V-te* moves to the matrix verb, while adjunct *V-te* does not. Third, we compare our analysis of *kata*-nominalizations with the fully-developed analysis by Kishimoto (2006), and we explain why we do not adopt his analysis.

We start with the three properties of *kata*-nominalizations in (20), which any adequate analysis of the phenomenon must capture (see Sugioka 1992, Kageyama 1993, Hoshi 2002, and Kishimoto 2006 for general properties of *kata*-nominals). The examples in (21) are examined to see how these generalizations are motivated. (As will be stated below, we assume with Kishimoto 2006 that *-kata* requires a clausal complement such as *vP*; see Sugioka 1992 and Kishimoto 2006 for evidence.)

- (20) a. Dependents of *V* and *v*, whether arguments or adjuncts, are *no*-marked by the nominal suffix *-kata*.
 b. *-Kata* cannot *no*-mark XP if there is YP such that the *-kata* *no*-marks it and that it dominates XP. In other words, YP is a ‘barrier’ for *no*-marking of XP.
 c. (Extended) projections of the verb combined with *-kata* are not barriers for *no*-marking.

(21) a. [_{NP} [_{vP} Taro-**no** [boonasu-o moratta toki]-**no** mono-**no**
 Taro-NO bonus-ACC got when-NO thing-NO
 kai(*-**no**)]-kata]
 buy-NO-way

- 'the way in which Taro buys things when he gets a bonus payment'
 b. * $[_{NP} [_{vP} \text{Taro-no} [\text{boonasu-} \mathbf{no} \text{ moratta toki}] \mathbf{-no} \text{ mono-no kai}] \text{-kata}]$

(20a) is illustrated by the fact that the subject, the adverbial clause, and the object associated with the verb *karu* 'buy' are all *no*-marked in (21a). (20b) maintains that *no*-marking is local in a domination-sensitive manner; XP cannot be *no*-marked if a phrase that dominates it is *no*-marked. In (21b), nothing can be *no*-marked inside the *toki*-clause since the clause itself is *no*-marked. Finally, if (20c), i.e. that neither *vP* nor *VP* is a barrier for *no*-marking, did not hold, *Taro* in (21a), for example, would not be able to bear *no*.

We now introduce the machinery to account for these properties, following Kishimoto (2006), who assumes that the nominalizing suffix *-kata* 'way' is N, that it takes a *vP* complement, as noted above, and that *v* and *V* overtly raise up to N in nominalizations, as shown in (22).⁵ Furthermore, we propose that *no*-marking takes place under government, as stated in (23) (see also Kitagawa and Ross 1982, Saito and Murasugi 1990, Watanabe 2010 for general discussion of *no*-marking). We assume a standard formulation of government given in (24), based on Baker (1988, 1996).

- (22) $[_{NP} [_{vP} \text{Taro} [_{VP} [_{Adjunct} \text{bonus got when}] \text{thing } t_v] t_v] [_N [\text{buy-}v] \text{-way}]]$
 (23) α is *no*-marked iff (a) α is governed by N; (b) α is a maximal category; and (c) the head of α is not a trace.
 (24) a. X governs Y iff (i) X m-commands Y, and (ii) there is no other maximal category that dominates Y but not X.
 b. X m-commands Y iff (i) X and Y are categories; (ii) X excludes Y, and (iii) every maximal category that dominates X dominates Y.
 c. X excludes Y iff no segment of X dominates Y.
 d. The Government Transparency Corollary (GTC): A lexical item that has an item incorporated into it governs everything the incorporated item governed in its original position.

This is not a place to discuss how to translate this machinery into a framework that does not appeal to government. Given our purpose of diagnosing the representations of *te*-clauses, the theory of *kata*-nominalizations needs to be explicit enough for us to make clear predictions. (23), capitalizing on standard formulations in (24), does serve our purpose.

This said, let us see how (22)-(24) work to capture the properties listed in (20). First, (20a) follows under the present system that incorporates the GTC (24d). In (22), *-kata* only governs *vP* if nothing happens. When *V*-to-*v* movement takes place, the GTC first allows *v* to govern the object NP, in addition to the subject NP (which *v* already governs without *V*-movement). Then *v*-to-N movement allows N to govern whatever *v* governs. So, the subject and the object are both

⁵ Kishimoto (2006) argues that it is the suffix *-kata* that triggers the series of head movement. We remain agnostic on this point; cf. the references given in note 7.

governed by N. Virtually the same applies to government of the adjunct in (22), whichever projection inside vP the adjunct phrase may be adjoined to. Note that why (20c) holds is already answered. After V -to- v -to-N movement takes place, N can govern the domain that v and V are originally able to govern. So vP and VP are not barriers for government by N any more.

Next, how is the locality effect mentioned in (20b) captured? Note first that the presence of the maximal projection headed by *toki* prevents N from governing the NP *boonasu*. Notice then the GTC does not appear to make *tokiP* transparent for government because there is no evidence that the head of the adjunct, *toki*, undergoes head movement to V or v . In fact, such movement should not be possible, given that an adjunct is an island. So it is very unlikely for N to govern into the adjunct clause. The locality effect thus is explained.

Finally, ungrammatical examples like (25) below need to be discussed to make our analysis complete. We must ask why vP and VP , both headed by a trace in our analysis, cannot be *no*-marked.

- (25) *_{[NP} [_{VP} Taro-no [_{VP} ... mono-no t_V]-no t_v]-no kai-kata]
Taro-NO -NO -NO buy-way

Examples like this lead us to add (23c), i.e. that a phrase headed by a trace cannot be *no*-marked, to the set of conditions on *no*-marking. Without this additional condition, (25) would be predicted to be fine because vP and VP are governed by N. We suspect that (23c) is perhaps due to the fact that *no*, being a suffix, needs a phonologically non-null host and requires the host to be in a strictly local relation to it.

Having laid out our analysis of simple *kata*-nominals, we come back to complement and adjunct *te*-clauses. We can use the analysis given in (22)–(23) to determine the syntactic representations of them. Complement and adjunct *te*-clauses behave differently in the manner described in (26), which is exemplified by (27)–(28). This is the second generalization about *te*-clauses we want to explain in this paper, and we dub it ‘Fact 2.’

- (26) Fact 2: In nominalizations, adjunct *te*-clauses are *no*-marked and elements inside them cannot be. Complement *te*-clauses, in contrast, cannot be *no*-marked and elements inside them must be *no*-marked.

- (27) a. _{[NP} Taro-no [piza-o tukut-te]-**no** okane-no morai-kata]
Taro-NO pizza-ACC cook-TE-NO money-NO get-way

‘the way of Taro’s getting money by cooking pizza’

- b. *_{[NP} Taro-no [piza-**no** tukut-te] okane-no morai-kata]

- (28) a. _{[NP} Taro-no Ziro-kara-no [piza-**no** tukut-te] morai-kata]
Taro-NO Ziro-from-NO pizza-NO cook-TE get-way

‘the way of Taro’s having Ziro cook pizza’

- b. *_{[NP} Taro-no Ziro-kara-no [piza-o tukut-te]-**no** morai-kata]

(27a–b) show that adjunct *te*-clauses must be *no*-marked, and that they block *no*-marking of elements inside them, respectively. In contrast, (28a–b) show

that complement *te*-clauses cannot be *no*-marked, and that they do not block *no*-marking of elements inside them, respectively. Complement *te*-clauses are an exception to (20a) since they are arguments of the nominalized verb but not *no*-marked.

It is easy to see that the government-based analysis of *kata*-nominals captures Fact 2 if complement *V-te* undergoes head movement all the way to *-kata* and adjunct *V-te* remains inside the *te*-clause.

- (29) a. $[_{NP} [_{vP} \dots [_{\text{Complement TP}} \dots \text{pizza-NO } t_V t_v t_T] t_V t_v] [_N \text{cook-v-te} \text{ get-v-way}]]$
 b. $[_{NP} [_{vP} \dots [_{\text{Adjunct TP}} \dots \text{pizza-ACC cook-v-te}]-\text{NO money-NO } t_V t_v] [_N \text{get-v-way}]]$

If complement *V-te* moves to the matrix *V*, we predict that the verbal complex further moves to *N* and this series of head movements allows *N* to *no*-mark elements internal to the complement *TP*, as shown in (29a). If adjunct *V-te* stays inside *TP*, it follows that the *TP* is a target of *no*-marking, as shown in (29b). Thus, Fact 2 constitutes an argument for our treatment of complement and adjunct *te*-clauses.

One last point: Recall that a prominent feature of the present analysis of the distribution of *no* is making use of head movement to answer the following question: why is it that certain phrases (i.e. *vP*, *VP* and complement *te*-clauses) neither carry *no* nor block *no*-marking into them? There is an alternative answer to this question. Kishimoto's (2006) work is one of the most explicit analyses of *kata*-nominalizations and argues that *no*-marked phrases have a feature (call it *F*) that must be licensed by *-kata* under *c*-command. How does the feature-licensing approach answer the question above? We suggest that it is because *vP*, *VP* and complement *te*-clauses have no *F*. This answer raises the next question: how can we determine, on the basis of empirical data, whether an item has this feature, independently of the distribution of *no*? The feature-licensing approach, as it stands, provides no answer to the latter question. In other words, it is rather difficult for this particular feature-licensing approach to make a prediction about the distribution of *no* without looking at the actual distribution. When it comes to Fact 2, the feature-licensing analysis expects that adjunct *te*-clauses have an *F* while complement *te*-clauses do not, but this prediction is hard to test against data other than the distribution of *no*. Our analysis does not suffer this problem. Fact 2 is tied to presence or absence of *V-te* movement, and whether a given *V-te* raises can be determined, for example, by looking at the mobility of a relevant kind of *te*-clause, for example. We conclude that the feature-licensing approach to the distribution of *no* cannot be an alternative to ours until the problem noted here is fixed.

In sum, we have shown that the plausible analysis of *kata*-nominals in (22)–(24) and Fact 2 lead us to conclude that complement *V-te*, unlike adjunct *V-te*, moves to the matrix clause.

2.2.3. Argument ellipsis and *V-te* remnants

Our claim that the *T* head of a complement *te*-clause undergoes movement can be

reinforced by its behavior in argument ellipsis (cf. Oku 1998; see also Takahashi 2008 for a state of the art summary). Of importance is the fact in (30), which can be confirmed by the total unacceptability of (31b) and the unequivocal well-formedness of (32b). McCawley and Momoi (1986: 15) make a similar observation based on question-answer pairs.

(30) Fact 3: Dependents of *V-te*, whether arguments or adjuncts, can be left unpronounced only when *V-te* is pronounced.

(31) a. Taro-wa [Ziro-ni mayoneezu-de susi-o tabe-te]
 Taro-TOP Ziro-DAT mayonnaise-with sushi-ACC eat-TE
 morat-ta kedo,
 get-PAST but

‘Taro had Ziro eat sushi with mayonnaise, but’

b. *boku-wa e morawa-nakat-ta.

I-TOP get-NEG-PAST

‘I didn’t have Ziro eat sushi with mayonnaise.’ (intended reading)

(32) a. Taro-wa [Ziro-ni mayoneezu-de susi-o tabe-te]
 Taro-TOP Ziro-DAT mayonnaise-with sushi-ACC eat-TE
 morat-ta kedo,
 get-PAST but

‘Taro had Ziro eat sushi with mayonnaise, but’

b. boku-wa e tabe-te morawa-nakat-ta.

I-TOP eat-TE get-NEG-PAST

‘I didn’t have Ziro eat sushi with mayonnaise.’

The apparent ‘unelidability’ of the *te*-clause in (31b) is exactly what we predict. Since the *V-te* has moved to the next higher clause, it does not reside in the constituent targeted by argument ellipsis any longer. On the other hand, our analysis predicts that argument ellipsis of the TP is allowed if the *V-te* remains overt as a remnant. The well-formedness of the elliptical sentence in (32b), which exhibits what we will call ‘*V-te* stranding (complement) ellipsis,’ is compatible with this prediction.

Interestingly, if we take the kind of complement clause whose head does not move to the next higher clause, argument ellipsis of the entire clause causes no problem. Ellipsis of *yooni*-clauses, for instance, is perfectly acceptable, as (33b) demonstrates.

(33) a. Taro_i-wa Sony-ni [_{CP} zibun_i-no musume-o yatou yooni]
 Taro-TOP Sony-DAT self-NO daughter-ACC hire C
 tanon-da.
 ask-PAST

‘Taro_i asked Sony to hire his_i daughter.’

b. Ziro_j-wa Toyota-ni e tanon-da.

Ziro-TOP Toyota-DAT aske-PAST

‘Ziro_j asked Toyota to hire his_j daughter.’

That no head movement takes place out of *yooni*-clauses can be confirmed by using mobility as a diagnostic (see Section 2.2.1): as (34) below shows, *yooni*-clauses, contrary to *te*-complements, can be freely moved.

- (34) [_{CP} pizza-o tukuru yooni]_i Taro-ga Ziro-ni *t*_i tanon-da.
 pizza-ACC cook C Taro-NOM Ziro-DAT ask-PAST
 ‘Taro asked Ziro to cook pizza.’

This strongly suggests that (im)mobility and (un)elidability of complement clauses are correlated with each other. The head movement analysis of *V-te* can capture this correlation.

Our analysis of (32b) is given in (35a). One might, however, argue that the phonetic string in (32b) may be derived as in (35b) without making appeal to head movement of *V-te*. In this alternative, ellipsis applies three times, eliding *Ziro-ni*, *mayoneezu-de* and *susi-o*. (We follow the standard assumption that ellipsis can only target a syntactic constituent.)

- (35) a. I [_{TP} ~~Ziro~~ ~~with mayonnaise~~ ~~sushi~~ *t*_i] [_T eat-*te*]_i get-PAST
 b. I [_{TP} {Ziro}] {with mayonnaise} {sushi} [_T eat-*te*] get-PAST

In the remainder of this subsection, we show that the alternative analysis in (35b) is not tenable because it fails to capture important facts about *V-te* stranding ellipsis given in (36)–(37) below, neither of which has been previously noticed.

- (36) Fact 4: When an antecedent *te*-complement for *V-te* stranding ellipsis contains an adjunct, the adjunct can be interpreted in the ellipsis site without being pronounced.
 (37) Fact 5: In order for an adjunct to be interpreted in *V-te* stranding ellipsis, the verb in the antecedent must be identical to the stranded verb.

Let us first take a closer look at (36). What is important to observe here is that the elliptical sentence in (32b) above, repeated here as (38b) for the sake of convenience, can be interpreted as in (39), and the sentence in (40) can be uttered felicitously as a continuation to (38b) with no contradiction, which strongly suggests that in (38b) the adjunct *mayoneezu-de* ‘with mayonnaise’ is indeed interpreted in the ellipsis site *e*, albeit phonetically absent. Let us call this interpretation of (38b) (in which the adjunct is interpreted despite its absence on the surface) ‘null adjunct reading.’⁶

⁶ There has been a controversy over whether the null adjunct reading obtains in null object sentences in Japanese like (i) below. See Oku (1998), Goldberg (2005: Ch. 2.6), and Funakoshi (2012, 2014) for different views of constructions of this type.

(i) Taro-wa **mayoneezu-de** susi-o tabe-ta kedo, Ziro-wa *e* tabe-nakat-ta.
 Taro-TOP mayonnaise-with sushi-ACC eat-PAST but Ziro-TOP eat-NEG-PAST
 ‘Taro ate sushi with mayonnaise, but Ziro didn’t.’

- (38) a. Taro-wa [Ziro-ni mayoneezu-de susi-o tabe-te]
 Taro-TOP Ziro-DAT mayonnaise-with sushi-ACC eat-TE
 morat-ta kedo,
 get-PAST but
 ‘Taro had Ziro eat sushi with mayonnaise, but’
 b. boku-wa *e* tabe-te morawa-nakat-ta.
 I-TOP eat-TE get-NEG-PAST
 ‘I didn’t have Ziro eat sushi with mayonnaise.’
- (39) I didn’t have Ziro eat sushi with mayonnaise, but with something else.
- (40) sonokawari, (boku-wa) (Ziro-ni) **syooyu-de** susi-o
 instead I-TOP Ziro-DAT soy.sauce-with sushi-ACC
 tabe-te morat-ta.
 eat-TE get-PAST
 ‘Instead, I had Ziro eat sushi with soy sauce.’

The alternative analysis in (35b) might look compatible with the interpretation of (38b). Notice, however, that in order to derive the null adjunct reading under this alternative, ellipsis has to be able to target the adjunct *with mayonnaise* alone. Unfortunately, there is a piece of evidence that ellipsis in Japanese cannot exclusively target adjuncts, as discussed by Oku (1998), Saito (2007), Takita (2011) and Funakoshi (2014). This property can be schematically summarized as in (41). The sentence in (42b) below, for instance, cannot be interpreted as containing a silent counterpart of the adjunct *mayoneezu-de* ‘with mayonnaise,’ which appears overtly in the preceding sentence in (42a): (42b) does not mean (43b), which should be a possible interpretation if adjuncts can be freely elided just like arguments. It can only mean (43a). This can be confirmed by the fact that (42b) cannot be felicitously followed by the sentence in (44), which leads to a contradiction.

- (41) *_{[TP} Subject Adjunct Object V T]
- (42) a. Taro-wa **mayoneezu-de** susi-o tabe-ta kedo,
 Taro-TOP mayonnaise-with sushi-ACC eat-PAST but
 ‘Taro ate sushi with mayonnaise, but’
 b. boku-wa *e* susi-o tabe-nakat-ta.
 I-TOP sushi-ACC eat-NEG-PAST
 ‘I didn’t eat sushi.’
- (43) a. I didn’t eat sushi at all.
 b. I didn’t eat sushi with mayonnaise, but with something else.
- (44) sonokawari, (boku-wa) **syooyu-de** susi-o tabe-ta.
 instead I-TOP soy.sauce-with sushi-ACC eat-PAST
 ‘Instead, I ate sushi with soy sauce.’

Let us make sure that exactly the same holds for adjuncts inside *te*-clauses as well; the sentence in (45b), in which arguments inside the *te*-clause are pronounced, obviously lacks the null adjunct reading that (38b) has, and hence a contradiction emerges when (45b) is followed by (40) above.

- (45) a. Taro-wa [Ziro-ni **mayoneezu-de** susi-o tabe-te]
 Taro-TOP Ziro-DAT mayonnaise-with sushi-ACC eat-TE
 morat-ta kedo,
 get-PAST but
 'Taro had Ziro eat sushi with mayonnaise, but'
 b. boku-wa [Ziro-ni *e* susi-o tabe-te] morawa-nakat-ta.
 I-TOP Ziro-DAT sushi-ACC eat-TE get-NEG-PAST
 'I didn't have Ziro eat sushi with mayonnaise.' (intended reading)

Given the ban on ellipsis of adjuncts in (41), it is obvious that the alternative analysis of *V-te* stranding ellipsis shown in (35b) above is difficult to maintain because it presupposes that ellipsis may apply to adjuncts alone. By contrast, our analysis in (35a) successfully captures the availability of the null adjunct reading in (38b): what is elided is the TP argument, and hence everything except the raised *V-te* ends up being unpronounced. The fact in (36) therefore favors our analysis in (35a) over the alternative one in (35b).

Let us turn to (37), another fact that helps to tease apart (35a) from (35b). Our observation is that the null adjunct reading is possible only when *V-te* in the antecedent clause and *V-te* in the elliptical clause are identical, as depicted in (46)-(47) below, where $V1 \neq V2$.

- (46) a. ..._{[*te*-clause} ...Adjunct V_1-te] get... (antecedent clause)
 b. ✓... <sub>[_{Adjunct} *e*] V_1-te get... (elliptical clause)
 (47) a. ..._{[*te*-clause} ...Adjunct V_1-te] get... (antecedent clause)
 b. *... _{[_{Adjunct} *e*] V_2-te get... (elliptical clause)}</sub>

To take a concrete example, the null adjunct reading found in (38b) above does not arise in (48) below, and therefore a contradiction results if (48b) is followed by the sentence in (40).

- (48) a. Taro-wa [Ziro-ni mayoneezu-de susi-o **aziwat-te**]
 Taro-TOP Ziro-DAT mayonnaise-with sushi-ACC taste-TE
 morat-ta kedo,
 get-PAST but
 'Taro had Ziro taste sushi with mayonnaise, but'
 b. boku-wa *e* **tabe-te** morawa-nakat-ta.
 I-top eat-TE get-NEG-PAST
 'I didn't have Ziro eat ~~sushi with mayonnaise.~~' (intended reading)
 (40) sonokawari, (boku-wa) (Ziro-ni) syooyu-de susi-o
 instead I-TOP Ziro-DAT soy.sauce-with sushi-ACC
 tabe-te morat-ta.
 eat-TE get-PAST
 'Instead, I had Ziro eat sushi with soy sauce.'

The sentences in (48) minimally differ from the ones in (38) with respect to antecedents: while in (38), *V-te* in the antecedent clause (i.e. *tabe(-te)* 'eat') is identical to that in the ellipsis clause, in (48), the two verbs, *aziwat(-te)* 'taste' and *tabe(-te)*

‘eat’, are not identical. Under our analysis in (35a), the absence of the null adjunct reading in (48b) can be captured in terms of a violation of the identity requirement for ellipsis. Simply, ellipsis cannot apply to the TP since the antecedent TP and the elided TP are not identical, as sketched in (49b) below, due to the non-identity of (the traces of) the embedded verbs (see Doron 1990, Potsdam 1997, Goldberg 2005, and Funakoshi 2014 for discussion of the role of traces in the verbal identity requirement on *V*-stranding ellipsis). Given the ban on adjunct ellipsis in (41), the only way to derive the phonetic string in (48b) is to elide the two arguments inside the *te*-complement, as indicated in (49c). Since no adjunct is generated to begin with, the absence of the null adjunct reading in (48b) trivially follows.

- (49) a. Taro $[_{TP}$ Ziro $[_{Adjunct}$ with mayonnaise]sushi $t_{taste-te}$] [**taste-*te***]+get-PAST
 b. *I $[_{TP}$ ~~Ziro~~ $[_{Adjunct}$ ~~with mayonnaise~~] ~~sushi~~ t_{eat-te}] [**eat-*te***]+get-NEG-PAST
 c. I $[_{TP}$ [**Ziro**] [**sushi**] t_{eat-te}] [**eat-*te***]+get-NEG-PAST

Can the analysis in (35b) capture the difference between (38b) and (48b) with respect to the availability of the null adjunct reading? Clearly, it cannot. If (38b) can be derived through argument ellipsis and adjunct ellipsis, as sketched in (35b), (48b) should be able to support the intended null adjunct reading as (38b) does. This is because there is no reason to think that argument ellipsis and purported adjunct ellipsis require verbal identity. Thus, the alternative in (35b) cannot distinguish (48b) from (38b).

To sum up, based on facts about the null adjunct reading in (32b) (=38b), we can justify our claim that the elliptical sentence is unambiguously derived by movement of the *V-te* into the next higher clause followed by ellipsis of the TP. This should serve as another piece of evidence that the *V-te* complex in the complement *te*-clause undergoes head movement.

2.3. The trigger of head movement out of *te*-clauses

We have so far established that our string vacuous head movement analysis of *te*-clauses, repeated below, is well motivated on empirical grounds. In this section, we consider why head movement of the *V-te* complex is required in complement cases in (4) but not possible in adjunct cases in (5), an important question that we have not so far dealt with.

- (4) Taro $[_{Complement\ te-clause}$ Ziro pizza t] [**cook-*te***]+get-PAST
 (5) Taro $[_{Adjunct\ te-clause}$ Ziro pizza [**cook-*te***] money get-PAST

We propose that it is the *te*-complement-taking predicates that trigger head movement of *V-te*. To be more precise, we assume that when these predicates select *te*-clauses as their internal argument, they enter the derivation with an uninterpretable tense feature [uT], and this uninterpretable feature has an ‘EPP property’ that triggers head movement;⁷ the verb *moraw* ‘get,’ one of the predicates that

⁷ For various proposals about the relationship between head movement and the EPP, see

allow *te*-complements, for example, has the following two lexical specifications (see also note 3).

- (50) a. *moraw*: verb, [TP ___], [uT]_{+EPP}
 b. *moraw*: verb, [NP NP ___]

What we mean by (50) is as follows: when *moraw* takes a *te*-clause (TP) as its internal argument it is accompanied by the [uT] feature with the EPP property (50a), whereas when the verb selects a source NP and a theme NP, we stipulate that the [uT] feature is simply absent (50b). Head movement of the complex T head of the *te*-clause, which has an interpretable tense feature, is required to satisfy the EPP property of [uT] and eliminate that uninterpretable feature. These features, if not checked, lead the derivation to a violation of Full Interpretation. The relevant stages of the derivation of the representative case of *te*-complements in (51) are sketched in (52) below, ignoring irrelevant details.

- (51) Taro-ga [Ziro-ni pizza-o tukut-te] morat-ta.
 Taro-NOM Ziro-DAT pizza-ACC cook-TE get-PAST
 ‘Taro had Ziro cook pizza.’

- (52) a. [_{VP} [_{TP} Ziro pizza [_T cook-*te*]]] get_[uT] (Merge of the *te*-clause and *get*)
 b. [_{VP} [_{TP} Ziro pizza *t*] [_T cook-*te*]] + get_[uT] (head movement of the *V-te* complex)

(52a) illustrates that the verb *get* enters the derivation with [uT], and the *te*-clause is merged with the verb as its internal argument. Next, the EPP property of [uT] triggers overt head movement of the *V-te* complex to the higher verb in a cross-clausal fashion, and consequently [uT] gets erased, as shown in (52b).

As for the absence of head movement out of adjunct *te*-clauses, our account runs as follows. The first case to consider is the case in which the matrix predicate does not have the [uT] feature, i.e. (50b). In this case, *V-te* does not move simply because nothing triggers the operation. *Te*-adjuncts attach to the matrix clause freely. In the ‘complement’ case, i.e. (50a), one might ask why the following does not happen: the head of a *te*-adjunct moves to check the EPP property of the matrix predicate whereas the head of the *te*-complement stays inside the clause, as in (53).

- (53) [_{Adjunct} ... *t_i*] [_{Complement} ... *V-te*] *V-te_i* + get_[uT]

Given this configuration, the impossibility of *V-te* movement out of adjuncts follows if the movement obeys the Adjunct Island Condition. Thus, under no circumstance does head movement apply out of *te*-adjuncts.

The present subsection is devoted to instantiating our analysis of the behavior of the heads of *te*-complements and *te*-adjuncts in terms of feature checking theory.

3. Potential Alternatives

This section briefly discusses two potential alternatives to the proposed view of *te*-clauses. One alternative has to do with the notion of phase, and the other with the process called restructuring.⁸ We argue that these alternatives are empirically insufficient.

Let us start with what may be called the phase-based analysis. Chomsky (2001: 8, 43 n13) suggests that while CP complements can be targeted by a transformation rule, TP complements cannot be because the former are phases and the latter are not. Given that *te*-adjuncts are mobile but *te*-complements are not (see Fact 1 in (11)), it would be tempting to hypothesize that adjunct *te*-clauses are CP phases while *te*-complements are TP non-phases. More concretely, the complement *te*-clause in (1) and the adjunct one in (3) are analyzed as being a TP non-phase and a CP phase, respectively, in this analysis.

In a similar vein, it is also possible to tell a story about why *te*-complements apparently resist being elided (see Fact 3 in (30)) if Bošković (2014) is right that only phases and complements of phase heads can undergo ellipsis.⁹ Arguably, *te*-complement TPs are neither phases nor complements of phase heads. However, a problem may arise when nominalization formation (Fact 2 in (26)) is taken into account. Recall that *te*-adjuncts are *no*-marked in *kata*-nominalizations while *te*-complements cannot be. To accommodate this fact, the phase-based analysis would propose that only phases serve as barriers for *no*-marking and receive *no* for some reason. This is, however, at odds with the very fact observed in (20c) that *v*P is not a barrier for *no*-marking in nominalizations. One way of rescuing the phase-based analysis is to assume that head movement of a phase head X may change XP

⁸ There is yet another alternative, which we cannot examine in detail enough for reasons of space but can only make a brief comment on. The approach in question is what can be called the ‘base-generation’ approach, according to which a complex predicate like *tabe-sase-ta* (eat-CAUS-PAST) is analyzed as a base-generated constituent, as in $[_{tabe} [_{tabe} \textit{tabe-sase}]-\textit{ta}]$; see Kitagawa (1986: Ch. 1), Sells (1995), Saito and Hoshi (1998), Hoshi (2002), Shimada (2007), Tonoike (2009) and Saito (2012) for this line of approach to complex predicates in Japanese. Although it remains open whether any of these proposals does predict that *V-te* V always starts as a big verbal constituent, it is possible to argue that it always does, as in $[_{tabe} [_{tabe} [_{tabe} \textit{tabe-te}] \textit{moraw}]]$, and that neither embedded TP nor *v*P is projected at surface structure in the derivation of this construction. An analysis along this line arguably captures the mobility and nominalization facts, because the overt constituent structure it proposes is similar in the relevant respects to the structure that our head movement analysis proposes. A potential challenge to the base-generation analysis comes from *V-te* stranding ellipsis. The data suggests that TP complements are projected and *V-te* is not inside them at surface structure. This property is not expected under the approach as it stands. We thank Hisatsugu Kitahara for bringing this issue to our attention.

⁹ For the sake of argument, we focus on Fact 3. However, we argued that *te*-complements can be elided after *V-te* raises (Facts 4 and 5 in (36)–(37)). If these cases are taken into account, it is not immediately clear if Fact 3 should be viewed in terms of the phase vs. non-phase dichotomy.

into a non-phase (see den Dikken 2007, Gallego 2010). We thus conclude that it is at least unclear whether the phase-based analysis can account for the data without making recourse to head movement.

Let us turn to the other alternative, according to which *te*-complements are restructuring complements. This ‘restructuring’ hypothesis in fact has been proposed in the literature: complement *te*-clauses, in particular those of motion verbs, fall under the category of restructuring complements (Miyagawa 1987, Tsujimura 1993, Matsumoto 1996, Wurmbrand 2001, Takahashi 2012, Nishigauchi 2013). The hypothesis that *te*-complements undergo restructuring looks plausible in the context of the present work too, for garden-variety restructuring complements exhibit immobility and unelidability (see Rizzi 1978, Cinque 2006: 13–17, 37–42, Wurmbrand and Bobaljik 2005 for relevant discussion of restructuring complements in Romance and Germanic languages). Facts 1 and 3 thus can be taken to suggest that *te*-complements undergo restructuring. (Again we put aside Facts 4 and 5; see note 9.) Thus, this hypothesis certainly deserves serious consideration.

Notice that the hypothesis that *te*-complements undergo restructuring is not incompatible with our proposal. In fact, restructuring has sometimes been analyzed in terms of head movement (Kayne 1989). The important question for us is not whether the *te-complements-as-restructuring-complements* hypothesis is correct or not, but whether saying that *te*-complements are ‘reduced’ is sufficient to explain all the properties seen above. To be more concrete, let us take two major clause-reduction approaches to restructuring that do not refer to head movement, i.e., *lexical restructuring* (Wurmbrand 2001) and *functional restructuring* (Cinque 2006); see, in particular, Wurmbrand 2001, Takahashi 2012 for attempts to deal with Japanese data in terms of lexical restructuring. Is the behavior of *te*-complements and *te*-adjuncts accounted for, by saying (i) that *te*-complements in general are merely *vP* or *VP* (as an instance of lexical restructuring) or (ii) that *te*-complements do not constitute full clauses but are mere complements of functional heads contained in a single clause (as an instance of functional restructuring)? Immobility (i.e. Fact 1) and unelidability (i.e. Fact 3) may be, as noted above, accounted for under either hypothesis. However, the data points involving nominalizations (i.e. Fact 2 and the general properties of the construction given in (20)) seem difficult for these approaches to explain. In particular, it is not clear whether the idea of functional restructuring or that of lexical restructuring helps to capture the basic properties of *kata*-nominals of *simple clauses*, listed in (20), where restructuring is irrelevant since only one verb is involved. To put it differently, in order to qualify as a strong alternative to the head movement approach to *te*-complements, a restructuring approach that does not refer to head movement has to offer an adequate analysis of *kata*-nominalizations of simple clauses without using head movement. (Given that *vP*, *VP* and *te*-complements are all transparent for *no*-marking, assuming head movement for *vP* and *VP* on one hand and restructuring for *te*-complements on the other to capture this transparency effect gives rise to redundancy.) As long as that has not been done yet, we have no reason to discard the head movement analysis of *te*-complements. These considerations

when the noun is bare, and the definite article *den* is used when the noun is modified. She argues that what triggers lexical insertion of *hest-en* is not N-to-D movement in syntax, but is m-merger of N and D under adjacency in morphology, and claims that N and D are in-situ in syntax; were N-to-D movement in syntax relevant, lexical insertion of *hest-en* would be available in (56c) as well as in (56a), because *røde* ‘red,’ being an adjunct, should not block N-to-D movement. Matushansky thus concludes that Danish definiteness marking involves m-merger of independent heads without their movement in syntax.

- (57) a. $[_{DP} D [_{NP} N]]$ (no N-to-D movement in syntax)
 b. $[_{DP} \boxed{[D-N]} [_{NP}]]$ (m-merger of D and N in morphology, followed by
 lexical insertion of *hest-en* into the derived node)
 ↑
 hest-en

Turning back to *te*-clauses in Japanese, we argue that what *te*-clauses in Japanese display is the pattern opposite to definiteness marking in Danish, namely movement of heads in syntax without subsequent m-merger. In order to see what m-merger does in Japanese, let us consider complex predicates and their wordhood. As (58) demonstrates, a focus particle such as *-wa* and *-sae* cannot be inserted between *tukuri* ‘cook’ and *hazime* ‘begin,’ which make up a V-V compound in Kageyama’s (1993) terminology.

- (58) Taro-ga pizza-o tukuri (*-wa/*-sae) hazime-ta.
 Taro-NOM pizza-ACC cook PARTICLE begin-PAST
 ‘Taro began to cook pizza.’

Let us assume that if two morphemes next to each other allow a focus particle to be inserted in between the two, then there is a morphological word boundary between the two morphemes (see also Sugioka 1984 and Matsumoto 1996 for the relation between focus particles and wordhood). Given this diagnostic for morphological wordhood, the sequence of verbs in the complex predicate in (58) forms a single morphological word. Let us further assume that m-merger is responsible for this tight connection of the two verbs. Then, the derivation of the complex predicate in (58) will be (59) below.

- (59) a. $[...[_V tukuri] [_V hazime]...]$ (syntax)
 b. $[...[_V tukuri]-[_V hazime]...]$ (m-merger of two verbs in morphology)

With this idea of m-merger and morphological wordhood in Japanese in mind, let us go back to *te*-clauses. Recall that our analysis of complement *te*-clauses is (60): the *V-te* complex undergoes head movement to a higher verb.

- (60) $...[_{\text{Complement } te\text{-clause}} \dots t_{V-te}] \uparrow [[V-te] V] \dots$

Importantly, the *V-te* can be freely separated from the higher predicate by a focus particle, as already reported by Sugioka (1984) and Matsumoto (1996), which means that the *V-te* and the higher verb do not form one morphological word,

according to our diagnostic.¹⁰

- (61) Taro-ga [Ziro-ni piza-o tukut-te] {-wa/-sae} morat-ta.
 Taro-NOM ZIRO-DAT pizza-ACC COOK-TE PARTICLE get-PAST
 ‘Taro had Ziro cook pizza.’

Given our assumption about m-merger in Japanese above, the acceptability of (61) suggests that although the *V-te* complex undergoes head movement to the higher verb in syntax, the two heads do not get collapsed into one morphological word via m-merger in morphology. Hence, we conclude that the case of complement *te*-clauses in Japanese displays the opposite pattern to definiteness marking in Danish discussed by Matushansky (2006): movement of heads in syntax without m-merger in morphology.

- (62) a. ..._[Complement *te*-clause] ..._[*t*_{V-te}] [[*V-te*] V] ... (movement in syntax)
 b. ... [[*V-te*] V] ... (no m-merger in morphology)
 c. [_{Morphological word} *V-te*] [_{Morphological word} V-...]

Summarizing this section, we have presented evidence that the *V-te* that has undergone head movement and the higher verb do not behave as one morphological word, contrary to run-of-the-mill derived heads created by head movement. This fact lends empirical support to Matushansky’s proposal.

5. Conclusion

In this paper, we have proposed that complement *te*-clauses in Japanese are derived by string vacuous head movement of the *V-te* complex. We have argued that our head movement analysis is empirically motivated, as it successfully accounts for the properties that *te*-clauses display, and have proposed that movement of the *V-te* complex is triggered by the uninterpretable tense feature [uT] that the higher predicate bears. We considered two possible alternatives to our head movement analysis of *te*-complements, and concluded that neither can satisfactorily account for the facts regarding nominalizations unless head movement is resorted to in some way. Also, we have shown that the result of head movement of the *V-te* is more or less exotic in that the *V-te* and the higher verb do not get spelled out as a single word, which empirically supports Matushansky’s (2006) idea that movement of heads in syntax and m-merger of heads in morphology are independent operations.

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¹⁰ See also Shibatani (2009), who explicitly mentions that although the *V-te* complex and the higher verb make up a ‘phonological word,’ they do not form a morphological word, showing no morphological integrity.

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【要 旨】

語順に影響を与えない主要部移動について:「VテV」に基づく考察

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日本語に、SVO 言語で観察されるような主要部移動が存在するかどうかは、少なくとも表面上は明らかではない。これは、日本語が主要部後統型言語であるため、主要部移動の結果として予測される語順が主要部移動の関与しない派生のもとで予測される語順と同一であることに起因する。本論文では補部のテ節、付加詞のテ節の統語的振る舞いに着目し、V テの連鎖が多くの場合語順に影響を与えず、主節に主要部移動すると主張する。また、省略現象において V テの連鎖が省略領域から抜き出されていることを示す。さらに、この種の主要部移動が形態的な語形成を伴わない主要部移動であることも指摘する。