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AGAINST V-TO-T-TO-C MOVEMENT IN JAPANESE: A CASE STUDY OF NON-CONSTITUENT COORDINATION

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1 Introduction

Whether verb raising exists in Japanese has been a controversial and hotly-debated issue since Koizumi's (2000) works on string-vacuous verb raising, and the objections by Fukui and Sakai (2003) and others.[1] This study aims to offer arguments against the existence of V-to-T-to-C movement in Japanese, through a case study of Non-Constituent Coordination (**NCC**). I provide novel data showing that the relevant verb raising does not take place in Narrow Syntax, contra Koizumi (2000) and Funakoshi (2014). I argue instead that only Fukui and Sakai's (2003) gapping analysis can fully explain the nature of NCC in Japanese.

The rest of this paper is organized as follows. The next section is a brief review of the previous studies on this issue, especially the recent discussions from Funakoshi (2014). Section 3 argues against the verb raising in Narrow Syntax, with evidence from the scopal relations between an Affirmative Polarity Item (**API**) and Negation (**NEG**) in coordinate structure. Proponents of the verb raising approach argue that multiple constituents cannot be clefted in Japanese, just as in English, which has been the strongest counterargument against the gapping analysis. However, in section 4, I propose a new analysis of multiple cleft constructions in NCC supporting Fukui and Sakai's gapping analysis. Section 5 is an overall summary of the discussion in this paper.

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[1] Japanese is a strictly head-final language, and due to its agglutinative nature, a tense morpheme is attached to verbs, *hasit-ta* 'run-Past,' for instance. Therefore, even if V-to-T raising occurs in Japanese, it does not change the surface order of the elements at all, which makes it difficult to conclude that verb raising exists in Japanese.

2 Verb-raising in Non-Constituent Coordination (Koizumi 2000)

Koizumi (2000) analyzes that in Japanese NCC such as (1), verb heads are extracted from VPs in the ATB-fashion and raised to T, creating headless VP remnants *John-ni ringo-o 2-tu / Bob-ni banana-o 3-bon*, which are coordinated by *to* 'and.'

(1) a. Mary-ga [[John-ni ringo-o 2-tu] to [Bob-ni banana-o 3-bon]] age-ta
M.-Nom J.-to apple-Acc 2-Cl Conj B.-to banana-Acc 3-cl give-Past
'Mary gave two apples to John, and three bananas to Bob.'
b. [$_{TP}$ Mary-ga [$_{VP}$ [$_{VP}$ John-ni ringo-o 2-tu t_i] to [$_{VP}$ Bob-ni banana-o 3-bon t_i]] age$_i$-ta]
(adapted from Koizumi 2000:228)

(2) [$_{CP}$ [$_{TP}$ SU [$_{Remnant\ VP}$ [$_{VP}$ IO DO Cl t_V] Conj [$_{VP}$ IO DO Cl t_V]] t_T] V-T-C]
|_____|___|__ ↑

Koizumi's verb-raising analysis on (1) can be schematically illustrated as in (2), in which indirect objects (IO), direct objects (DO) and classifiers (Cl) remain in the remnant VP after the ATB-extraction of verbs out of the conjuncts to T (and then to C). He argues that [IO DO Cl Conj IO DO Cl] must be a single syntactic constituent, since it feeds clefts, as in (3).

(3) Mary-ga age-ta no-wa [[John-ni ringo-o 2-tu] to [Bob-ni banana-o 3-bon]] da
M.-Nom give-Past NM-Top J.-to apple-Acc 2-cl Conj B.-to banana-Acc 3-cl Cop
Lit. 'It is [to John two apples] and [to Bob three bananas] that Mary gave.'
(Koizumi 2000:238)

Under the assumption that only a single constituent can be licensed in the focus position in clefts, Koizumi claims that the string-vacuous overt verb raising must occur, in order for the remnant VP, [$_{VP}$ [IO DO Cl t_i] Conj [IO DO Cl t_i]], which is a single syntactic constituent, to be clefted.

After Koizumi (2000), there have been a number of objections (Takano 2002 and Fukui and Sakai 2003, inter alia). Takano (2002) named the relevant remnants, *Surprising Constituents*, which he argues to be derived through *Oblique Movement*: Movement of an element to another element that does not dominate it (Takano 2002:243). Just like Koizumi, based on the assumption that only a single constituent can be clefted, as in (4), Takano argues that what seems to be a non-constituent is actually a constituent, which is derived through repetitive applications of adjunction-to-argument in the spirit of Sohn (1994).

(4) a. John-ga [Bill-ga Mary-ni hon-o age-ta to] omotte-iru
J.-Nom B.-Nom M.-to book-Acc give-Past that think-Pres
'John thinks that Bill gave a book to Mary.'
b. *[Op$_i$ Op$_j$ t$_i$ [Bill-ga Mary-ni t$_j$ age-ta to] omottei-ru no-wa John-ga$_i$ hon-o$_j$ da]
B.-Nom M.-to give-Past that think-Pres NM-Top J.-Nom book-Acc Cop
Lit. 'It is John a book that thinks that Bill gave to Mary.'
(adapted from Takano 2002:245(8))[2]

[2] Note that the null operator movement analysis of cleft constructions is independently supported from the fact that clefts are subject to subjacency in Narrow Syntax (Hoji 1990).

Under Takano's analysis, conjuncts are base-generated through repetitive application of oblique movement. Therefore, the apparent NCC does not involve any movement. For the expository reason, I omit classifiers in the schematic representation in (5b).

(5) a. Mary-ga [ringo-o [John-ni [2-tu]]] to [banana-o [Bob-ni [3-bon]]] age-ta
M.-Nom apple-Acc J.-to 2-cl Conj banana-Acc B.-to 3-cl give-Past
'Mary gave two apples to John, and three bananas to Bob.'
b. [SU [[[DO [IO]] Conj [DO [IO]]] V] T]

To derive clefts such as (5a), Takano assumes that the direct object *hon-o* 'book-Acc' adjoins to the higher indirect object *Mary-ni* 'Mary-Dat' to form a new constituent [*Mary-ni hon-o*], as in (6).

(6) a. John-ga age-ta no-wa hon-o Mary-ni da.
J.-Nom give-Past NM-Top book-Acc M.-to Cop
'It is a book to Mary that John gave.'
b. [hon-o$_i$ [Mary-ni]]$_j$ John-ga t_j t_i age-ta no-wa [hon-o [Mary-ni]] da.[3]

(Takano 2002:257)

Takano's oblique-movement approach seems to be successful in explaining the nature of NCC, which can feed clefts in Narrow Syntax. However, Funakoshi (2014) argues against him with an interesting example (7), in which direct objects in the first and the second conjunct are assigned different case markers.

(7) Taro-ga tyoosyoku-ni [ringo-**ga/o** mit-tu] to [banana-**o/ga** ni-hon] tabe-rare-ru
T.-Nom breakfast-for apple-Nom/Acc 3-cl Conj banana-Acc/Nom 2-cl eat-can-Pres
'For breakfast, Taro can eat three apples and two bananas.'

(Funakoshi 2014:36)

Given that Nominative and Accusative objects are complementary in the syntactic environments where they appear, examples such as (7) pose problems to Takano's (2002) analysis.[4] It hits a dead end since there must be at least two distinct functional *v* heads, so that one of them marks an object Nominative, while the other one marks another object Accusative.

(i) a.*?[John-ga [$_{CNP}$ [e_j at-ta-koto-ga a-ru] nihonzin]-o oozei sitteir-u] no-wa Russell$_j$-ni da
J.-Nom have:met-Nom be-Pres Japanese-Acc many know-Pres NM-Top R.-Dat Cop
Lit. 'It is with Russell that John knows many Japanese who have met.' (Hoji 1990:35(106))
b. John-ga [[Russell-ni at-ta-koto-ga a-ru] nihonzin]-o oozei sitteir-u.
J.-Nom R.-Dat have:met-Nom be-Pres Japanese-Acc many know-Pres
'John knows many Japanese who have met Russell.'
c. *?[*Op*$_i$ [John-ga [**CNP** [t_i at-ta-koto-ga a-ru] nihonzin]-o oozei sitteir-u]] no-wa **[Russell$_j$-ni]** da

In deriving (ia), the clefted element *Russell-ni* 'Russell-Dat' is base-generated in the focus position. Then it is co-indexed with the operator in the preposed CP, which eventually moves to the [Spec, CP]. The prediction is borne out that this movement results in ungrammaticality as in (ic), which crosses the boundary of a complex NP.

[3] Here I simply follow Takano's notation, which ignores the null operator movement analysis of Hoji (1990).

[4] As for nominative-object constructions, different sorts of analyses have been proposed in the literature (Tada 1992, Koizumi 1994, Takano 2003 among others). Most of them agree that the syntactic environment where Accusative-objects appear is different from where nominative-objects appear (Funakoshi 2014:29). Generally speaking, in Nominative object constructions, objects can be assigned nominative case by stative predicates. It is commonly assumed that *v* loses its Accusative-assigning ability and the objects are marked Nominative from T, while the Accusative-object version is derived when the verb retains its ability to assign Accusative.

3 Against Verb Movement in Non-Constituent Coordination

Although Koizumi's and Funakoshi's accounts seem to be successful in explaining NCC at first sight, I argue that it has an empirical problem. In (8) and (9) below, an API, *dareka* 'someone' is in the first conjunct and both of the examples contain NEG.

(8) [Seito-ga *dareka* ringo-mit-tsu] to [sensei-ga banana-ni-hon]-o motteko-**nakat**-ta
student-Nom *someone* apple-3-cl Conj teacher-Nom banana-2-cl-Acc bring-**Neg**-Past
'Some student (didn't bring) three apples, and the teacher didn't bring two bananas.'

(9) Kono heya-de [Insei-ga *dareka* kokunai-no zassi-ni ronbun-o huta-tsu] to
this lab-in grad:student-Nom *someone* domestic-Gen journal-on paper-Acc 2-cl Conj
[kyooju-ga kaigai-no jaanaru-ni ronbun-o san-hou] nose-**nakat**-ta
professors-Nom international-gen journal-on papers-Acc 3-cl publish-**neg**-Past
'In this laboratory, some graduate student (didn't publish) two papers in a domestic journal, and a professor didn't publish three papers in international journals.'

Under the verb-raising approach, in which verbs raise all the way to C in the ATB-fashion, the schematic representation of (9) will be something like (10) below (irrelevant details are omitted).

(10) $[_{CP}\ [_{TP}$ **API** $[_{NegP}\ [_{VP}$ IO DO $t_V]\ t_{NEG}]\ t_T]$ & $[_{TP}$ SU $[_{NegP}\ [_{VP}$ IO DO $t_V]\ t_{NEG}]\ t_T]$ $\boxed{[\text{V-NEG-T}]}$**-C**$]$
|___|___|_____|___|___|_____ ↑

Let us suppose, along with Koizumi and Funakoshi, that V-to-T-to-C head-movement exists. Since NEG is placed between VP and TP, [V-NEG-T] amalgam is created via head-movement due to the well-known Head Movement Constraint, and then this complex head eventually raises to C. Therefore, it predicts that NEG scopes over the API inside the coordinate structure. However, either in (8) or in (9), the readings are unambiguously API > NEG, but not NEG > API. Therefore, the API must scope over NEG in those examples, which is completely the opposite from what the verb-raising analysis predicts, as in (10). Some may argue that the APIs in the first conjunct in (8) and (9) may raise and scope over NEG in C. However, this is highly unlikely since the relevant movement definitely violates the Coordinate Structure Constraint (**CSC**).[5]

[5] Omer Preminger (p.c.) pointed out to me that an API may scope over NEG regardless of the syntactic environments it is in, due to its island insensitivity. However, I argue that Japanese *dareka* 'someone' and *nanika* 'something' allow narrow scope readings with regard to NEG when NEG is syntactically higher than them. Goro (2007) shows that NEG > [[API]] is actually semantically legitimate in Japanese, as in (i) below.

(i) Non-clausemate negation:
a. Kare-wa *nanika* tabe-ta wake-de-wa **na**-i
he-top *something* eat-Past not:the:case-Top **Neg**-Pres
'It is not the case that he are something.' (^{ok}NEG > API)
b. John-wa [Mary-ga *nanika* tabe-ta to] sinjitei-**na**-i
J.-top M.-Nom *something* eat-Past that believe-**Neg**-Pres
'John doesn't believe that Mary ate anything for lunch.' (^{ok}NEG > API)

Therefore, I believe that it does not affect my discussion here, and the observations such as (8) and (9) still serve as crucial data against the verb-raising approach.

3.1 The Gapping Analysis on NCC (Fukui and Sakai 2003)

As an alternative, Fukui and Sakai (2003) analyzes that the relevant non-constituents are derived through gapping in the first conjunct, which is followed by PF-reanalysis,[6] which refers to some sort of operation that applies to two or more morphological units in the PF-component to create a single unit. Under the gapping approach, a nominal coordinator *to* 'and' coordinates non-constituents that are originally VP/TPs through PF-reanalysis, as illustrated in (11) below.

(11) a. Narrow Syntax:[7]
[Taro [$_{VP}$ [Hanako ringo 3-tu age] & [Kumiko banana 2-hon age]-ta]
T. H. apple 3-Cl give Conj K. banana 2-cl give-Past

→b. PF-component (Gapping + insertion of case particles):
[Taro-ga [[Hanako-ni ringo-o 3-tu ~~age~~] & [Kumiko-ni banana-o 2-hon age]-ta]
T.-Nom H.-Dat apple-Acc 3-cl Conj K.-Dat banana-Acc 2-cl give-Past

→c. PF-component (PF-reanalysis: Adjacent elements are reanalyzed as nominal):
Taro-ga [$_{nominal}$ [Hanako-ni ringo-o 3-tu] to [Kumiko-ni banana-o 2-hon]] age-ta
T.-Nom H.-Dat apple-Acc 3-cl Conj K.-Dat banana-Acc 2-cl give-Past
'Taro gave three apples to Hanako and two bananas to Kumiko'
(adapted from Fukui and Sakai 2003:348-350)

After the structure (11a) is transferred to the phonological component, gapping in the first conjunct may occur. It makes the sequence of [IO DO cl] phonologically adjacent with each other. Then these elements are reanalyzed as morphologically or phonologically 'nominal' in the post-syntactic component. Note that the abstract coordinator is realized as a nominal coordinator *to* 'and' in (11c), which complies with Yoda's (2013) proposal.[8] Moreover, the case assignment

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[6] This is independently proposed by Halle and Marantz (1993) as *Morphological Merger*. Fukui and Sakai (2003) further suggests that the following two conditions in (i) at least hold in the PF component.

(i) A string of elements is a PF constituent only if...
a. they are string adjacent, and
b. the derived constituent complies with the head parameter.
(Fukui and Sakai 2003:350)

Another condition on PF-reanalysis is that the conjunctive/disjunctive particles must not have quantificational force. Fukui and Sakai (2003) convincingly showed that while *to* 'and' can undergo the PF-reanalysis process, *mo* 'also' cannot since it carries clear quantificational force and therefore must be Present in the LF representation.

(ii) *Taro-ga [[Hanako-ni ringo-o 3-tu] mo [Kumiko-ni banana-o 2-hon] mo] age-ta.
T.-Nom H.-Dat apple-Acc 3-Cl also K.-Dat banana-Acc 2-cl also give-Past
(Fukui and Sakai 2003:344)

[7] Here, I assume that case-particles are inserted in the phonological component, following Kuroda's (1978) insight. Therefore, I omit case particles in the Narrow Syntactic representations throughout this study.

[8] It might be problematic if we refer to syntactic categories such as nominal in the phonological component since it can only operate on the phonological primitives (Shiobara Kayono p.c.). Although Fukui and Sakai (2003) did not show how their analysis works out in detail, I propose that such problem would not arise: I assume that & is phonologically realized as *to* 'and' in the phonological component if adjacent elements are morphologically 'nominal,' along with Yoda's (2013) observation. Abstract cases assigned to syntactic constituents are also phonologically realized. See Kobayashi (2015) for more details.

pattern in (12) further supports the PF reanalysis Account. Case particles are assigned to the PF constituents, which must be analyzed as nominal in order for the case markers to be assigned.

(12) The PF-reductionist Approach to Non-Constituent Coordination:
a. Narrow Syntax:
[Taro [$_{VP}$ [Hanako ringo 3-tu age] & [Kumiko banana 2-hon age]-ta]
T. H. apple 3-cl give Conj K. banana 2-cl give-Past

→b. PF-component (Gapping + insertion of case particles):
[Taro-ga [[Hanako-ni ringo 3-tu ~~age~~] & [Kumiko-ni banana 2-hon age]-ta]
T.-Nom H.-Dat apple 3-cl Conj K.-Dat banana 2-cl give-Past
'Taro gave three apples to Hanako and two bananas to Kumiko'

→c. PF-component (PF-reanalysis: Adjacent elements are reanalyzed as nominal):
Taro-ga [$_{nominal}$ [Hanako-ni ringo 3-tu] to [Kumiko-ni banana 2-hon] (to)]***-o*** age-ta[9]
T.-Nom H.-Dat apple 3-cl Conj K.-Dat banana 2-cl RC-Acc give-Past
'Taroo gave three apples to Hanako and two bananas to Kumiko'
(adapted from Fukui and Sakai 2003:350)

Koizumi's and Funakoshi's verb-raising approach cannot explain the examples like (8) and (9) correctly. If a complex head [V-NEG-T] raises to C, and if the API can be licensed under NEG, then it incorrectly predicts that the interpretation is NEG > API. If the API raises to take a wide scope over NEG, it violates the CSC. In either way, the verb-raising approach reaches a dead end. On the other hand, the gapping analysis correctly predicts that cases such as (8) and (9) gain the API > NEG readings, as schematically illustrated in (13) below.

(13) [$_{CP}$ [$_{TP}$ [$_{TP}$ **API** [$_{NegP}$ [$_{VP}$ IO DO Cl ~~V] NEG] T~~] & [$_{TP}$ SU [$_{NegP}$ [$_{VP}$ IO DO Cl V] NEG] T]] C]

The struck-out part in the first conjunct is elided under identity. Under the PF-reductionist approach, the API in the first conjunct is interpreted in [Spec, TP], eluding the scope of NEG. The same applies to when the API is only in the second conjunct, as in (12).

(14) a. Kono heya-de-wa [insei-ga kokunai-no zassi-ni ronbun-o huta-tsu] to
this lab-in-Top grad:students-Nom domestic-Gen journal-on paper-Acc 2-cl Conj
[kyooju-ga *dareka* kaigai-no jaanaru-ni ronbun-o san-hou] nose-**nakat**-ta
professor *someone* international-Gen journal-on papers-Acc 3-cl publish-**Neg**-Past
'In this lab, a graduate student (didn't publish) two papers in a domestic journal, and some professor didn't publish three papers in international journals.'
b. [$_{CP}$ [$_{TP}$ [$_{TP}$ SU [$_{NegP}$ [$_{VP}$ IO DO Cl ~~V] NEG] T~~]&[$_{TP}$ **API** [$_{NegP}$ [$_{VP}$ IO DO Cl V] **NEG**] T]] C]

The CSC is satisfied in the gapping approach, since there is no movement from within a conjunct. One may wonder whether NEG can be reconstructed back to its original position in between VP and TP. However, it has been generally assumed that head movement lacks reconstruction effects

[9] Here, *to* is repeated at the right edge of the coordinate structure. RC in the gloss stands for *Repetitive Coordinators*, whose nature in Japanese is still a controversial issue. See Kobayashi (2014) and the references cited therein for more detail.

unlike A'-movement (Lasnik 1998, Boeckxs 2000 among others). Nevertheless, even if one argues that a verb head moves to T in Narrow Syntax, and then to reconstruct back to its original position, the relevant reconstruction must be an obligatory one. It is quite difficult to distinguish obligatory reconstructions in the covert component from a PF-movement that does nothing to do with semantic interpretations (for the PF-approach to reconstruction effects, see Sauerland and Elbourne 2002). Given that it is generally assumed that head movement does not reconstruct, those who argue that head movement takes place in Narrow Syntax and the head reconstructs must bear the burden of proof that heads like V, NEG and T undergo reconstruction in the covert component.

3.2 Interim Conclusion

We have seen that the gapping approach can, but neither the verb-raising (Koizumi 2000) nor the oblique movement (Takano 2002) analysis cannot fully explain the nature of NCC, which is summarized below in the table (15).

(15)

	(1) Non-constituent Coordination	**(7) Unbalanced NCC (Funakoshi 2014)**	**(8) Scopal relation of NEG/the API**
PF-reductionist approach (Fukui & Sakai 2003)	OK: gapping	OK: multiple *v*-heads	OK: API > NEG
Oblique Movement (Takano 2002)	OK: adjunction-to -arguments	*single *v*-head	OK: API > NEG
Verb-raising approach (Koizumi 2000)	OK: VP-remnants	OK: multiple *v*-heads	*NEG above the API

In the next section, I further claim that the gapping approach is actually compatible with the data such as (2), the biggest problem for the gapping approach according to the proponents of verb-raising analysis.

4 Multiple Clefts and NCC in Japanese

Koizumi (2000) and Funakoshi (2014) argue that NCC can be clefted, as in (16) (adapted from Funakoshi 2014:45). They assume that only a single constituent can be clefted, and argue that this fact serves as crucial counter evidence against the gapping approach, in which the elements in the focus position does not form a single constituent until the structure is transferred to the PF-component, not in Narrow Syntax.

(16) Tyoosyoku-ni t_i tabe-rare-ru no-wa
breakfast-for eat-can-Pres NM-Top
Focus Position [[Taro-ga ringo-**ga**/**o** mit-tu] to [Hanako-ga banana-**o**/**ga** ni-hon]] da
T.-Nom apple-Nom/Acc 3-cl Conj H.-Nom banana-Acc/Nom 2-cl Cop

In this section, I provide explanations for the clefted NCC under the gapping analysis, supporting Fukui and Sakai (2003). I claim that Koizumi (2000) and Funakoshi's (2014) arguments on cleft constructions do not qualify as evidence for their verb-raising analysis on NCC.

4.1 Clause Mate Condition on Cleft Constructions

Based on the assumption that only a single constituent can be licensed in the focus position in clefts in Japanese, Koizumi (2000) argues that clefts such as (17b) are derived in a way described as in (18):

(17) a. Mari-ga Naoya-ni ringo-o mit-tu age-ta.
M.-Nom N.-to apple-Acc 3-Cl give-Past
'Mari gave three apples to Naoya.'
b. Mari-ga age-ta no-wa [Focus Position Naoya-ni ringo-o 3-tu] da
M.-Nom give-Past NM-Top N.-to apple-Acc 3-cl cop-Pres
Lit.'It is [three apples to Naoya] Mari gave.'

(18) a. Verb-raising to T:
[…[Naoya-ni ringo-o t_V] V-T]
|___ ↑
b. Base-generate the remnant VP in the focus position and co-index it with the null operator in the preposed CP:
[Mari-ga Op_i V-T-C]-wa [Focus Position [VP Naoya-ni ringo-o t_V]$_i$] da.

c. Operator movement:
[Op_i Mari-ga t_i V-T-C]-wa [Focus Position [VP Naoya-ni ringo-o t_V]$_i$] da.
↑ _____|

(adapted from Hiraiwa and Ishihara 2012:161)

Takano (2002) argues that multiple clefts from different clauses obtain ungrammatical results, as in (19). Based on the observations such as (19b), he concludes that only a single constituent can appear in the focus position in cleft constructions, along with Koizumi's (2000) assumption.

(19) a. John-ga [Bill-ga Mary-ni hon-o age-ta to] omottei-ru (=(4))
J.-Nom B.-Nom M.-to book-Acc give-Past that think-Pres
'John thinks that Bill gave a book to Mary.'
b. *[Op_i Op_j t_i [Bill-ga Mary-ni t_j age-ta to] omotte-iru no-wa John-ga$_i$ hon-o$_j$ da]
B.-Nom M.-to give-Past that think-Pres NM-Top J.-Nom book-Acc Cop
Lit. 'It is John a book that thinks that Bill gave to Mary.'

(adapted from Takano 2002:245(8))

However, his argument has a hole in it: That the example (19) becomes ungrammatical does not necessarily indicate that multiple constituents cannot be licensed in the focus position. As discussed in Hiraiwa and Ishihara (2012), there is a Clause Mate Condition (CMC) in clefts, which states that multiple foci in a cleft sentence must have originated in the same clause.

(20) The Clause Mate Condition (**CMC**):
Multiple foci in a cleft sentence must have originated in the same clause.
(Hiraiwa and Ishihara 2012:146)

Examples such as (19) may indicate that the CMC in (20) is at work, but they do not necessarily mean that multiple constituents are prohibited in the focus position. Koizumi's assumption that only a single constituent can be clefted in Japanese is actually a null hypothesis, and it is indeed refuted by Hiraiwa and Ishihara's (2012) observations that multiple constituents can actually be clefted in Narrow Syntax, at least in Japanese. In interrogatives, the CMC is obviated, as in (21).[10]

(21) a. Naoya-ga Yumi-ni [Mari-ga wain-o non-da to] iituke-ta
N.-Nom Y.-Dat M.-Nom wine-Acc drink-Past that tell-Past
'Naoya told Yumi that Mari drank wine.'

b. Polarity Questions:
Naoya-ga t_i [Mari-ga t_j non-da to] iituke-ta no]-wa [Focus Position Yumi-ni$_i$ wain-o$_j$ na] no?
N.-Nom M.-Nom drink-Past that tell-Past NM-Top Y.-Dat wine-Acc Cop Q
Lit.'Is it to Yumi, wine that Naoya told that Mari drank?'

c. Wh-Questions:
Naoya-ga t_i [Mari-ga t_j non-da to] iituke-ta no]-wa [Focus Position dare-ni$_i$ nani-o$_j$ na] no?
N.-Nom M.-Nom drink-Past that tell-Past NM-Top who-Dat what-Acc Cop Q
Lit.'To whom what is it that Naoya told that Mari drank?'
(adapted from Hiraiwa and Ishihara 2012:174 (65))

These observations on the obviation effects of the CMC lead us to conclude that Narrow Syntax in principle allows multiple constituents to appear in the focus position in clefts. It allows us to depart from Koizumi's (2000) account on the derivation of cleft constructions, which requires a single remnant VP/TP be base-generated in the focus position.

4.2 ATB Operator Movements and the Coordinate Structure Constraint

In cleft constructions, it has been assumed that clefted elements are base-generated in the focus position. Then, operators move covertly to [Spec, CP] in the preposed CP (Hoji 1990). I argue that under the gapping approach, clefted NCC sentences are derived in the following way.

(22) a. Narrow Syntax:
Tyooshoku-ni [Taro$_{[Nom]}$ ringo$_{[Acc]}$ 3-tu taber-are] &
breakfast-for T. apple 3-Cl eat-can Conj
[Hanako$_{[Nom]}$ banana$_{[Nom]}$ 2-hon taber-are]-ru
H. banana 2-Cl eat-can-Pres
'As for breakfast, Taro (can eat) three apples and Hanako can eat two bananas.'

[10] In declaratives (i), the relevant clefts become unacceptable, for some non-syntactic reasons. For the detailed discussions, see Hiraiwa and Ishihara (2012).

(i) Declaratives:
*Naoya-ga t_i [Mari-ga t_j non-da to] iituke-ta no]-wa Yumi-ni$_i$ wain-o$_j$ da
N.-Nom M.-Nom drink-Past that tell-Past NM-Top Y.-Dat wine-Acc cop-Pres
Lit.'It was to Yumi, wine that Naoya told that Mari drank.'

b. ATB-operator movement: (Base-generate multiple constituents in the Focus Position):
[$_{CP}$ $Op_{[Nom]i/l}$ $Op_{[Acc]j/[Nom]m}$ $Op_{k/n}$ [T.-ni [t_i t_j t_k taber-are] & [t_l t_m t_n taber-are]-ru no-wa
↑ _____ ↑ _____ ↑ _____|_|_|_____|_|_|

Focus Position Taro$_{[Nom]i}$ ringo$_{[Acc]j}$ 3-tu$_k$ & Hanako$_{[Nom]l}$ banana$_{[Nom]m}$ 2-hon$_n$ da

c. Phonological component (Gapping + insertion of case particles/*to* 'and' + PF-reanalysis):
Tyooshoku-ni ~~[taber-are]~~ & [taber-are]-ru no-wa

Focus Position [$_{nominal}$ Taro-***ga*** ringo-***o*** 3-tu] ***to*** [$_{nominal}$ Hanako-***ga*** banana-***o*** 2-hon] da

d. The derived sentence:
Tyooshoku-ni taber-are-ru no-wa
breakfast-for eat-can-Pres NM-Top
[Taro-ga ringo-o 3-tu] to [Hanako-ga banana-o 2-hon] da
T.-Nom apple-Acc 3-Cl Conj H.-Nom banana-Acc 2-Cl Cop
Lit. 'It is [Taro three apples] and [Hanako two bananas] that they can eat for breakfast.'

Note that multiple clefting in (22b) does not violate the CMC in (20); hence the sentence does not have to be interrogative (Hiraiwa and Ishihara's (2012) CMC obviation effect, as in (21)). In Narrow Syntax (22a), multiple constituents are base-generated in the focus position, and then these string-adjacent constituents [*Taro-ga ringo-o 3-tu*] / [*Hanako-ga banana-o 3-bon*] '[SU DO Cl]' are reanalyzed as nominal constituents with *to* 'Conj' in the PF-component, as in (22c).

Kenshi Funakoshi (p.c.) noted to me that the derivation depicted in (22) might violate the CSC since operators with different indices are extracted from each conjunct in (21b). However, the extraction of operators with different indices actually does not violate the CSC since the relevant ATB-extraction is indeed possible in the operator-variable constructions (23).

(23) ATB-movement in the Operator-variable Constructions:
Zibun-zisin$_{i/j}$-o Yamada kyoozyu-ga [[Taro$_i$-ga t_i home]&[Hanako$_j$-ga t_j hihansi]-ta to] it-ta
self-self-Acc Y. prof.-Nom T.-Nom praise H.-Nom criticize-Past that say-Past
'Prof. Yamada said that Taro praised himself and Hanako criticized herself.'
(Kato 2006:169)

Kensuke Takita (p.c.) pointed out to me that such ATB-movement in (22b) might be problematic since the object operators bear different Case features, Nominative and Accusative. However Kobayashi (forthcoming) argues that such operator movement is legitimate: Citko (2003) showed that *wh*-phrases with different Case features is indeed possible, as long as their phonological features are identical, as the Polish data in (24) indicates. Since null operators lack phonological or morphological features (Bošković 2000 and Franks) and they share the same formal features except for the Case features ($Op_{[Acc]j}$ / $Op_{[Nom]m}$) in (22b), nothing prevents the relevant ATB-movement.

(24) Kogo$_{[Acc]i/[Gen]j}$ Jan lubi $t_{[Acc]i}$ i Maria nienawidzi $t_{[Gen]j}$?
who$_{[Acc]/[Gen]}$ J. likes Conj M. hates
'Who does Jan like and Maria hate?'

(Citko 2003:89-90)

Since cleft constructions involve operator movements (Hoji 1990), the derivation under the gapping approach does not violate the CSC. I conclude, following Fukui's (1999) *Uniqueness Parameter*, that multiple constituents can be clefted in Japanese, which nullifies Koizumi and Funakoshi's criticisms on the gapping analysis on NCC.

5 Conclusion

To sum up, I have argued that there is no V-to-T-to-C head-movement in Japanese NCC following the gapping analysis of Fukui and Sakai (2003). I reject Koizumi's and Funakoshi's verb-raising approach since it incorrectly predicts scopal facts between API and NEG in NCC. I have also argued that the gapping analysis is compatible with clefted NCC such as (3), since multiple constituents are allowed in the focus position in Japanese.

(25) Only the gapping analysis of Fukui and Sakai (2003) fully explains the nature of NCC:

	(1) NCC	**(7) Unbalanced NCC**	**(8) Scopal Facts**	**(3) Multiple Clefts**
Gapping (Fukui & Sakai 2003)	OK: gapping	OK: multiple *v*-heads	OK: API > NEG	OK: multiple clefts
Oblique Movement (Takano 2002)	OK: adjunction-to -arguments	*single *v*-head	OK: API > NEG	OK: adjunction-to -arguments
Verb-raising (Koizumi 2000)	OK: VP-remnants	OK: multiple *v*-heads	*NEG above the API	OK: VP-remnants

If this line of argument is on the right track, then the conjoinability of coordinators such as *to* 'and' can be a phonological constraint rather than a syntactic one. In other words, if nominal coordinator *to* can coordinate elements that are originally verbal, phrasal or clausal in Narrow Syntax, then whether a coordinator can coordinate certain categories can be determined in the phonological component, contra Zhang (2006) among others. Since further investigations on the nature of other coordinators are necessary, and this is obviously beyond the scope of this paper, I leave this issue for the future research.

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