On Multiple Sluicing in Japanese

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1. Introduction

Sluicing in Japanese like (1) has been extensively discussed in the generative literature (Takahashi 1994, Kuwabara 1997, Kizu 1997, Merchant 1998, Fukaya 2003, Saito 2003). In (1), the second conjunct contains an incomplete embedded clause, which consists of the NP-Case *wh*-phrase remnant *nani-o* 'what-Acc' and the Q(uestion)-marker *ka* (with the optional copula *da* 'be'), and the first conjunct contains the correlate *nanika-o* 'something-Acc', which corresponds to the *wh*-remnant in the second conjunct. The second conjunct in (1) has the interpretation of (2), which contains a full indirect question:

(1) Single Sluicing (Takahashi 1994; Kizu 1997; 2005; Kuwabara 1997; Merchant 1998; Fukaya 2003; Saito 2003)

Mary-ga	*nanika-o*	katta	sooda	ga,	boku-wa	[	**nani-o**	(da)	ka]
	correlate						**remnant**		
Mary-Nom	*something-Acc*	bought	I.heard	but	I-Top		**what-Acc**	(be)	Q
siranai									
not.know									

'I heard Mary bought *something*, but I don't know **what**.'

(2) Boku-wa [Mary-ga **nani-o** katta ka] siranai
I-Top Mary-Nom **what-Acc** bought Q not.know
'I don't know **what** Mary bought.'

Although details differ from theory to theory, those analyses all agree that sluicing with an NP-Case remnant involves syntactic movement followed by clausal ellipsis. In this paper, we will discuss Multiple Sluicing like (3). In (3), the second conjunct contains two *wh*-phrase remnants *dare-ni* 'who-Dat' and *nani-o* 'what-Acc', and has the full indirect question interpretation of (4):

(3) Multiple Sluicing[1]

Mary-ga	*dareka-ni*	*nanika-o*	watasita	sooda	ga,
Mary-Nom	*someone-Dat*	*something-Acc*	gave	I.heard	but
boku-wa	[**dare-ni**	**nani-o**	(da)	ka]	siranai
I-Top	**who-Dat**	**what-Acc**	(be)	Q	not.know

Lit. 'I heard Mary gave *something to someone*, but I don't know **what to whom**.'

(4) Boku-wa [Mary-ga **dare-ni** **nani-o** watasita ka] siranai
I-Top Mary-Nom **who-Dat** **what-Acc** gave Q not.know
Lit. 'I don't know **what to whom** Mary gave.'

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[1] Note that Multiple Sluicing with more than two remnants is possible:

(i) Dareka-ga nanika-o katta sooda ga, boku-wa [**dare-ga** **nani-o** **itu** **dokode** ka] wakaranai
s.o.-Nom s.t.-Acc bought I.heard but I-Top **who-Nom** **what-Acc** **when** **where** Q not.know
Lit. 'I heard someone bought something, but I don't know **who what when where**.' (Takahashi 1994: 298)

We argue that Multiple Sluicing is derived not by syntactic movement, but by movement in the phonology, what we call *Prosodic Movement*.

The paper is organized as follows. In section 2, we present evidence against a syntactic movement analysis of Multiple Sluicing. We show that Multiple Sluicing does not obey any syntactic constraints or have any LF interpretive effects. In section 3, we propose a prosodic movement analysis of Multiple Sluicing. More specifically, given that Sluicing is a "concealed cleft", we argue that in Multiple Sluicing, the targeted material is packed into a prosodic constituent and undergoes *Prosodic Movement* to the right edge of an intonational phrase (ι) in the phonology, followed by ellipsis of the intonational phrase corresponding to the presuppositional CP. Section 4 makes concluding remarks.

2. Against a Syntactic Movement Analysis of Multiple Sluicing

It has been claimed that Multiple Sluicing involves syntactic movement. Takahashi (1994) and Takahashi and Lin (2012) claim that Multiple Sluicing is derived by syntactic movement of an amalgamated *wh*-phrase, formed by adjunction of a *wh*-phrase to another *wh*-phrase. Kuwabara (1996) claims that Multiple Sluicing involves cleft with multiple foci, derived by syntactic VP-cleft movement. Under their analyses, the second conjunct of (3) would be derived as represented in (5a) and (5b):

(5) Syntactic Movement Analyses of Multiple Sluicing

a. Syntactic movement of an amalgamated *wh*-phrase (Takahashi 1994; Takahashi and Lin 2012)

Boku-wa [[Mary-ga dare-ni nani-o watasita] (da) ka] siranai
I-Top Mary-Nom who-Dat what-Acc gave (be) Q not.know
-Amalgamated wh-phrase formation:
Boku-wa [[Mary-ga [dare-ni nani-o$_1$] t_1 watasita] (da) ka] siranai
-Movement of the amalgamated wh-phrase to the Spec of CP and clausal ellipsis:
Boku-wa [[dare-ga nani-o]$_2$ ~~[Mary-ga t_2 t_1 watasita]~~ (da) ka] siranai

b. Syntactic VP-clefting (Kuwabara 1996)

Boku-wa [[Mary-ga [$_{VP}$ dare-ni nani-o watasita]] (da) ka] siranai
I-Top Mary-Nom who-Dat what-Acc gave (be) Q not.know
-Overt V-movement to T:
Boku-wa [[Mary-ga [$_{VP}$ dare-ni nani-o t_V] watasita] (da) ka] siranai
-Movement of VP to the Spec of CP and clausal ellipsis:
Boku-wa [[$_{VP}$ dare-ni nani-o t_V] ~~[Mary-ga t_{VP} watasita]~~ (da) ka] siranai

We present evidence to show that Multiple Sluicing does not obey any syntactic constraints or have any LF interpretive effects, indicating that Multiple Sluicing is not derived by syntactic movement.

2.1. Single/Multiple Sluicing and Island Effects

The first piece of evidence comes from island effects. As shown in (6), Single Sluicing obeys syntactic island constraints like the Complex NP Constraint and the Adjunct Condition, as pointed out by, among others, Takahashi (1994), Kuwabara (1997), Fukaya (2003), and Saito (2003):[2]

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[2] Saito (2003) observes that island effects become visible only when a pronominal subject – *pro* or an overt pronoun – is disallowed in the embedded clause of the second conjunct. As pointed out by Zidai-Eroğlu (2019), when *hokano* 'else' modifies the *wh*-remnant, a pronominal subject cannot appear in the embedded clause of the second conjunct:

(i) John-wa Sally-o aisiteite, hoka-ni-mo dareka-o aisiteiru ga,
John-Top Sally-Acc love other-Dat-also someone-Acc love but
watasi-wa [(*sore-ga) hokano dare-o (da) ka]-wa siranai.
I-Top it-Nom else who-Acc (be) Q Top not.know
Lit. 'John loves Mary, and loves someone else too, but I don't know who else (it is).'

In (6) and (7), *hokano* 'else' modifies the *wh*-remnant, which excludes an embedded empty pronominal subject *pro* in the second conjunct. Thus, we can detect whether Single and Multiple Sluicing exhibit island effects or not.

(6) Island Effects with Single Sluicing (Takahashi 1994, Kuwabara 1997, Fukaya 2003, Saito 2003)

a.*Boku-wa [keisatu-ga **[Complex NP** [*Tanaka giin-ni* kabuken-o okutta]
I-Top police-Nom *Rep. Takana-Dat* stock-Acc gave
otoko**]**-o taihosita no]-wa sitteiru ga, [**hokano dono giin-ni**
man-Acc arrested C Top know but **else which representative-Dat**
(da) ka]-wa siranai
(be) Q Top not.know
Lit. 'I know that the police arrested [the man who had given stocks *to Rep. Tanaka*], but I don't know **to which other representative** (the police arrested **[**the man who had given stocks ***e*** **]**).'
(adapted from Fukaya 2003: 181)

b.*Boku-wa [keisatsu-ga **[Adjunct** denryoku gaisya-ga *Tanaka giin-ni*
I-Top police-Nom electric power company-Nom *Rep. Tanaka-Dat*
kabuken-o okutta kara**]** soosasiteiru no]-wa sitteiru ga,
stock-Acc gave because investigate C Top know but
[**hokano dono giin-ni** (da) ka]-wa siranai
else which representative-Dat (be) Q Top not.know
Lit. 'I know the police are making an investigation [because the electric power company gave stocks *to Rep. Tanaka*], but I don't know **to which other representative** (the police are making an investigation **[**because Rep. Tanaka gave stocks ***e*** **]**).'

In (6a), the correlate *Tanaka-giin-ni* 'representative Tanaka' in the first conjunct is contained within a complex NP, and so the corresponding *wh*-remnant *hokano dono giin-ni* 'to which representative' in the second conjunct originates within a parallel complex NP. In (6b), the correlate is within an adjunct, and so the *wh*-remnant originates within an adjunct. (6a) and (6b) are deviant under the higher interpretation of the *wh*-remnant *hokano dono giin-ni* 'to which other representative' in the second conjunct, in which the *wh*-remnant is interpreted outside of the islands. Multiple Sluicing, on the other hand, does not exhibit island effects. In Multiple Sluicing (7a) and (7b), two correlates *Tanaka giin-ni* 'to representative Tanaka' and *kabuken-o* 'stock-Acc' in the first conjunct are contained within a complex NP and an adjunct, respectively, so the corresponding two *wh*-remnants *hokano dono giin-ni* 'to which representative' and *nani-o* 'what-Acc' both originate within an island. (7a) and (7b) are fine under the higher scope interpretation of the *wh*-remnants *hokano dono giin-ni* 'to which other representative' and *nani-o* 'what-Acc' in the second conjunct; in these cases, the *wh*-remnants can be interpreted outside of the islands:

(7) No Island Effects with Multiple Sluicing

a. Boku-wa [keisatu-ga **[Complex NP** [*Tanaka giin-ni* *kabuken-o* okutta]
I-Top police-Nom *Rep. Takana-Dat* *bribe-Acc* gave
otoko**]**-o taihosita no]-wa sitteiru ga, [**hokano dono giin-ni** **nani-o**
man-Acc arrested C Top know but else **which Rep.-Dat** **what-Acc**
(da) ka]-wa siranai
(be) Q Top not.know
Lit. 'I know that the police arrested [the man who had given *a bribe to Rep. Tanaka*], but I don't know **what, to which other representative** (the police arrested **[**the man who had given ***e e*****]**).'

b. Boku-wa [keisatsu-ga **[Adjunct** denryoku gaisya-ga *Tanaka giin-ni*
I-Top police-Nom electric power company-Nom *Rep. Tanaka-Dat*
kabuken-o okutta kara**]** soosasiteiru no]-wa sitteiru ga,
stock-Acc gave because investigate C Top know but
[**hokano dono giin-ni** **nani-o** (da) ka]-wa siranai
else **which representative-Dat** **what-Acc** (be) Q Top not.know
Lit. 'I know the police are making an investigation [because the electric power company gave *stocks to Rep. Tanaka*], but I don't know **what, to which other representative** (the police are making an investigation **[**because Rep. Tanaka gave ***e e*** **]**).'

If Multiple Sluicing were derived by syntactic movement, (7) should be worse than (6) since only one constituent undergoes movement out of an opaque domain in (6). However, the result is the opposite of what any syntactic analysis of Multiple Sluicing predicts.

2.2. Single/Multiple Sluicing with a Nominative Phrase Remnant

Second, Single Sluicing with a nominative phrase remnant is not possible as pointed out by Kizu (1997) and shown in (8a). In (8a), Single Sluicing with the nominative phrase remnant *dare-ga* 'who-Nom' is deviant. But Multiple Sluicing with a nominative phrase remnant together with another remnant is possible as in (8b). In (8b), the nominative phrase remnant *dare-ga* 'who-Nom' appears with another remnant *nani-o* 'what-Acc', and the result is fine:

(8) a. No Single Sluicing with a Nominative Phrase Remnant (Kizu 1997)
?* John-wa [*dareka-ga* sono hon-o katta to] itta sooda ga,
John-Top *someone-Nom* that book-Acc bought C said I.heard but
boku-wa [**dare-ga** ka] siranai
I-Top **who-Nom** Q not.know
Lit. 'I heard John said *someone* bought that book, but I don't know **who** (***e*** bought that book).'

b. Multiple Sluicing with a Nominative Phrase Remnant
John-wa [*dareka-ga* *nanika-o* katta to] itta sooda ga,
John-Top *someone-Nom* *something-Acc* bought C said I.heard but
boku-wa [**dare-ga** **nani-o** ka] siranai
I-Top **who-Nom** **what-Acc** Q not.know
Lit. 'I heard John said *someone* bought *something*, but I don't know **who what** (***e*** bought ***e***).'

Whatever syntactic constraint we adopt to rule out Single Sluicing of a nominative phrase remnant, (8b) shows that Multiple Sluicing is not subject to that syntactic constraint. If the movement in Multiple Sluicing were syntactic, it is hard to explain why moving a nominative phrase together with another XP is fine, but simply moving the nominative phrase by itself is not.

2.3. Single/Multiple Sluicing with an Adjunct Remnant

Third, Single Sluicing with an adjunct remnant is not possible as shown in (9a). In (9a), the adjunct *wh*-phrase *donoyoona riyuu-de* 'for what reason' is a remnant and intended to be interpreted as modifying the most embedded clause, *i.e.* asking for the reason why Bill gave a bribe to that man; the result is deviant under this interpretation. But Multiple Sluicing with an adjunct remnant like (9b) is possible. In (9b), the adjunct *wh*-remnant appears with another remnant *nani-o* 'what-Acc'; the result is fine under the interpretation where the adjunct *wh*-remnant *donoyoona riyuu-de* 'for what reason' modifies the most embedded clause, *i.e.* asking for the reason why Bill gave what to that man. This shows that Multiple Sluicing does not have LF interpretive effects on modification, and the remnant phrases in Multiple Sluicing are interpreted in-situ at LF. This cannot be explained by a syntactic movement analysis of Multiple Sluicing:

(9) a. No Single Sluicing with an Adjunct Remnant
?* Masukomi-wa [Mary-ga [Bill-ga sono okoto-ni wairo-o
Mass.media-Top Mary-Nom Bill-Nom that man-Dat bribe-Acc
donoyoona riyuu-de watasita to] syoogensita ka] siranai ga,
what reason-for gave C witnessed Q not.know but
boku-wa [**donoyoona riyuu-de** ka] sitteiru
I-Top **what reason-for** Q know
Lit. 'The mass media don't know [Mary witnessed [Bill gave a bribe to that man *for what reason*]], but I know **for what reason** (Mary witnessed [Bill gave a bribe to that man ***e***]).'

b. Multiple Sluicing with an Adjunct Remnant
Masukomi-wa [Mary-ga [Bill-ga sono otoko-ni *nani-o*
Mass.media-Top Mary-Nom Bill-Nom that man-Dat *what-Acc*
donoyoona riyuu-de watasita to] syoogensita ka] siranai ga,
some reason-for gave C witnessed Q not.know but
boku-wa [**nani-o** **donoyoona riyuu-de** ka] sitteiru
I-Top **what-Acc** **what reason-for** Q know
Lit. 'The mass media don't know [Mary witnessed [Bill gave *what* to that man *for what reason*]], but I know **what, for what reason** (Mary witnessed [Bill gave ***e*** to that man ***e***]).'

2.4. Single/Multiple Sluicing with a Negative Polarity Item (NPI) Remnant

Fourth, as shown in (10a), Single Sluicing with an NPI remnant is not possible. In (10a), the NPI *ringo-o hitotumo* 'any apple' appears as a remnant in the second conjunct; the result is deviant. But Multiple Sluicing with an NPI remnant is possible as shown in (10b). In (10b), the NPI remnant *ringo-o hitotumo* 'any apple' appears with another remnant *Lily-ni* 'to Lily'; the result is fine. Regardless of whatever LF interpretative constraint we adopt to rule out Single Sluicing with an NPI remnant as in (10a), the acceptability of (10b) shows that the remnants in Multiple Sluicing are interpreted *in-situ* under negation at LF. This cannot be explained by a syntactic movement analysis of Multiple Sluicing.

(10) a. No Single Sluicing with an NPI Remnant
*John-wa [Bill-ga Suzy-ni *mikan-o* *hitotumo* age-nakatta to] itta ga,
John-Top Bill-Nom Suzy-Dat *orange-Acc* *one.even* gave-not C said but
Mary-wa [**ringo-o** **hitotumo** to] itta
Mary-Top **apple-Acc** **one.even** C said
Lit. 'John said that Bill didn't give *any oranges* to Suzy, but Mary said that **any apples** (Bill didn't give ***e*** to Suzy).'

b. Multiple Sluicing with an NPI Remnant
John-wa [Bill-ga *Suzy-ni* *mikan-o* *hitotumo* age-nakatta to] itta ga,
John-Top [Bill-Nom *Suzy-Dat* *orange-Acc* *one.even* gave-not C said but
Mary-wa [**Lily-ni** **ringo-o** **hitotumo** to] itta
Mary-Top **L-Dat** **apple-Acc** **one.even** C said
Lit. 'John said that Bill didn't give *any oranges to Suzy*, but Mary said that **any apples, to Lily** (John didn't give ***e e***).'

It should be noted that non-*wh*-elements may be sluicing remnants in Japanese, as pointed out by Takahashi (1994).

2.5. Single/Multiple Sluicing and Variable Binding

Finally, variable binding into a remnant is not possible with Single Sluicing (11a), but it becomes possible with Multiple Sluicing (11b). This indicates that the remnant containing the bound variable pronoun *soko* 'that place' in Multiple Sluicing is interpreted *in-situ* at LF, where it is licensed by the QP *Toyota-sae* 'even Toyota':

(11) a. No Variable Binding with Single Sluicing
?* Masukomi-wa [Toyota-sae$_1$-ga *soko$_1$-no* *kabunusi-ni*
Mass.media-Top Toyota-even-Nom *that-Gen* *stockholder-Dat*
sikinenzyo-o yooseisita to] itta ga,
financial support-Acc asked.for C said but
seihu-wa [**soko$_1$-no** **meinbanku-ni** to] itta
government-Top **that-Gen** **main.bank-Dat** C said
Lit. 'The mass media said that even Toyota$_1$ asked *its$_1$ stockholders* for financial support, but the government said that **its$_1$ main bank** (even Toyota$_1$ asked ***e*** for financial support).'

b. Variable Binding with Multiple Sluicing

Masukomi-wa [Toyota-sae$_1$-ga *soko$_1$-no* *kabunusi-ni*
Mass.media-Top Toyota-even-Nom *that-Gen* *stockholder-Dat*
sikinenzyo-o yooseisita to] itta ga,
financial support-Acc asked.for C said but
seihu-wa [**soko$_1$-no** **meinbanku-ni** **yakuinhaken-o** to] itta
government-Top **that-Gen** **main.bank-Dat** **dispatch.executive-Acc** C said
Lit. 'The mass media said that even Toyota$_1$ asked *its$_1$ stockholders for financial support*, but the government said that **its$_1$ main bank, for a dispatch executive** (even Toyota$_1$ asked ***e e***).'

3. A Proposal

We claim with Kuwabara (1997), Merchant (1998), and Saito (2003), among others, that Sluicing, single or multiple, is a "concealed Cleft", which is supported by the fact that the copula *da* 'be' may appear optionally after the remnant. For example, the derivation of the second conjunct of Single Sluicing (1) is in (12). In (12), a Cleft is formed with *nani-o* 'what-Acc' as the focus phrase. Then, the clausal subject argument CP *Mary-ga **e** katta no* 'Mary bought **e**' undergoes ellipsis:

(12) Sluicing as a "Concealed Cleft"
... boku-wa [~~[Mary-ga *e* katta no] wa~~ **nani-o** (da) ka] siranai
I-Top Mary-Nom bought C-Top **what-Acc** (be) Q not.know
Lit. 'I don't know what it is that Mary bought.'

3.1. An Analysis of Single/Multiple Cleft

We first address the derivation of Cleft in Japanese. We propose that Cleft, whether single or multiple, changes Information Structure by inducing a focus interpretation. Following Agbayani, Golston and Ishii's (2015) proposal for scrambling, we argue that the effects induced by Information Structure are not limited to syntax or phonology, but apply to both. We propose (13) and (14):

(13) a. Material for Cleft is *targeted* within syntax, and is moved either in syntax or phonology.

b. Material targeted for Cleft must be
   a. non-predicative,
   b. maximal, and
   c. contained in a single constituent.

(14) a. If the targeted material is a syntactic XP, then it undergoes *Syntactic Cleft*.

b. If the targeted material is not a syntactic XP, then that material is packed into a prosodic constituent in the phonology and undergoes *Prosodic Cleft* to the right edge of an intonational phrase ι (where ι corresponds to the presuppositional CP).

The property in (15) follows naturally if syntax derivationally precedes and feeds phonology, and Cleft is subject to the derivational principle of Earliness (16) (Pesetsky 1989):

(15) Syntactic Cleft bleeds Prosodic Cleft.
(see also Agbayani, Golston & Ishii 2015 for Japanese scrambling)

(16) Earliness Principle (Pesetsky 1989)
Satisfy principles as early as possible on the hierarchy of levels (DS) > SS > LF > LP.

If the material targeted for Cleft is a syntactic constituent, it must undergo Syntactic Cleft. If the targeted material does not constitute a single syntactic constituent, and a prosodic constituent can be

constructed from the targeted material, then Prosodic Cleft applies in the phonology. Thus, Prosodic Cleft cannot apply in place of Syntactic Cleft to remedy island violations or circumvent other syntactic conditions. This works only in a theory where there is a one-way feeding relation from syntax to phonology, and where information from phonology does not flow back into the syntax (contrary to Richards 2016)

Again, the targeting or 'identification' of material for Cleft applies in syntax, along the lines in (17), repeated from (13b):

(17) Material targeted for Cleft must be
  a. non-predicative,
  b. maximal, and
  c. contained in a single constituent.

(17a) requires that the clefted material be non-predicative (saturated) elements. (18, 19) illustrate this:

(18) a. John-ga sono hon-o katta
  John-Nom that book-Acc bought
  'John bought that book.'

  b.*[John-ga sita no]-wa sono hon-o kau da
  John-Nom did C Top that book-Acc buy be
  Lit. 'It is buy that book that John did.'

(19) a. John-ga Mary-ni sono hon-o yonde kureta
  John-Nom Mary-Dat that book-Acc read had
  'John had Mary read that book.'

  b.*[John-ga Mary-ni (site) kureta no]-wa sono hon-o yonde da
  John-Nom Mary-Dat (do) had C Top that book-Acc read be
  Lit. 'It is read that book that John had Mary (do).'

In (18, 19), the predicates *sono hon-o kau* 'buy that book' and *sono hon-o yonde* 'read that book' undergo Cleft, but the results are deviant. (17b,c) requires that the clefted material be contained in a single (maximal) constituent, relativized to the component in which Cleft takes place. Syntactic Cleft moves a single syntactic XP to a clause-peripheral position. Prosodic Cleft applies to a single prosodic constituent; we propose it is the Major Phrase (Martin 1952; McCawley 1968; Poser 1984; Selkirk & Tateishi 1988, 1991; Itô & Mester 2013; Ishihara 2016), created in the phonology by combining multiple phonological phrases. (17b,c) is satisfied straightforwardly when a single syntactic XP is clefted. But if the material targeted for Cleft includes multiple XPs that do not form a constituent in the syntax, (17c) rules out Syntactic Cleft, and the Information Structure requirement is passed on to the phonological component. Note that this precludes an 'early Spell-Out' analysis, which would send the clefted XPs one-by-one to the phonological component (see Fukui & Kasai 2004; van Gelderen 2003 for such an analysis of scrambling).

In phonology, the phonological phrases (Φs) that correspond to the separate XPs are packed into a Major Phrase (MP), which is then displaced to the intonational phrase (ι) final position. (20) illustrates this for a hypothetical indirect and direct object. Double underline indicates material targeted for Cleft:

(20) [NP- Dat] [NP-Acc] V *no* (Comp) *wa* (Top) Syntax
  ⇩
(((.....)Φ (.....)Φ)MP)ι Phonology

By (17c), there is no way for the syntax to cleft the targeted material, because the IO and DO are not contained in a single XP. But (20) has better luck in the phonology, where a single MP is created by combining multiple Φs in Japanese (Itô & Mester (2013) propose that MP may be formed by recursive

embedding of Φs into a larger Φ). Assuming that (17c) acts as a constraint which forces the creation of such a Major Phrase, the targeted material is forced into a single phonological constituent which undergoes Prosodic Cleft to the right periphery of the intonational phrase (ι) which corresponds to the presuppositional CP. Note that this excludes derivations in which one of the XPs clefts syntactically, and the other clefts prosodically. Note also that although the IO and DO form a syntactic constituent under the Larsonian analysis of the double object construction, that constituent, being VP, is not a non-predicative (saturated) XP and is therefore not eligible for Cleft according to (17a).

In Japanese Clefts, then, the effects induced by Information Structure are not limited to the syntax or to the phonology, but apply to both. The manipulation of structures in syntax and phonology by the outside system is heavily restricted, however, by the constraints of the grammatical sub-systems involved. Syntactic Cleft moves a single syntactic XP to a clause-peripheral position; Prosodic Cleft moves a Major Phrase (MP) formed from combined phonological phrases (Φs) to the intonational phrase (ι) peripheral position. Since syntax precedes and feeds phonology, Syntactic Cleft bleeds Prosodic Cleft.

3.2. An Analysis of Single/Multiple Sluicing

We now address the analysis of Multiple Sluicing, taking (3) (repeated here in (21)) as an example:

(21) Multiple Sluicing

Mary-ga	*dareka-ni*	*nanika-o*	watasita	sooda	ga,	
Mary-Nom	*someone-Dat*	*something-Acc*	gave	I.heard	but	
boku-wa	[**dare-ni**	**nani-o**	(da)	ka]	siranai	
I-Top	**who-Dat**	**what-Acc**	(be)	Q	not.know	

Lit. 'I heard Mary gave *something to someone*, but I don't know **what to whom**.'

The derivation of the second conjunct proceeds as follows. We assume some elements of Hiraiwa and Ishihara's (2002, 2012) analysis of Cleft, while positing a purely syntactic movement analysis of single Cleft and a purely prosodic movement analysis of Multiple Cleft. First, NP-Dat *dare-ni* 'who-Dat' and NP-Acc *nani-o* 'what-Acc' are targeted for Cleft within syntax as in (22a). The double underline indicates that those elements are targeted for Cleft. Since they do not form a single syntactic XP, they cannot undergo Cleft syntactically. In (22b), the presuppositional CP undergoes syntactic topicalization to the Spec of TopP. Then, the derivation proceeds to phonology. In (22c), the two phonological phrases (Φs) corresponding to the XPs targeted for Cleft are packed into a single Major Phrase, which undergoes Prosodic Cleft. Since Multiple Cleft is derived by prosodic movement, it is blind to syntactic constraints and lacks LF interpretive effects. The intonational phrase (ι) corresponding to the topicalized CP then undergoes ellipsis as in (22d), yielding Multiple Sluicing:

(22) *Syntax* (cf. Hiraiwa and Ishihara's (2002, 2012) analysis of Cleft):

a. boku-wa [TopP [FocP [CP ... [NP dare-ni] [NP nani-o] ... no] (da)] Top] ka siranai
I-Top who-Dat what-Acc C (be) Q not.know

-Topicalization of the presuppositional CP to the Spec of TopP:

b. boku-wa [TopP [CP...[NP dare-ni] [NP nani-o] ... no]-wa [FocP t_{CP} (da)] Top] ka siranai

Phonology:

c. boku-wa (... ((...)Φ (....)Φ)MP ... no wa)ι(**dare-ni** **nani-o**)MP (da) ka siranai

d. boku-wa ~~(... ... no wa)ι~~ (**dare-ni** **nani-o**)MP (da) ka siranai

In Single Sluicing (1) (repeated here in (23)), on the other hand, *nani-o* 'what-Acc', a single syntactic XP, is targeted for Cleft within syntax. Being a single syntactic XP targeted for Cleft, *nani-o* 'what-Acc' obligatorily undergoes Syntactic Cleft, as required by (14a). As shown in (24a), the targeted XP moves to Spec of FocP, followed by topicalization of the presuppositional CP (Hiraiwa and Ishihara 2002, 2012). Then, the intonational phrase corresponding to the topicalized CP undergoes ellipsis (24b):

(23) Single Sluicing
Mary-ga *nanika-o* katta sooda ga, boku-wa [**nani-o** (da) ka]
Mary-Nom *something-Acc* bought I.heard but I-Top **what-Acc** (be) Q
siranai
not.know
'I heard Mary bought *something*, but I don't know **what**.'

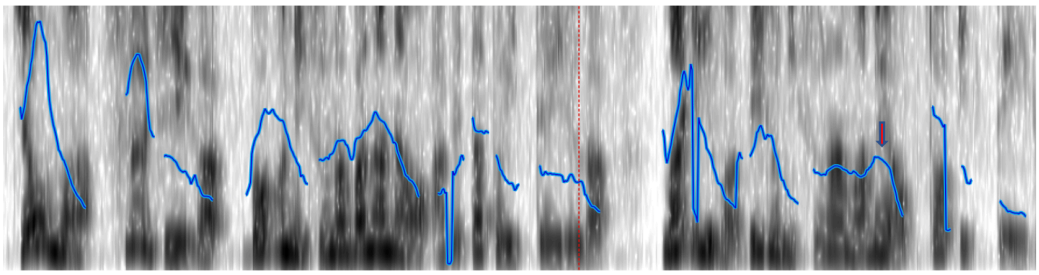
(24) a. *Syntax:*
boku-wa [TopP [CP Mary-ga t_{NP} katta no]-wa [FocP [NP nani-o] [t_{CP} (da)]] Top]
I-Top Mary-Nom bought C Top what-Acc (be)
ka siranai
Q not.know

b. *Phonology:*
boku-wa ~~(Mary-ga katta no wa)$_t$~~ nani-o (da) ka siranai

As predicted, syntactic XP movement (24a) in the derivation of Single Cleft/Single Sluicing will be sensitive to syntactic constraints and LF interpretive effects.

Our analysis is supported by pitch accent in Multiple Sluicing constructions. In the pitch track of the Multiple Sluicing sentence (25)[3], *Bill-ni* 'Bill-Dat' and *mamé-o* 'bean-Acc' both have H tones - *mamé* having lexical H - but the H tone on *mamé-o* is lower than the H on *Bill-ni*. The H tone of *mamé-o* is downstepped in relation to that of the H tone on *Bill-ni*. The domain of downstep in Japanese is traditionally identified as the Major Phrase (Martin 1952; McCawley 1968; Poser 1984; Selkirk & Tateishi 1988, 1991; Itô & Mester 2013; Ishihara 2016). The presence of downstep indicates that the sluicing remnants *Bill-ni* 'Bill-Dat' and *sono mamé-o* 'that bean-Acc' together form a Major Phrase.

(25)



John-wa Suzy-ga Bob-ni banana-o ageta to itteru ga, Mary-wa Bill-ni sono mamé-o to itteru
John-Top Suzy-Nom Bob-Dat banana-Acc gave C says but Mary-Top Bill-Dat that bean-Acc C says
Lit. 'John says Suzy gave a banana to Bob, but Mary says (Suzy gave) *that bean to Bill*.'

4. Conclusion

We first presented evidence against a syntactic movement analysis of Multiple Sluicing. It was shown that unlike Single Sluicing, Multiple Sluicing does not obey any syntactic constraints or have any LF interpretive effects. In section 3, assuming that Sluicing is a "concealed Cleft", we proposed a prosodic movement analysis of Multiple Sluicing. We have argued that in Multiple Sluicing, targeted material that cannot form a single syntactic constituent is passed on to the phonology and packed into a single prosodic constituent – a Major Phrase – which undergoes rightward *Prosodic Cleft* followed by ellipsis of the intonational phrase corresponding to the presuppositional CP. This captures the lack of sensitivity to syntactic constraints and absence of LF interpretive effects with Multiple Sluicing.

[3] The pitch track is taken from a recording of an adult female speaker of Tokyo Japanese.

References

Agbayani, Brian, Chris Golston, and Toru Ishii. 2015. Syntactic and prosodic scrambling in Japanese. *Natural Language and Linguistic Theory* 33: 47-77.

Fukaya, Teruhiko. 2003. Island (in)sensitivity in Japanese sluicing and stripping and some implications, *WCCFL 22*, 179-192.

Fukui, Naoki and Hironobu Kasai. 2004. Spelling-out scrambling, in *Linguistic variation yearbook* 4(1): 109-141.

Hiraiwa, Ken and Shinichiro Ishihara. 2002. Missing links: Cleft, sluicing, and "no da" construction in Japanese, in *Proceedings of the 2nd HUMIT student conference in language research* (MIT working papers in linguistics 43), ed. by Tania Inoin, Heejeong Ko and Andrew Nevins, pp. 35-54, Cambridge, MA: MITWPL.

Hiraiwa, Ken and Shinichiro Ishihara. 2012. Syntactic metamorphosis: Clefts, sluicing, and in-situ focus in Japanese. *Syntax* 15.2: 142-180.

Ishihara, Shinichiro. 2016. Japanese downstep revisited. *Natural Language and Linguistic Theory* 34: 1389-1443.

Itô, Junko, and Armin Mester. 2013. Prosodic subcategories in Japanese. *Lingua* 124(1): 20-40.

Kizu, Mika. 1997. Sluicing in *wh*-in-situ languages, *CLS* 33, 231-244.

Kizu, Mika. 2005. *Cleft constructions in Japanese syntax*, London: Palgrave Macmillan.

Kuwabara, Kazuki. 1996. Multiple *wh*-phrases in elliptical clauses, *MIT working papers in linguistics* 29, 97-116, Cambridge, MA: MITWPL.

Martin, S. E. 1952. *Morphophonemics of standard colloquial Japanese*, Baltimore: Linguistic Society of America.

McCawley, James D. 1968. *The phonological component of a grammar of Japanese*. The Hague: Mouton.

Merchant, Jason. 1998. "Pseudosluicing": Elliptical clefts in Japanese and English, *ZAS working papers in linguistics* 10, 88-112.

Pesetsky, David. 1989. Language-particular processes and the earliness principle, unpublished ms., MIT.

Poser, William. 1984. *The phonetics and phonology of tone and intonation in Japanese*, doctoral dissertation, MIT.

Richards, Norvin. 2016. *Contiguity Theory*. Cambridge, Mass: MIT Press.

Saito, Mamoru. 2003. Ellipsis and pronominal reference in Japanese clefts. *Nanzan Linguistics* 1, 21-50.

Selkirk, Elisabeth & Koichi Tateishi. 1988. Constraints on minor phrase formation in Japanese, in *CLS* vol. 24 Part One: The General Session, ed. by Lynn MacLeod, Gary Larson, and Diane Brentari, pp. 316-336, Chicago, IL: Chicago Linguistic Society.

Selkirk, Elisabeth & Koichi Tateishi. 1991. Syntax and downstep in Japanese, in *Interdisciplinary Approaches to Language: Essays in Honor of S.-Y. Kuroda*, ed. by Carol Georgopoulos and Roberta Ishihara, pp. 519-543, Dordrecht: Kluwer.

Takahashi, Daiko. 1994. Sluicing in Japanese. *Journal of East Asian Linguistics* 3, 265-300.

Takahashi, Daiko and Sichao Lin. 2012. Two notes on multiple sluicing in Chinese and Japanese. *Nanzan Linguistics* 8, 129-145.

van Gelderen, Veronique. 2003. Scrambling unscrambled. Doctoral dissertation, Leiden University.

Zidai-Eroğlu, Leyla. 2019. Diagnosing English-style sluicing of *wh*-in-situ languages, a paper presented at WAFL (Workshop on Altaic Formal Linguistics) 15.