

Comments on “Syntax-phonology interfaces in Busan Korean and Fukuoka Japanese” by Tomoyuki Kubo

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The Busan Korean and Fukuoka Japanese patterns that Tomoyuki Kubo has presented in his paper raise significant questions that any formal model of the prosody-syntax interface must address. In these comments, I would like to focus on one such question: How can we account for the fact that intonation is sensitive specifically to the location of a [+WH] complementizer that *binds*, or is *syntactically and semantically associated* with, a particular WH-phrase? In other words, what characteristics must a formal model of the phonology/syntax interface have in order to represent this kind of correlation between WH-scope and intonational contour?

Ishihara (2004) develops an analysis of a very similar WH-scope/intonation correlation in the Tokyo dialect of Japanese, the Multiple Spell-Out account (MSO). An advantage of the MSO is that it reduces the Tokyo WH-intonation pattern to a subcase of more general patterns of focus phonology, requiring no WH-specific extensions to the formal model of the prosody-syntax interface. If the MSO could serve as a general, cross-linguistic model of WH-scope/intonation relationships, this would allow all apparent effects of WH-scope on prosodic phrasing to be modeled with existing mechanisms that relate focused constituents to prosodic structure (e.g., Truckenbrodt 1995, 1999; Selkirk 2003). On the other hand, the MSO relies on cyclic syntactic derivation to account for the correlation between WH-scope and (focus) intonation, a position that is not straightforwardly compatible with constraint-based, parallel models of prosodic phonology.

In these comments, I show that while the MSO can model certain aspects of the BK and FJ patterns, it leaves other points unaccounted for. This finding has two implications. First, it may indeed be necessary to allow the prosody-syntax interface access to additional information beyond focus and syntactic edges; specifically, information about WH-elements and their scope. Second, the derivational MSO has no clear advantage over a parallel approach to the prosody-syntax interface.

1. The BK/FJ pattern and its significance

Prof. Kubo demonstrates that in both Busan Korean (BK) and Fukuoka Japanese (FJ), when there is a WH-element bound by a complementizer, a prosodic constituent (minor phrase, MiP) is formed. This MiP begins at the WH-element; ends at the complementizer that binds the WH-element; and triggers the loss of all pitch accents associated with the morphemes that it contains, receiving default penultimate accentuation. Thus, the phonology of accent and intonation in BK and FJ appears to be sensitive to the syntax of WH-scope.

There is a formal approach to the prosody-syntax interface that holds that the prosodic system has access to only a very limited amount of syntactic information. In particular, it has been claimed that only information about edges of syntactic constituents and information about the morphosyntactic location of focus are

accessible for prosodic structure, while detailed information about syntactic phrase structure is not (Chen 1987; Selkirk 1986, 2000, 2003; Truckenbrodt 1995, 1999). In the context of such proposals, it is important to determine whether the WH-scope/intonation correlation in BK and FJ can also be accounted for in terms of syntactic edges and focus features alone. If not, we will need to incorporate additional factors into the prosody-syntax interface.

2. The MSO account of the Tokyo Japanese WH-scope/intonation correlation

The Multiple Spell-Out account (MSO) of Ishihara (2004) is a formal model of a WH-scope/intonation correlation in Tokyo Japanese (TJ) that is very similar to the intonational patterns in BK and FJ described by Prof. Kubo. The MSO account of the TJ pattern does not require explicit reference to WH-scope or coindexation within the phonological system. This raises the question of whether the BK and FJ patterns can also be modeled with the MSO, in which case there would be no need to make the phonological component explicitly sensitive to WH-scope for these systems either.

The fundamental insight of the MSO is that the WH-related intonational contour begins at a WH-phrase and extends to the end of the utterance. Crucially, however, at certain stages of the syntactic derivation, only the embedded clause is visible to the phonology, which means that the “end of the utterance” may in fact only be the end of an embedded clause as far as the phonology is concerned. On this view, the WH-scope/intonation correlation is indirect; it is a consequence of the cyclic nature of the syntactic derivation.

The close similarity between TJ on the one hand and BK and FJ on the other is the way in which a certain intonational domain closely correlates with WH-scope.¹ However, it is important to note that the characteristics of the WH-related intonational contour itself are quite different in TJ. The BK/FJ pattern involves *deaccenting* of the WH-element and the rest of the WH-domain, with default penultimate accent assignment on the WH-related MiP. In TJ, the WH-element receives *focus* intonation (Tomioka 1997; Deguchi & Kitagawa 2002; Ishihara 2002). The accent on the WH-element is realized at a particularly high pitch level, and then the remainder of the WH-domain undergoes post-focus reduction (PFR); that is, intrinsic pitch accents are not lost in the PFR domain (Ishihara 2002, 2004), but the pitch range is greatly lowered and compressed, making the difference between H and L tones very small. (For general discussion of non-WH focus intonation and PFR in TJ, see, e.g., Nagahara 1994; Sugahara 2003, 2005.)

The relationship between WH-scope and intonational contour in TJ is illustrated by the examples in (1), from Ishihara (2004: 82, 84). Here and in subsequent examples, pitch accents are indicated with ‘ ’ at the location of the pitch

¹Hirotnani (2003, 2004ab) has shown in production and perception experiments with Tokyo speakers that the WH-scope/intonation correlation is a *preference* rather than an absolute requirement. Based on these findings, Hirotnani argues that the Tokyo pattern arises from a processing strategy and is not a matter for the formal grammar of the syntax-phonology interface. However, the WH-scope/intonation correlation in BK and FJ does seem to be unambiguous (T. Kubo, p.c.), and thus a matter for the grammar — so even if the MSO turns out not to be appropriate for Tokyo, it is still potentially applicable to the BK/FJ pattern.

fall, ‘^’ represents sentence-final rising intonation, and the WH-element and its associated complementizer are marked with **bold underline**. For the TJ examples, ‘focus’ represents the pitch-accent boost on the WH-element, and ‘_’ indicates the extent of the low-pitch domain associated with PFR.

(1) WH-scope/intonation correlation in TJ

(a) Na'oya-wa [Ma'ri-ga **na'ni-o** nomi'ya de no'nda to] i'mademo omo'tteru **no** ?

focus _____ ^

Naoya-TOP Mari-NOM what-ACC bar at drank COMP even.now think C_{+WH}

‘What_i does Naoya still think that Mari drank *t_i* at the bar?’

(b) Na'oya-wa [Ma'ri-ga **na'ni-o** nomi'ya de no'nda **ka**] i'mademo obo'eteru.

focus _____

Naoya-TOP Mari-NOM what-ACC bar at drank C_{+WH} even.now remember

‘Naoya still remembers what_i Mari drank *t_i* at the bar.’

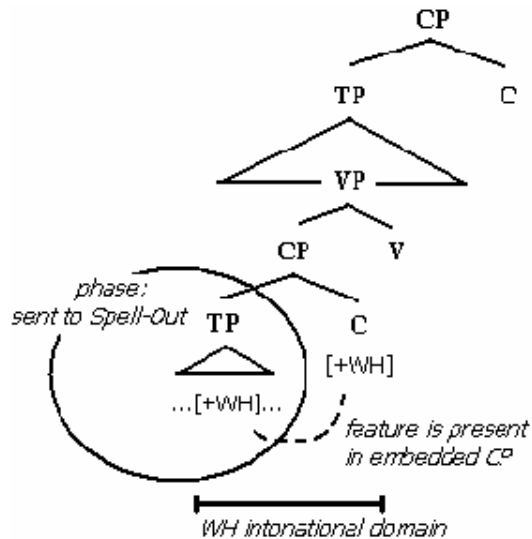
In these examples, the WH-element is inside the embedded clause in both cases; the difference is that it is bound by the matrix complementizer in (1a), but by the embedded complementizer in (1b). Thus, the right edge of the WH-related intonational contour correlates with the WH-scope. The contrast in (1) with respect to the size of the WH-related intonational domains is strikingly similar to the difference between matrix and embedded scope for an embedded WH-element in BK and FJ (see examples (7b) vs. (10a,b) and (8b) vs. (11a,b) in Prof. Kubo’s paper).

The MSO account of TJ (Ishihara 2004) is based on the proposal that Spell-Out — i.e., the transfer of information from the syntactic component to the phonology — happens phase-by-phase (Chomsky 2000, 2001ab). A *phase* is any subpart of a clause that constitutes “the closest syntactic counterpart to a proposition: either a verb phrase in which all θ -roles are assigned or a full clause including tense and force” (Chomsky 2000: 106). Essentially, whenever a CP is constructed, its TP complement becomes available to the phonology. But a WH-element does not receive its [+WH] feature until the [+WH] complementizer that binds it has also been incorporated into the derivation (Ishihara 2004: 87). So a WH-element in an embedded CP will only appear with a [+WH] feature at Spell-Out — triggering formation of the WH-related intonational domain — if its associated complementizer is also in the embedded CP.²

Specifically, an embedded WH-phrase that is associated with the C of the embedded clause will have its [+WH] feature assigned at the point where only the embedded clause has been sent to Spell-Out. Because the [+WH] feature is already present, a WH intonational domain is created at this stage of the derivation.

²Ishihara (2004: 91) points out that because it is TP, not CP, that is sent to Spell-Out, this account would seem to predict — incorrectly — that the complementizer itself is excluded from the WH-related intonational domain. He suggests that complementizers and other WH-particles are phonologically cliticized to the preceding prosodic word (PrWd), and therefore surface phonologically as part of that PrWd’s intonational contour.

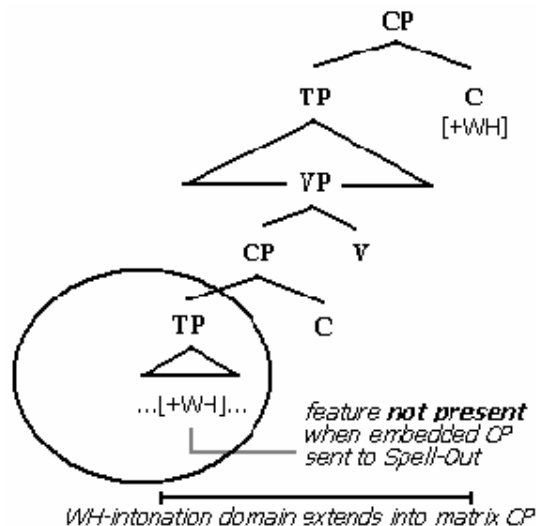
- (2) MSO: Embedded WH-element bound by embedded C



This is why the intonational domain extends no further than the embedded CP — material that is not included in this phase can not be phonologically manipulated at this instance of Spell-Out.

However, an embedded WH-phrase that is associated with the C of the matrix clause has no [+WH] feature when the embedded clause is sent to Spell-Out on its own. This means that no WH-related intonational domain is created at this stage. Only later in the derivation, when the whole matrix clause is sent to Spell-Out, does the embedded WH-element bear a [+WH] feature. But by that point, the whole matrix clause is visible to the phonology, so the WH-related intonational domain extends all the way to the end of the matrix clause.

- (3) MSO: Embedded WH-element bound by matrix C



As these examples demonstrate, the MSO is able to account for the difference in intonational domains between sentences with main-clause and embedded-clause WH-scope, a difference that is also important in BK and FJ. However, the next section shows that other data discussed in Prof. Kubo's paper present problems for the MSO account.

3. Testing a prediction of the MSO: Embedded WH-element scrambling

If the WH-related intonational domain is indeed assigned according to the MSO, phase-by-phase, this predicts that the scrambling of an embedded WH-element up into the matrix clause should interact with the intonational contour in a particular way. This scrambling construction is in fact one of the contexts where the BK and FJ patterns differ, but crucially, neither one seems to match the predictions of the MSO.

According to the assumptions laid out by Ishihara (2004: 95-96), when an embedded WH-element is scrambled into the matrix clause, it first moves through the Spec,CP position of the embedded clause. This position is outside the embedded clause's TP, so when that TP is sent to Spell-Out, the WH-element is not included. As a result, no WH-related intonational domain can be created at this cycle of Spell-Out — even if the WH-element is bound by a [+WH] complementizer in the embedded CP. Therefore, the MSO predicts that a WH-element scrambled out from the embedded clause should correlate with a WH-domain that extends to the end of the matrix clause, independent of the semantic scope of the WH-construction. Ishihara (2004: 108) presents the following example of scope mismatch, in which semantically, the WH-construction has embedded scope, but prosodically, the WH-related intonational contour extends to the end of the matrix clause. (Sentences with scrambling of an embedded WH-element tend to be somewhat “unnatural” (Ishihara 2004: 113, note 27), below this effect is observed for FJ and BK as well.)

- (4) WH-scope/intonation mismatch in TJ:
Matrix intonational domain, embedded WH-scope

? na'ni-o Na'oya-wa [Ma'ri-ga t_i nomi'ya de no'nda ka] i'mademo obo'eteru.
focus _____
what-ACC Naoya-TOP Mari-NOM bar at drank C_{+WH} even.now remember
 'Naoya still remembers [what_i Mari drank t_i at the bar.]'

As demonstrated in Prof. Kubo's example (25), given here in (5), FJ bears out the MSO's prediction that the scrambling of an embedded WH-element is incompatible with ending the WH-related intonational domain at the embedded complementizer. In this scrambled structure, the only possible intonation is one in which the WH-related intonational contour extends to the end of the matrix clause. However, the semantic interpretation of this example is crucially different from that of the TJ example given in (4) above; in FJ, the WH-construction can only take *matrix* scope. (For FJ and BK examples, the WH-related intonational domain is indicated with '{ }', and the H-tone span inside this domain is marked '---'.)

- (5) No WH-scope/intonation mismatch in FJ:
 Matrix intonational domain → matrix WH-scope (=Kubo's (25b))

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? { nani-o Yumi-wa [Naoya-ga t_i nonda ka] oboetoo-to ? }
what-ACC Yumi-TOP Naoya-NOM drank COMP remember-NOMINALIZER
 'What does Yumi remember [whether Naoya drank (it)]?'

The pattern that Prof. Kubo describes for BK is even more problematic for the MSO. In BK, when an embedded WH-element bound by the embedded complementizer is scrambled up into the matrix clause, the WH-related intonational domain still extends only as far as the *embedded* complementizer.

- (6) No WH-scope/intonation mismatch in BK:
 Embedded WH-scope → embedded intonational domain (=Kubo's (26a))

? { mæəl_i yəŋi-nin [mie-ga t_i bullənnin-ji] } algo in-na ?
what.ACC Yəŋi-TOP Mie-NOM sang C_{+WH} know-YNQ
 'Does Yəŋi know what Mie sang?'

The MSO fails to allow for this possibility, because it predicts that the WH-related intonational domain must extend to the end of that portion of the structure that is available at the current cycle of Spell-Out. If the intonational domain is initiated by an element that occupies a surface position in the matrix CP, then there is no way to prevent the intonational domain from extending to the end of the matrix CP.³

In summary, the semantic and intonational consequences of scrambling an embedded WH-element up into the matrix clause are different in BK and FJ, but both patterns show a tighter connection between the semantic scope of the WH-construction and the size of the WH-related intonational domain than the MSO predicts. Moreover, the intonational pattern observed in BK is one that the MSO simply cannot generate, under any interpretation of the semantic WH-scope.

4. Conclusions and implications

Several aspects of the data presented by Prof. Kubo are not easily compatible with the MSO as an account of the WH-scope/intonation correlations observed in BK and FJ. One such case is the embedded WH-element scrambling construction discussed in §3 above. There are additional characteristics of BK and FJ that seem to require mechanisms beyond the MSO as well. For example, the MSO is successful for TJ in part because WH intonation can be equated with focus intonation. However, this

³Interestingly, Ishihara (2002) and Kitagawa & Fodor (2003) report a BK-like intonational contour for this type of sentence for TJ as well, although Ishihara (2004) subsequently argues that the results of his controlled production experiment with TJ speakers differ and do in fact support the predictions of the MSO. The disparity between TJ speakers' intuitions and Ishihara's experimental results may support Hirotoni's (2003, 2004ab) claim that the WH-scope/intonation correlation in TJ is more a processing strategy than a categorical requirement. As Ishihara (2004: 113, note 27) observes, the fact that these scrambled constructions are somewhat degraded in acceptability may also be contributing to the discrepancies.

does not appear to be the case for BK and FJ, where the WH-related intonational contour involves accent deletion (even on the WH-element itself) rather than focus intonation.

The fact that the MSO is not fully able to account for the BK and FJ data has implications for our understanding of the nature of the syntax-prosody interface. For one thing, this means that it is still an open question as to whether the types of information accessible to the prosodic phonology will need to be expanded to include [+WH] features (see also Kisseberth, this volume, on the apparent sensitivity of prosodic structure in Chimwiini to semantic factors such as negation and definiteness). Additionally, the MSO, with its reliance on cyclic, derivational construction of prosodic structure, would seem to be incompatible with constraint-based, parallel models of the syntax-prosody interface (e.g., Selkirk 1995, 2003; Truckenbrodt 1995, 1999); future research may determine whether a parallel approach to BK and FJ would be more successful than the MSO.

More generally, Prof. Kubo's paper on the syntax-phonology interface in BK and FJ has both expanded the inventory of data related to the interface between prosody and syntax, and presented new challenges for formal models of that interface to address.

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