Externalization, stress and word order

Hisao Tokizaki
Sapporo University

Abstract
In the principle and parameter theory of generative grammar in the 1980s, the variation of word order in languages was ascribed to the value of the head directionality parameter (head-initial/final). Following the minimalist program of linguistic theory, this paper argues that syntactic computation builds a structure without linear order, which is only linearized at the externalization to the sensory-motor system, according to the stress pattern of the language. We can derive word order variation in the world's languages from their phonology, especially their stress systems. We can do away with the complement movement that derives head-final structure from the head-initial structure constructed by the Linear Correspondence Axiom (Kayne (1993)).

1. Stress-Based Linearization
1.1 The head parameter as an externalization parameter

The head directionality parameter (or the head parameter) was proposed in the government and binding theory of the 1980s in order to explain the variation in the linear order of a head and its complement in a constituent in the world's languages (Chomsky (1981)). Although the status of the head parameter in the grammar was not sufficiently clear, it was assumed to be a part of phrase structure rules based on X-bar theory as shown in (1) (cf. Chomsky (1986)).

(1) a. X" → (Z") X'
    b. X' → X (Y") or (Y") X

The specifier Z" precedes X' as in (1a) whereas the complement Y" either follows or precedes a head X as in (1b). The order of head and

complement in (1b) was claimed to be parameterized in languages: that is, either head-initial or head-final.[1]

It became clear in the minimalist program (Chomsky (1995)) that the linear order of head and complement is not decided in syntactic computation but in the interface between syntax and phonology (PF) or the sensory-motor system (SM). Chomsky (2012: 55) clearly refers to the nature of the head parameter in an interview as shown in (2).

(2) Well, but take the head parameter - it looks like the most solid of the macroparameters (reinterpreted, if Kayne is right, in terms of options for raising), although it's not really solid because while there are languages like English and Japanese where it works, a lot of languages mix them up and one thing works for noun phrases and something else with verb phrases, and so on - but even that, that is a linearization parameter, and linearization is probably in the externalization system. There's no reason why internal computation should involve linearization; that seems to be related to a property of the sensory-motor system, which has to deal with sequencing through time. So it could be that that too is an externalization parameter.

If we assume this minimalist approach to linearization, we should try to ascribe the variation of word order to the variation of phonology in the world's languages (for the phonological approach to language variation, see Boeckx (2014) and Richards (2016)). In this paper, I argue that phonological differences such as word-stress patterns function as an output condition on the linearization of head and complement.

1.2 Laying a Calder's mobile on the ground
In order to consider the nature of the linearization of a structure, let us look at Uriagereka's (1999: 251) view of linearization as shown in (3).

(3) The axiom [LCA] has a formal and a substantive character. The formal part demands the linearization of a complex object

(assembled by the Merge operation, which produces mere associations among terms). A visual image to keep in mind is a mobile by Calder. The hanging pieces relate in a fixed way, but are not linearly ordered with respect to one another; one way to linearize the mobile (e.g., so as to measure it) is to lay it on the ground. The substantive part of Kayne's axiom does for the complex linguistic object what the ground does for the mobile: it tells us how to map the unordered set of terms into a sequence of PF slots.

Using the metaphor of Alexander Calder's mobile, Uriagereka interprets Kayne's (1994) Linear Correspondence Axiom (LCA) as a principle for mapping a syntactic hierarchical structure without order onto a linearized sequence of words in PF (Phonetic Form). This metaphor well represents the idea of linearization as externalization in the minimalist program. LCA states that a hierarchically asymmetric structure is linearized according to the relative height of objects defined by asymmetric c-command: from the higher object to the lower object (i.e. the order is specifier-head-complement). However, I argue that the linearization of a hierarchical structure is not constrained by LCA, but by the stress pattern of the language.

1.3 Laying a Calder's mobile on the desk
I basically follow Uriagereka's (1999) metaphor of Calder's mobile for linearization. However, I argue that linearization is to lay a Calder's mobile on desks of different shapes, not on the ground as Uriagereka imagines it. The shape of each desk corresponds to the phonological pattern, which is different among languages. Desks need not be rectangles: some desks can be wide on the left and narrow on the right as in (4a), and some desks can be narrow on the left and wide on the right as in (4b).
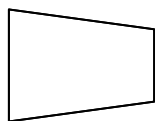
(4) a.   b.
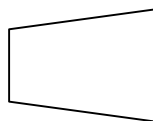
Here the width of the desk is a metaphor for the degree of phonological stress, as shown in (5).

(5) a. Strong-Weak   b.   Weak-Strong

Imagine that a number of Calder's mobiles fall from the sky and touch the desk. The mobiles that happen to fit the shape of the desk stay on the desk (i.e. convergence). The mobiles that do not fit the desk fall off and crash on to the ground (i.e. crash). The linear order (i.e. direction) of constituents matters because complements (YP) are typically branching and phonologically heavy (shown in bold) whereas heads (X) are non-branching and phonologically light, as shown in (6).

(6) a. [$_{XP}$ [$_{YP}$ **.. Y**] X]   b.   [$_{XP}$ X [$_{YP}$ **Y ..**]]

The stress location in words and phrases, which corresponds to the shape of the desk, is quite different among languages. For example, Goedemans and van der Hulst (2005a, 2005b, 2013a, 2013b) classify word stress locations into two groups: fixed stress locations and weight-sensitive stress locations. The former group includes initial, second, third, antepenult, penult and ultimate stress, and the latter group includes left-edge, left-oriented, right-edge, right-oriented, unbounded, combined and unpredictable stress. This fact shows that we have enough variation in the phonology to derive the various linear orders of constituents in the world's languages. If we can attribute the variation in linear order among languages to the variation in phonology, especially stress location, we can say that the head directionality parameter is an externalization parameter, as Chomksy claims in (1) above.

In the next section, I illustrate how we can derive the linear order of constituents from the stress location in words without assuming LCA and complement movement (cf. Kayne (1994), Biberauer et al. (2014)).

2. Word stress and the order of head and complement
2.1 Arguments against LCA and complement-movement

Kayne (1994: 52) proposes LCA and argues that the universal order in the base is head-complement and that the complement-head order is derived by the movement of a complement to the specifier position of a head, as shown in (7).

(7) a. [$_{XP}$ X YP]
     b. [$_{XP}$ YP [$_{X'}$ X *YP*]]

However, as is argued above, the minimalist program assumes that syntactic computation does not include linear order, which is determined at the PF-interface. Moreover, the movement of complement has no motivation other than changing the linear order of head and complement, and should be done away with if it is possible.[2]

Assuming LCA, Biberauer et al. (2014) argue that a general movement-triggering feature (^: caret) triggers the movement of the complement to the specifier position of a head to give head-final order, as shown in (8).

(8) a. [$_{VP}$ V$_{[+V^]}$ XP]
     b. [$_{VP}$ XP [$_{V'}$ V$_{[+V^]}$ *XP*]]

If the verb has the feature [+V^] as in (8a), its complement XP moves to the specifier position of the verb, as in (8b), deriving OV order. However, this movement analysis is problematic in that it assumes a movement-triggering feature whose status is not clear, and complement-movement which has no semantic effect in the output (cf. the other movements such as *wh*-movement and topicalization, which have semantic effects such as scope and focus in the output).

Biberauer et al. (2014) also discuss an alternative theory with the feature (^) as a "direct linearization'' feature, which instructs a head to be linearized to the right of its sister at PF thus deriving a head-final order without syntactic movement (direct linearization theory) (p. 213), as exemplified in (9).

(9) a. [$_{VP}$ V$_{[+V^]}$ XP]
     b. [$_{VP}$ XP V]

The feature [+V^] of V in (9a) instructs the V to be linearized to the right of its sister XP thus deriving OV order in (9b). However, Biberauer et al. (2014) argue that the movement analysis should be preferred to direct linearization theory for the following reasons. First, direct linearization theory must stipulate that head-final order is marked whereas head-initial order is unmarked. Second, movement is needed for determining constituent order in a variety of structures such as passives, *wh*-movement, topicalization and scrambling.

I argue that the direct linearization theory discussed in Biberauer et al. (2014), which is closer to our theory in spirit, still has problems in the minimalist program. First, the status of the linearization feature (^) is not clear. Is it a syntactic feature or a phonological feature? Perhaps the feature works at the syntax- phonology interface, but it is implausible to assume an "interface feature" that affects both syntax and phonology. Second, Biberauer et al. (2014) do not discuss what kinds of language have the linearization feature (^) and why they have it, while other languages do not. They might argue that the presence or absence of the feature is a parameter in the grammar. However, the nature of this parameter is not clear. It seems to be in the syntax, but then we cannot keep the idea of the externalization parameter shown in (2) above. Note that this problem is also found in Biberauer et al.'s (2014) movement analysis. Setting a parameter in syntax in order to explain the variation in linear order does not give us a principled answer to the question why a language has a particular word order.

I argue that in order to explain the order of head and complement, we do not need to assume LCA and the complement movement to the specifier position of a head. A head and its complement (e.g. a verb and its object) are sisters in a constituent (e.g. VP), and have no linear order in the syntactic component, like a mobile suspended in mid-air, as Uriagereka argues in (3). The linear order of head and complement in a language is decided by the stress location at externalization. Thus, we expect stress location to correlate with word order. In the next section, I briefly review the studies on correlation and show that this prediction is borne out.

2.2 The correlation between stress location and word order

One of the important points for our theory of linearization is that the stress patterns of words generally correlate with the stress patterns of phrases in the same language. This holds true across many of the world's languages, and has been proposed in the holistic typology of languages. For example, Bally (1944) argued that stress falls on the initial position in words, compounds and phrases in "anticipating" languages such as German, whereas stress falls on the final position in words, compounds and phrases in "progressive" languages such as French. Importantly, he also argues that "anticipating" languages have head-final word order, such as object-verb, adjective-noun and genitive-noun, whereas "progressive" languages have head-initial order, such as verb-object, noun-adjective and noun-genitive. Thus, word order correlates with word stress as well as phrasal stress.[3, 4]

The correlation between word order and stress pattern is also proposed in the typological study of Austroasiatic languages. Donegan and Stampe (1983) argue that Munda languages have head-final order and initial stress in words, compounds and phrases, whereas Mon-Khmer languages have head-initial order and final stress. This study together with Bally's (1944) study on German and French shows that phonology goes together with word order in the world's languages (for the history of holistic typology, see Plank (1998)).

One might wonder what decides the linear order in languages without stress, such as tone languages. I argue that even in these languages there is some kind of strength or prominence, which serves the same function as stress. For example, Standard Chinese has light tone (in addition to four tones) and tone sandhi in a sequence of third tones, which show the strength of the left and the right constituent, respectively. The left strength and the right strength correspond to head-final order (e.g. V-Particle) and head-initial order (e.g. VO). See Tokizaki (2014) and Tokizaki & Nasukawa (2014) for prosody and head-directionality in Chinese. See also Tokizaki (forthcoming) for Altaic languages, which have consistent head-final word orders

and word-initial stress or strength.[5]

2.3 Structure and stress

Before discussing the linearization of heads and complements, we need to consider the relation between structure and stress assignment. Chomsky and Halle (1968) proposed the Compound Stress Rule (CSR) and the Nuclear Stress Rule (NSR), which basically assign the main stress to the left/right constituent of a compound/phrase, as shown in (10), where a stressed constituent is shown in bold.

(10) a. [$_X$ **Y** X]　　　(e.g. **black**board)　　(CSR)
　　 b. [$_{XP}$ X **YP**]　　(e.g. read the **book**)　(NSR)

On the other hand, Nespor and Vogel (1986), Duanmu (1990) and Cinque (1993) proposed a stress assignment rule that only relies on the structure and does not refer to the linear order, which I call Recursive Side Stress, Non-Head Stress and Bottom Stress, respectively (for a discussion of this matter, see Tokizaki (2015b, 2016)). The idea shared by these works is that stress falls on the (branching) complement (or a specifier) rather than on the head in a constituent, as shown in (11).[6]

(11)　[$_{XP}$ X **YP**]　(order irrelevant)

Thus, a head-initial constituent has stress on its right constituent as in (12a) while a head-final constituent has stress on its left constituent as in (12b).

(12) a. [$_{XP}$ X **YP**]
　　 b. [$_{XP}$ **YP** X]

As will be illustrated in the next section, the linearization process in a language chooses either (12a) or (12b) according to its stress pattern.[7]

2.4 Linearization according to the stress pattern

To illustrate how the linear order is determined at the PF-interface, let us consider a simple head-complement pair, a verb phrase (VP)

sing songs. I argue that the verb phrase does not have word order when the head merges with its complement in syntax. The VP needs to be linearized at the time of Spell-Out (Transfer) to the sensory-motor system (SM). In the case of a head (verb) and its complement (object), there are two possible linearizations: head-initial order (VO) and head-final order (OV). At this point of derivation, the stress system of the language functions as a filter for the output. If the linearization chooses the head-initial order, the resulting sequence head-complement has its main stress on the complement on its right (VÓ), which is assigned by the stress assignment rules such as the Recursive Side Stress (Nespor and Vogel (1986)), Non-Head Stress (Duanmu 1990) and the Bottom Stress (Cinque (1993)) as we have seen in section 2.3. This word order and the stress pattern are allowed in a language with stress on the right of a word, a compound or a phrase, but not in a language with stress on the left of a word, a compound or a phrase.

For example, in French, where stress is assigned to the right-edge of a word (penultimate or ultimate) and to the right constituent in a compound or phrase, the head verb *chanter* precedes its complement *des chansons* in the verb phrase *chanter des <u>chansons</u>* (stressed word underscored). However, in German, which assigns stress to the stem-initial syllable in a word and to the left constituent in a compound or a phrase, a verb follows its complement as in *<u>Lieder</u> singen*. The other order (*des <u>chansons</u> chanter* and *singen <u>Lieder</u>)* is filtered out in the phonology because the stress on the left in a French phrase and the stress on the right in a German phrase do not match the stress pattern of the language (for compounds, see Tokizaki (2013).[8]

Thus, we can derive the order of head and complement in a language from its word stress location. We do not need to assume Kayne's (1994) LCA and complement movement, which has no motivation other than changing the linear order.

3. Differences between Linearization and Movement
Finally, let us compare this theory of linearization with the

stress-based theory of word order developed in Tokizaki (2011) and Tokizaki & Kuwana (2013), which assumes LCA and complement movement. In these previous papers of mine, I argued that the syntax builds up a head-initial structure, which may be converted to head-final structure by moving the complement to the specifier position, as argued by Kayne (1994: 52). Specifically, I argued that the complement moves to a specifier position in order to derive a head-final constituent, which is agglutinative and more economical than a head-initial constituent. The complement movement is allowed in languages with lefthand stress because the resulting head-final structure has stress on its left according to the stress assignment rules, such as the Recursive Side Stress (Nespor and Vogel (1986), Non-Head Stress (Duanmu 1990) and the Bottom Stress (Cinque 1993). If the complement movement is applied to a language with righthand stress, the resulting structure is filtered out in the PF because the resulting head-final structure has stress on the complement on the left of the constituent, whose stress pattern conflicts with the righthand stress system of the language.

However, this movement analysis has the problem of "look-ahead". The complement must decide to move or not to move to the specifier position by looking ahead to whether the resulting structure matches the stress pattern of the language or not. This problem can be somewhat mitigated if we assume that syntax always makes two possible structures, i.e. head-initial and head-final structure, one of which is filtered out at the syntax-phonology interface in terms of the stress location mismatch. However, it is not in the minimalist spirit to assume a movement that has no effects on the meaning, solely in order to change the linear order of constituents. This problem does not occur in the linearization theory presented here, which does not assume any movement to derive head-final order. The head-directionality is in fact a matter of linearization of the same structure at the syntax-SM interface.

4. Conclusion
In this paper, I have argued that the order of head and complement is

determined not by the movement of complement to a specifier position in syntax, as argued by Kayne (1994) and Biberauer et al. (2014), but by the linearization of sisters in a constituent according to the stress pattern of the language. This mobile linearization theory is simpler and more plausible than the movement analysis, which assumes a movement operation that has no motivation other than changing the linear order. The stress-based linearization presented here also conforms to the minimalist idea of linearization as externalization.

In this paper, I have not discussed how to derive from phonology the word order universals (cf. Greenberg (1966)) and the constraints on word order such as the Final-Over-Final Constraint (FOFC) by Biberauer et al. (2014). In order to discuss this matter, we need to consider the juncture of constituents at the syntax-SM interface (cf. Tokizaki (2010, 2011). I will leave this interesting topic for my future work.

Notes

[1] In this paper, I will focus on the order of head and complement in (1b). It is well known that the specifier Z" universally precedes X' as in (1a). We also need to derive this fixed order from phonology or some mechanism of grammar. We can attribute the linear order of the specifier Z" and X' to the difference of their transfer domains: the specifier Z" is transferred to PF after X' is transferred. For the idea of transfer by the Obligatory Contour Principle (OCP) in phonology, see Tokizaki (2015a).

[2] Another problem with the movement analysis is that the complement movement to the specifier position is a violation of the anti-locality constraint on movement. The target of the movement is too close to the starting position (for anti-locality, see Pesetsky and Torrego (2001), Abels (2003) and Grohmann (2003)). In order to solve this problem, one could alternatively argue that the complement moves to the specifier position of a higher functional head, as shown in (i).

(i) a. [$_{XP}$ X YP]
     b. [$_{FP}$ YP F [$_{XP}$ X *YP*]]

Although this movement does not violate the anti-locality constraint on movement, the nature of the functional head F in (ib) is not clear. F is phonologically null, and this movement has no independent motivation other than changing the linear order.

[3] The attempt to relate word order to phonology is not new even in generative grammar. Mazuka (1996) argues that sentence prosody helps to determine the value of the head direction parameter or the branching direction parameter in language acquisition. Nespor et al. (1996) also argue that the weak-strong rhythm in a phonological phrase activates the head-complement order in phrases. However, these studies only discuss phrasal stress and not word/compound stress. I argue that the word stress pattern, which parallels the compound/phrasal stress location, determines the word order in a language.

[4] Wiese (1996: 311) argues that German has stress on alternate

sides of a constituent: on the left in a foot, on one of the three final syllables in a word, on the first part in a compound and on the final part in a phrase. However, this strange generalization seems to stem from his consideration of loan words from Latin and head-initial orders such as VO and prepositional phrases in German. However, I argue that German has word-initial (or stem-initial) stress (Wurzel (1980)) and head-final order (as seen in OV and postpositional phrases) which, it has been argued, is the German basic word order in generative grammar.

^{5} Japanese, which has consistent head-final order, might seem to be problematic for this analysis because it has a pitch-fall accent on the antepenultimate or the penultimate mora (cf. Kubozono (2008), Nishiyama (2010). However, I argue that Japanese has a strength accent (or stress) on the initial mora in addition to an optional pitch-fall accent on the right of a word. Then, Japanese is not a counterexample to the correlation between stress location (left) and word order (head-final). See Tokizaki (2017) for arguments for the word-initial strength in Japanese.

^{6} The rule in (11) (repeated here as in (ia)) can be a generalized stress rule including the compound stress rule (ib) if we disregard the X-bar level of the merged constituent (XP).

(i) a. [$_{XP}$ X **YP**]   (order irrelevant)
     b. [$_X$ X **YP**]   (order irrelevant)

^{7} This theory predicts that "free word order" languages have a rather flexible stress location. This is an interesting point to be explored. For example, Russian, whose stress location is described as unbounded (stress can be anywhere in the word) by Goedemans and van der Hulst (2005b, 2013b), has been argued to have relatively free word order.

^{8} One might argue that German has head-initial order as well as head-final order: D-NP, P-DP and C-TP as shown in (i).

(i) a. die Bücher
       the book

b. nach München
   to   München

c. daß Eric heute kommt
   that Eric today comes
   'that Eric comes today'

Note that the head in these head-initial orders is not a content word but a function word without stress (*die*, *nach* and *daß*). The (original) stress system of German is stem-initial, which means that German allows a weak (unstressed) syllable at the initial position of words, compounds and phrases. Thus, head-initial order in (i) conforms to the stress pattern of German and is acceptable. For the detail of this discussion, see Inaba and Tokizaki (forthcoming).

References

Abels, Klaus. 2003. Successive cyclicity, anti-locality, and adposition stranding. Doctoral Dissertation, University of Connecticut.

Bally, Charles. 1944. *Linguistique Générale et Linguistique Française*. 2nd edition. Berne: Francke.

Biberauer, Theresa, Anders Holmberg and Ian Roberts. 2014. A Syntactic universal and its consequences, *Linguistic Inquiry* 45, 169–225.

Boeckx, Cedric. 2014. *Elementary Syntactic Structures: Prospects of a Feature-Free Syntax*. Cambridge: Cambridge University Press.

Chomsky, Noam. 1981. *Lectures on Government and Binding: The Pisa Lectures*. Dordrecht: Foris Publications.

Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: The MIT Press.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: The MIT Press.

Chomsky, Noam. 2012. *The Science of Language: Interviews with James McGilvray*. Cambridge: Cambridge University Press.

Chomsky, Noam. and Morris. Halle. 1968. *The Sound Pattern of English*. Harper & Row .

Cinque, Guglielmo. 1993. A null theory of phrase and compound stress. *Linguistic Inquiry* 24, 239–298.

Donegan, Patricia Jane and David Stampe. 1983. Rhythm and the holistic

organization of language structure. *Papers from the Parasession on the Interplay of Phonology, Morphology and Syntax*, 337–353, Chicago Linguistic Society.

Duanmu, San. 1990. A Formal Study of Syllable, Tone, Stress and Domain in Chinese Languages. Doctoral dissertation, MIT.

Goedemans, Rob and Harry van der Hulst. 2005a; 2013a. Fixed stress locations. *The World Atlas of Language Structures*, ed. by Martin Haspelmath, Matthew S. Dryer, David Gil and Bernard Comrie, 62-65, Oxford University Press, Oxford; The world atlas of language structures online, ed. by Matthew S. Dryer and Martin Haspelmath. Leipzig: Max Planck Institute for Evolutionary Anthropology. (http://wals.info/, Accessed on 2014-08-01.)

Goedemans, Rob and Harry van der Hulst. 2005b; 2013b. Weight-sensitive stress. *The World Atlas of Language Structures*, ed. by Martin Haspelmath, Matthew S. Dryer, David Gil and Bernard Comrie, 66-69, Oxford University Press, Oxford; The world atlas of language structures online, ed. by Matthew S. Dryer and Martin Haspelmath. Leipzig: Max Planck Institute for Evolutionary Anthropology. (http://wals.info/, Accessed on 2014-08-01.)

Greenberg, Joseph H. 1966. Some universals of grammar with particular reference to the order of meaningful elements, ed. by Joseph. H. Greenberg, 73–113. *Universals of Language*. Cambridge, MA: MIT Press,

Grohmann, Kleanthes K. 2003. *Prolific Domains: On the Anti-Locality of Movement Dependencies*. Amsterdam: John Benjamins.

Inaba, Jiro and Hisao Tokizaki. (forthcoming). Head parameter and word stress in German. Ms. The University of Tokyo and Sapporo University.

Kayne, Richard S. 1994. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.

Kubozono, Haruo. 2008. Japanese accent. *The Oxford Handbook of Japanese Linguistics*, ed. by Shigeru Miyagawa and Mamoru Saito, 165-191. Oxford: Oxford University Press.

Mazuka, Reiko. 1996. Can a grammatical parameter be set before the first word? Prosodic contributions to early setting of a grammatical parameter. *Signal to Syntax: Bootstrapping from Speech to Grammar in Early*

Acquisition, ed. by James L. Morgan and Katherine Demuth, 313–330. Mahwah, NJ: Lawrence Erlbaum Associates.

Nespor, Marina and Irene Vogel. 1986. *Prosodic Phonology*. Dordrecht: Foris.

Nespor, Marina, Maria Teresa Guasti and Anne Christophe. 1996. Selecting word order: The rhythmic activation principle. *Interfaces in Phonology*, ed. by Ursula Kleinhenz, 1–26. Berlin: Akademie Verlag.

Nishiyama, Kunio. 2010. Penultimate accent in Japanese predicates and the verb-noun distinction. *Lingua* 120, 2353-2366.

Pesetsky, David, and Esther Torrego. 2001. T-to-C movement: Causes and consequences. *Ken Hale: A Life in Language*, ed. by Michael Kenstowicz, 355–426. Cambridge, MA: The MIT Press. .

Plank, Frans. 1998. The co-variation of phonology with morphology and syntax: A hopeful history. *Linguistic Typology* 2, 195–230.

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

Tokizaki, Hisao. 2010. The Morpho-phonological nature of the generalized Final-Over-Final Constraint. Paper presented at the 2010 Annual Meeting of the Linguistics Association of Great Britain, the University of Leeds. Sep 1–4, 2010.

Tokizaki, Hisao. 2011. The nature of linear information in the morphosyntax-PF interface. *English Linguistics* 28, 227–257.

Tokizaki, Hisao. 2013. Deriving the compounding parameter from phonology. *Linguistic Analysis,* 38, 275–303.

Tokizaki, Hisao. 2014.Prosody and Head-directionality in Chinese. *Bunka-to Gengo* 81, 1–20. Sapporo University.

Tokizaki, Hisao. 2015a. Hitsui-genri-to seisei-tougoron [Obligatory Contour Principle and generative syntax], *Hitusi-genri-no shatei-to koryoku-ni kansuru kenkyu*, ed.by Masao Okazaki, 53–61. Ibaraki University.

Tokizaki, Hisao. 2015b. Stress and restrictiveness in phrase and compound. *JELS* 32, 346–352.

Tokizaki, Hisao. 2016. Prominence and structure of compounds. *English Linguistics* 33, 119–144.

Tokizaki, Hisao. 2017. Initial accent and head-finality in Japanese. Poster presentation at the Workshop on 'Prosody and prosodic interfaces in Japanese and Korean' held at the University of Hawaii at Manoa on

October 11, 2017.

Tokizaki, Hisao. forthcoming. Word stress, pitch accent and word order typology with special reference to Altaic. *The Study of Word Stress and Accent: Theories, Methods and Data*, ed. by Rob Goedemans, Harry van der Hulst and Jeff Heinz. Cambridge: Cambridge University Press.

Tokizaki, Hisao and Yasutomo Kuwana. 2013. A stress-based theory of disharmonic word orders. *Theoretical Approaches to Disharmonic Word Orders,* ed. by Theresa Biberauer and Michelle Sheehan, 190–215. Oxford: Oxford University Press.

Tokizaki, Hisao and Kuniya Nasukawa. 2014. Tone in Chinese: Preserving tonal melody in strong positions. *Studies in Chinese Linguistics* 35:1, 31–46.

Uriagereka, Juan. 1999. Multiple Spell Out. *Working Minimalism*, ed. by Samuel David Epstein and Norbert Hornstein, 251–282. Cambridge, MA: The MIT Press.

Wiese, Richard. 1996. *The Phonology of German*. Oxford: Oxford University Press.

Wurzel, Wolfgang Ullrich. 1980. Der deutsche Wortakzent: Fakten – Regeln – Prinzipien. *Zeitschrift für Germanistik*. Vol. 1, Nr. 3: 299–318.