

On Reducing Prosodic Domains to Phases: Successes and Challenges

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1 Introduction

Since at least Bloomfield (1933) it has been recognized that language is modular. More concretely, phonology and syntax are processed in separate modules.¹ The dissociation between syntax and phonology is often illustrated with various impossible rules in natural language, as in (1). For instance, the first rule imposes a phonological constraint (the manner of articulation of the initial consonant) on a syntactic rule for verb raising.

- (1) a. Verbs that begin with a fricative raise to T; others remain in *v*.
- b. word-final devoicing happens on subjunctive verb forms.
- c. existential closure takes place on bare NPs that contain a nasal consonant.

Modularity in grammar is ensured by the Y-model of Chomsky (1995), as shown in Figure 1.² Syntax builds up syntactic structure until a point, Spell-Out, is reached. At Spell-Out, the derivation is sent to two separate interfaces. The two interfaces are (i) Logical Form (LF), which is responsible for semantic interpretation, and (ii) Phonetic Form (PF), which is responsible for phonological interpretation.

This strict division of labour is not tenable given the wealth of interactions between syntax and phonology—the syntax-phonology interface (Nespor & Vogel 1986, Selkirk 1984). Within the generative literature the study of the syntax-phonology interface goes back to at least SPE (Chomsky & Halle 1968). A well-known example of this interaction is found in some dialects of Italian with the phenomenon of *radoppiamento sintattico* (Nespor & Vogel 1986). Consider the following example.

- (2) *caffè caldo*
 /kafɛ kaldo/ → [kafɛ kːaldo]
 coffee hot
 ‘hot coffee’

Within a certain syntactic domain, a word-initial consonant undergoes gemination if it is preceded by another word within that same domain. In the example above, the phrase *caffè caldo* (‘hot coffee’) is such a domain. The initial /k/ on *caldo* undergoes gemination, but the initial /k/ on *caffè* does not. Observe in the following example, however, that *radoppiamento sintattico* does not take place.

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¹ This concept of modularity is distinct from that of earlier work of Chomsky (1988), where he assumed there is a separate language module in the brain.

² Note that the Y-model grew out of earlier work within Government and Binding Theory. The version shown in Figure 1 is the model adopted in the Minimalist Program.

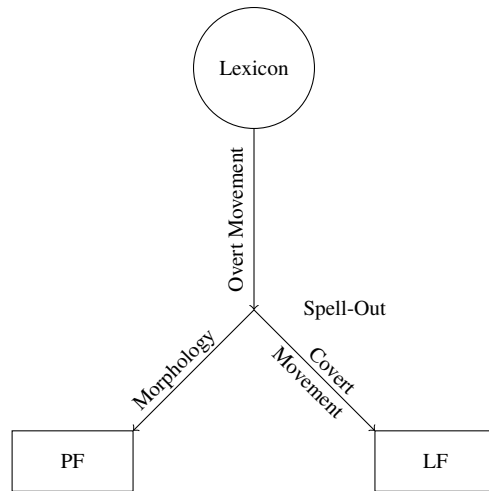
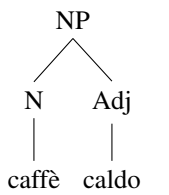
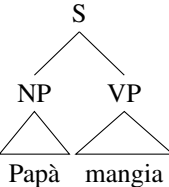


Figure 1: Y-Model of Syntax

- (3) *Papà mangia*
 /papa mandʒa/ → [papa mandʒa]
 father eats
 ‘Father eats.’

Nespor shows that *radoppiamento sintattico* takes place only within an XP. It does not take place at the boundary between two adjacent XPs. This restriction can be seen in the tree structures for the two examples above. More specifically, NP and VP are domains for *radoppiamento sintattico*, but S is not.

- (4) a. 
- b. 

The hierarchical syntactic structure of language has been known since the times of Aristotle and Pāṇini. As explained below, the most current theory for organizing this syntactic structure is Phase Theory (Chomsky 2001, 2008). Prosodic structure is also organized into a hierarchical structure. The following example illustrates this organization. The complex sentence in (5) is divided into prosodic units as identified by the square brackets.

- (5) a. This is the cat that chased the rat that ate the cheese.
 b. [This is the cat] [that chased the rat] [that ate the cheese]

Although there are some similarities between the syntactic hierarchy (phases) and the prosodic hierarchy, mismatches between the two have led scholars to postulate independent hierarchies. A number of proposals

unifying these two hierarchies have been proposed, the most recent of which is Match Theory (Selkirk 2009, 2011, Elfner 2015). There is a more recent trend in the syntax-phonology interface that maps phases to prosodic categories (Compton & Pittman 2010, Kratzer & Selkirk 2007, Newell 2008, Newell & Scheer 2017, Weber 2020, 2021). Thus, the phase-based approach to the syntax-phonology interface assumes a single hierarchy for both syntactic and prosodic structure. This paper reviews some recent advances and remaining questions in reducing phase structure and prosodic structure to a single hierarchy.

The remainder of this paper is structured as follows. Section 2 introduces phases and the prosodic hierarchy and reviews their basic properties. Section 3 reviews the syntax-phonology interface, with special emphasis on Match Theory. Section 4 discusses the structure of nominals in Korean and Mongolian, along with some minor comments on Inuktitut and how the phase-based approach to the syntax-phonology interface can handle these phenomena. Section 5 discusses some outstanding issues. Section 6 is a brief conclusion.

2 Background

Syntactic structure is thought to be processed in manageable chunks, one current theory of which holds that these chunks are phases as defined below (Chomsky 2001, 2008). Phases are defined by particular functional projections. All conceptions of phases include CP, transitive/unergative and *v*P (Chomsky 2001). It has been argued that all *v*Ps are phases, however (Legate 2003). In addition, it has also been argued that the DP (Svenonius 2004, Ticio 2005, Kramer 2009, Compton & Pittman 2010) and *n*P (Marvin 2003, Marantz 2001, Newell 2008) are phases. As syntactic structure is built up, phases undergo Spell-Out and are sent to the interfaces, LF and PF, individually. Thus, once a *v*P is built, it undergoes Spell-Out and is sent to LF and PF.³

Phonological structure is thought to be governed by the Prosodic Hierarchy (Nespor 1999, Nespor & Vogel 1986, Selkirk 1984, 1986). Authors debate the precise structure of the prosodic hierarchy. Here is the maximal form as presented in Nespor & Vogel (1986).

- (6) Utterance Phrase (ν) > Intonational Phrase (ι) > Phonological Phrase (ϕ) > Clitic Group (κ) > Phonological Word (ω) > Foot (F) > Syllable (σ) > Mora (μ)

We cannot review the entire hierarchy here. The portion of interest to us here is given in the following example.

- (7) Intonational Phrase (ι) > Phonological Phrase (ϕ) > Phonological Word (ω)

The intonational phrase is typically taken to be the domain of the assignment of intonational contours. For example, polarity questions have rising intonation, while declaratives have falling intonation. The phonological phrase is diagnosed by a variety of phenomena cross-linguistically. One such phenomenon, *radoppiamento sintattico* is discussed above. Another is iambic reversal in English, as in example (8). The word *thirteen* normally has stress on the ultima as indicated by the accent mark. If this word is followed by a word with stress on the initial syllable in the same phonological phrase, it undergoes iambic reversal, and penultima becomes stressed, as in (8b). The third example is an answer to a question such as, *How many people left early?* The VP *left early* is a separate phonological phrase, so iambic reversal is not triggered. This is a very cursory illustration of the phonological phrase. See Nespor & Vogel (1986) and references therein for more details.

- (8) a. thirteén
 b. thírteen mén
 c. thirteén léft éarly.

Finally, the phonological word is the domain of stress assignment in English. It is important to keep in mind that different languages have different diagnostics for the levels of the prosodic hierarchy. The following example illustrates this portion of the hierarchy shown in (7).

³ There is disagreement in the literature as to whether the whole phase undergoes Spell-Out (Fox & Pesetsky 2005) or whether the sister to the phase head undergoes Spell-Out (Chomsky 2000, 2001). We assume here that the whole phase undergoes Spell-Out.

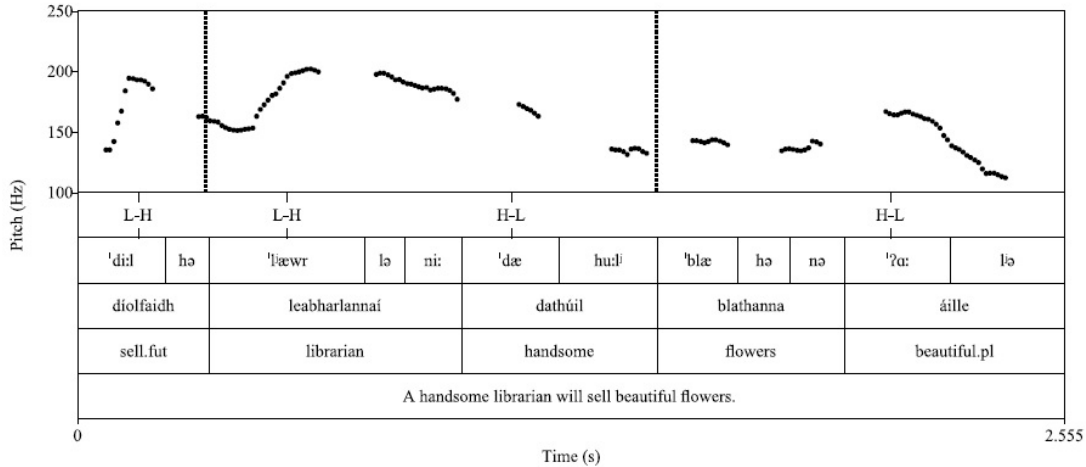
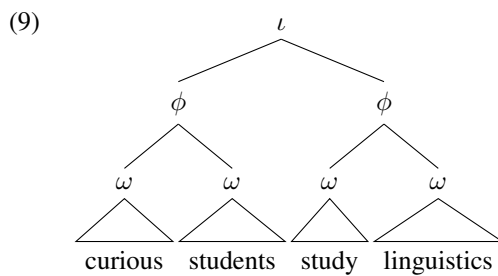


Figure 2: Pitch Track for Irish



3 Syntax-phonology interface

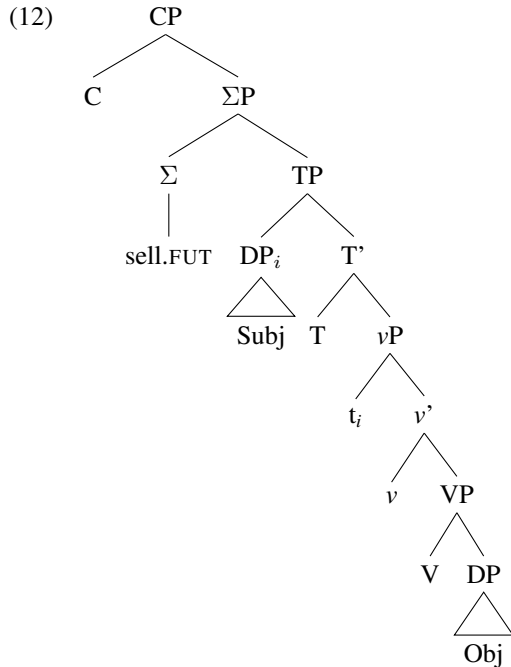
A number of theories have been proposed to model the interaction between syntax and phonology. See Elfner (2018) and Elfner & Bennett (2019) for reviews. Of interest here is Match Theory (Selkirk 2009, 2011, Elfner 2015). Match Theory maps syntactic categories to prosodic categories using the following violable constraints.

- (10) a. CP - ι (but see Ishihara (2022))
- b. XP - ϕ
- c. X - ω

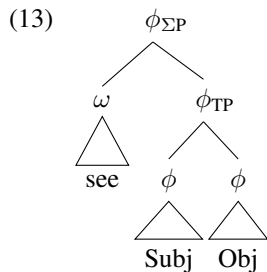
A particularly well worked out illustration of Match Theory can be found for Irish (Elfner 2015). Consider the following example, the pitch track for which is shown in Figure 2.

- (11) *díolfaidh leabharlannaí dathúil blathanna áille*
 sell.FUT librarian handsome flowers beautiful.PL
 ‘A handsome librarian will sell beautiful flowers.’

Elfner proposes the following syntactic structure for this sentence.



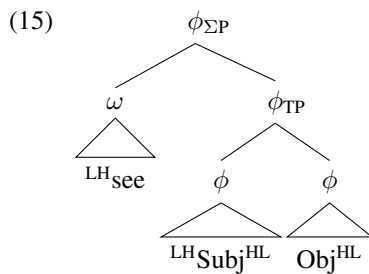
Using the Match Constraints in (10), she proposes the following prosodic structure.



She then proposes the following language-specific phrasal tones for Irish, which the reader can verify corresponds to the pitch contours in Figure 2.

- (14) a. HL at right edge of every ϕ
- b. LH at left edge of every non-minimal ϕ

This gives rise to the phrasal contours as shown in the pitch track in Figure 2.



The traditional approach to syntactic and prosodic structure is to assume a prosodic hierarchy distinct from that of the syntactic hierarchy (Nespor & Vogel 1986, Jun 1998, Selkirk 1984). There is a growing consensus, however, that the prosodic domains are defined by phases (Kratzer & Selkirk 2007, Newell 2008, Newell & Piggott 2014, Newell & Scheer 2017, Weber 2020, 2021, Compton & Pittman 2010). We will

investigate the phase-based approach to Match Theory here. In contrast to the mapping constraints in (10), the phase-based approach to Match Theory proposes constraints as follows, where τ is either ω or ϕ (or possibly ι , depending on the robustness of the claims in Ishihara, 2022).

- (16) a. CP - τ
 b. ν P - τ
 c. DP - τ
 d. nP - τ

We assume that languages make individual decisions as to which phase maps to which prosodic category. It is an open question whether there are any universal patterns for this mapping, as very few languages have been investigated under this hypothesis.

In the next section we review the structure of nominals in light of the phase-based approach to the syntax-phonology interface.

4 Phasal structure of nominals

This section reviews some previous research on nominals, showing how the phase-based approach to the syntax-phonology interface offers insight into the phenomena described below. We start with nominalized clauses in Korean, showing that there are two sizes of nominals that differ in both phase structure and prosodic structure. We then move on to Mongolian, showing that prosodic differences between differential object marking and pseudo incorporation can be attributed to differences in phase structure.

4.1 Korean nominalizations We begin with an investigation into the prosodic structure of Korean nominalizations. In Korean, prosodic domains identified by tonal contours and lenis stop voicing (also known as intersonorant voicing) (Jun 1998). A phonological phrase has a TH...LH, tone contour, in which TH appears at the left edge, and LH at the right edge. T varies between H and L, depending on the laryngeal features of the onset consonant. Consider the following example. The Accentual Phrase is bold-faced.

- (17) ***u^Lli^H nwuna^L-nun^H*** *Yenga-lul miwe-hay-yo*
 our older sister-TOP Younga-ACC hate-do.INF-POLITE
 ‘**My older sister** hates Younga.’

Lenis stop voicing is also used to diagnose prosodic structure in Korean. Lenis stops (also called plain stops) become voiced in intersonorant position. Consider the following examples. Observe that the lenis stop /k/ becomes voiced in intersonorant position.

- (18) a. *kulim*
 picture [kturim]
 ‘picture’
 b. *motun kulim*
 every picture [modum gurim]
 ‘every picture’

Chung (2019) and Barrie and Chung (2019) examine two kinds of nominalizations that use *-ki* as a nominalizer. Here are the relevant examples. Note the pattern of case marking on the subject and object.

- (19) a. *Yenghuy-ka yenghwa-lul po-ki-lul*
 Younghui-NOM film-ACC see-NLZR-ACC
 ‘Younghui seeing the film’
 b. *Yenghuy-uy yenghwa po-ki-lul*
 Younghui-GEN film see-NLZR-ACC
 ‘Younghui’s seeing the film’

VOT	KP _{OBJ} V	nP _{OBJ} V
C not voiced	30	7
C voiced	12	35
Total	42	42

Table 1: Incidence of VOT in Korean Nominalizations

When the subject bears nominative case the object bears accusative case. When the subject bears genitive case the object is obligatorily caseless. Barrie and Chung argue that the caseless object is a bare *nP*, while the case-marked object is a full KP.

Barrie & Chung (in preparation) examine the prosodic properties data such as those in (19). They formulate an experiment to determine whether the object and verb form a single prosodic domain or two separate domains. They show that the prosodic structure is correlated to the size of the object. Namely, the KP object forms a separate prosodic domain, while the *nP* object and verb together form a single prosodic domain.

They test a series of examples akin to (19) with 15 native speakers of Korea. For the examples in (19) the voicing status of the initial /p/ on *po-ki-lul* was tested. The results of the experiment are shown in the Table 1. Observe that with the case-marked KP object the final consonant is typically not voiced, but that with the caseless *nP* object the final consonant is typically voiced.

Barrie and Chung conclude that the *nP*_{OBJ} + verb string acts as a prosodic unit for lenis stop voicing, and that the KP_{OBJ} + verb string acts as two separate prosodic units. Furthermore, they observe that the *nP*_{OBJ} + verb string acts as a single domain for the TLHL contour, and that the KP_{OBJ} + verb string acts as two separate domains for this contour (not shown for lack of space). More precisely, they propose that the KP phase maps to ϕ and that the *nP* phase maps to ω . Crucially, lenis stop voicing does not take place across a ϕ boundary, and the TLHL contour is limited to a single ϕ .

4.2 Mongolian Differential Object Marking (DOM) and Pseudo Noun Incorporation (PNI) in Mongolian has been studied most extensively by (Guntsetseg 2016). Animacy, definiteness, and specificity play a strong role in DOM. The following examples show a portion of the variation found (Guntsetseg 2016:78) Observe that object marking correlates with specificity and definiteness.

- (20) a. *Bi ene oxin-*(yg) xar-san*
 I this girl-ACC see-PST
 ‘I saw this girl.’
- b. *Bi neg oxin-(yg) xar-san*
 I a girl-ACC see-PST
 ‘I saw a girl.’
- c. *Bi oxin-(*yg) xar-san*
 I girl-ACC see-PST
 ‘I saw a girl.’

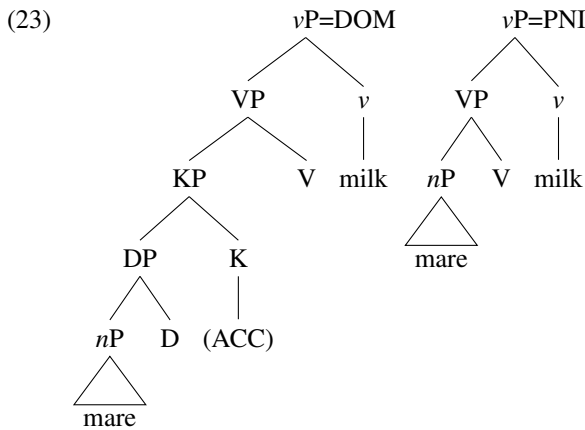
Moving now to Pseudo Noun Incorporation, PNI was first described by Massam (2001) for the Austronesian language Niuean (Austronesian, niu). The pseudo incorporated noun is typically considered to be a bare *nP* (Massam 2001, Dayal 2015) and has semantic properties similar to that of canonical noun incorporation (Mithun 1984). Consider the following example.

- (21) *Bi öčigdor nom unš-san*
 I yesterday book read-PST
 ‘Yesterday, I did book-reading.’

Barrie & Kang (2022) observe prosodic differences between a caseless DOM noun, as in 20 c, and a PNI noun, as in 4.2. They tested data such as the following. In the PNI example, the non-specific object takes scope below *want*. In the DOM example, the specific object takes scope above *want*.

- (22) a. *Bi guu saa-maar baina ...ali ch guu hamagui. (PNI)*
 I mare milk-INF want ...any mare will do
 ‘I want to milk a mare...any mare will do.’
- b. *Bi guu saa-maar baina ...ter tsagaan guu. (DOM)*
 I mare milk-INF want ...that white mare
 ‘I want to milk a mare...that white mare.’

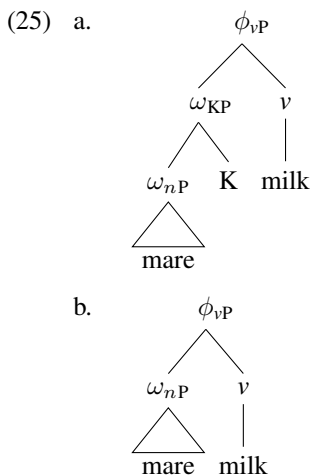
They observe an initial LH contour on full objects and bare objects with wide scope (DOM). However, PNI objects (as diagnosed by narrow scope) lack an initial LH contour. In previous research, it was shown that the LH contour is related to the prosodic word, ω in Mongolian (Svantesson et al. 2005, Karlsson 2014). Barrie and Kang propose that the LH contour appears at the left edge of a non-minimal ω . They thus offer prosodic evidence for the distinction between “full” bare objects (DOM) and PNI in addition to the morphosyntactic evidence discussed by Guntsetseg (2016). The following example shows the syntactic structure assumed for the two different kinds of objects.



They propose the following mapping conventions for Mongolian.

(24) Phase/Prosody Mappings for Mongolian

- a. $vP - \phi$
- b. $KP - \omega$
- c. $nP - \omega$



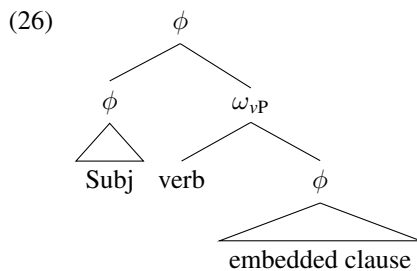
As mentioned, Barrie and Kang propose that the LH contour appears at the left edge of a non-minimal ω . Note crucially that this observation can be accounted for only if we assume a phase-based approach to Match Theory. Specifically KP must correspond to a prosodic category, regardless of whether K is phonologically contentful.

4.3 A note on Inuktitut This section briefly mentions some other research into the phase-based approach to Match Theory on Inuktitut (Eskaleut, iku).⁴ The idea of words as phases was first proposed for Inuktitut by Compton & Pittman (2010). Their proposal crucially relies on ν not being a phase head in that language. Thus, there is no ϕ related to ν P. It has been independently shown that there is no evidence for ϕ in Inuktitut, only *iota* and ω (Arnhold et al. 2018). The lack of ν P as a phase and the lack of a prosodic category of ϕ in Inuktitut broadly corresponds to the phase-based approach under review here.

5 Outstanding questions

As with any strong theory, it is inevitable that mismatches will be found. As shown below, Irish has strong evidence for TP as a prosodic domain. In this short paper we have assumed KP(DP), n P, CP, and ν P to be phases. We have seen above that there is no evidence for a ν P phase in Inuktitut. It is an open question what phases are active in other languages. Recently, Chomsky (2020) has proposed that the only true universal is Merge. If so, independent evidence needed for phases. Finally, it is unclear how to treat embedded clauses, though see Kandybowicz (2020) for an idea for some Bantu languages.

To illustrate the problem of embedded clauses, let's say ν P corresponds to ω , and CP corresponds to ϕ . Once an embedded clause is introduced, we see that there is an instance of ϕ contained within ω , in violation of Strict Layering (Selkirk 1984). This is shown in the following tree.

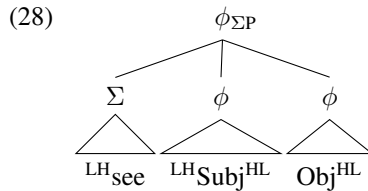


As mentioned above, there is strong evidence for TP as a prosodic category in Irish (Elfner 2015). See also Richards (2017) for similar evidence in Tagalog. Here again is the Irish sentence investigated above.

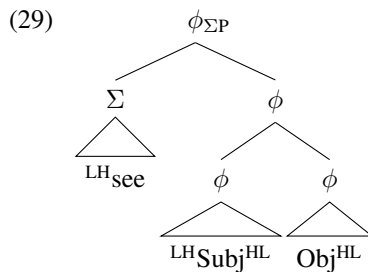
- (27) *díolfaidh leabharlannaí dathúil blathanna áille*
 sell.FUT librarian handsome flowers beautiful.PL
 ‘A handsome librarian will sell beautiful flowers.’

Recall example (15) from above. Elfner accounted for the tonal patterns under Match Theory. As it stands, her analysis is problematic for the phase-based approach pursued here as it crucially assumes that a non-phasal category, namely a TP, corresponds to a prosodic category. Although it is beyond the scope of this short paper to provide a full re-analysis of Elfner’s discussion of Irish. I do, however, suggest an avenue to be investigated. Gallego (2010) and den Dikken (2007) have proposed a mechanism of phase sliding or phase extension. Recall that the intermediate phase is usually taken to be ν P. Under the phase sliding proposal the phase edge *slides* along as verb raises. In the case of Irish considered here, the verb raises to Σ P, making Σ P a phase. See also Hamlaoui & Szendrői (2015, 2017) for a similar suggestion.

⁴ The Eskaleut family is sometimes called the Eskimo-Aleut family. The reader is cautioned, however, that the term *Eskimo* is considered offensive by many Inuit and Yupik people.



However, if we assume Binarity (Ghini 1995), a constraint that requires prosodic structure to be binary, the facts fall into place.



6 Conclusion

There is significant independent syntactic evidence for phases, as summarized in Citko (2014). Spell-Out required to communicate with interfaces (PF and LF), which is hypothesized to occur in chunks called phases. There is also significant evidence for a prosodic hierarchy (Selkirk 1984, Nespor & Vogel 1986). Reducing prosodic hierarchy to phase structure represents a significant simplification of the grammar, thus making the current proposal an attractive hypothesis. Open questions involve uncovering cross-linguistic variation as to which categories are phases in which language, and which phase corresponds to which prosodic category.

References

- Arnhold, Anje, Richard Compton & Emily Elfner (2018). Prosody and Wordhood in South Baffin Inuktitut. Keough, Megan, Natalie Weber, Andrei Angheliescu, Sihwei Chen, Erin Guntly, Khia Johnson, Daniel Reisinger & Oksana Tkachman (eds.), *Proceedings of the Workshop on Structure and Constituency in the Languages of the Americas 21*, University of British Columbia Working Papers in Linguistics, Vancouver, vol. 46, 30–39.
- Barrie, Michael & Heeryun Chung (2019). Aspects of -ki Nominalization in Korean. *Language and Linguistics* 83:0, 1–44.
- Barrie, Michael & Heeryun Chung (in preparation). Prosodic Correlates of Case-Marked and Caseless Nouns in Korean.
- Barrie, Michael & Jungu Kang (2022). The Syntax and Prosody of DOM and PNI in Mongolian. *Studies in Generative Grammar* 32:3, 405–424.
- Bloomfield, Leonard (1933). *Language*. Holt, New York.
- Chomsky, Noam (1988). *Language and Problems of Knowledge. The Managua Lectures*. Cambridge University Press, Cambridge, England.
- Chomsky, Noam (1995). *The Minimalist Program*. MIT Press, Cambridge, MA.
- Chomsky, Noam (2000). Minimalist Inquiries: The Framework. Martin, Roger, D. Michaels & Juan Uriagereka (eds.), *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, MIT Press, Cambridge, MA, 89–156.
- Chomsky, Noam (2001). Derivation by Phase. Kenstowicz, Michael (ed.), *Ken Hale: A Life in Language*, MIT Press, Cambridge, MA, 1–52.
- Chomsky, Noam (2008). On Phases. Freidin, Robert, Carlos P. Otero & Maria Luisa Zubizarreta (eds.), *Foundational Issues in Linguistic Theory*, MIT Press, Cambridge, MA, 133 – 166.
- Chomsky, Noam (2020). The UCLA Lectures.
- Chomsky, Noam & Morris Halle (1968). *The Sound Pattern of English*. Harper & Row, New York, NY.
- Chung, Heeryun (2019). *The Syntax of Korean Nominalizations*. Ph.D. Dissertation, Sogang University.
- Citko, Barbara (2014). *Phase Theory: An Introduction*. Cambridge studies in linguistics, Cambridge University Press, Cambridge.
- Compton, Richard & Christine Pittman (2010). Word formation by phase in Inuit. *Lingua* 120:9, 2167–2192.
- Dayal, Veneeta (2015). Incorporation: Morpho-Syntactic vs. Semantic Considerations. *Syntax and Semantics* 40, 47–87.
- den Dikken, Marcel (2007). Phase Extension: Contours of a theory of the role of head movement in phrasal extraction. *Theoretical Linguistics* 33:1, 1–41.

- Elfner, Emily (2015). Recursion in prosodic phrasing: evidence from Connemara Irish. *Natural Language & Linguistic Theory* 33:4, 1169–1208.
- Elfner, Emily (2018). The syntax-prosody interface: Current theoretical approaches and outstanding questions. *Linguistics Vanguard* 4:1, 1–14.
- Elfner, Emily & Ryan Bennett (2019). The syntax-prosody interface. *Annual Review of Linguistics* 5, 151–171.
- Fox, Danny & David Pesetsky (2005). Cyclic Linearization of Syntactic Structure. *Theoretical Linguistics* 31:1-2, 1–46.
- Gallego, Ángel J. (2010). *Phase Theory*. John Benjamins, Amsterdam.
- Ghini, Mirco (1995). Phonological Phrase Formation in Ligurian Italian .
- Guntsetseg, Dolgor (2016). *Differential Case Marking in Mongolian*. Tunguso-Sibirica, Harrassowitz Verlag.
- Hamlaoui, Fatima & Kriszta Szendrői (2015). A flexible approach to the mapping of intonational phrases. *Phonology* 32:1, 79–110.
- Hamlaoui, Fatima & Kriszta Szendrői (2017). The syntax-phonology mapping of intonational phrases in complex sentences: A flexible approach. *Glossa: a Journal of General Linguistics* 2:1, p. 55.
- Ishihara, Shinichiro (2022). On the (lack of) correspondence between syntactic clauses and intonational phrases. Kubozono, Haruo, Junko Ito & Armin Mester (eds.), *Prosody and Prosodic Interfaces*, Oxford University Press, Oxford, England, 420–456.
- Jun, Sun-Ah (1998). The Accentual Phrase in the Korean Prosodic Hierarchy. *Phonology* 15:2, 189–226.
- Kandybowicz, J. (2020). *Anti-Contiguity: A Theory of Wh- Prosody*. Oxford studies comparative syntax, Oxford University Press, Oxford.
- Karlssoon, Anastasia (2014). The intonational phonology of Mongolian. Sun-Ah, Jun (ed.), *Prosodic Typology II: The Phonology of Intonation and Phrasing*, Oxford University Press, Oxford, 187–215.
- Kramer, Ruth (2009). *Definite markers, phi-features, and agreement: A morphosyntactic investigation of the Amharic DP*. PhD Thesis, UC Santa Cruz.
- Kratzer, Angelika & Elisabeth Selkirk (2007). Phase theory and prosodic spellout: The case of verbs. *The Linguistic Review* 24:1, 93–135.
- Legate, Julie Anne (2003). Some Interface Properties of the Phase. *Linguistic Inquiry* 34:3, 506–516.
- Marantz, Alec (2001). Words. *West Coast Conference on Formal Linguistics* .
- Marvin, Tatjana (2003). *Topics in the Stress and Syntax of Words*. Ph.D Dissertation, MIT, Cambridge, MA.
- Massam, Diane (2001). Pseudo Noun Incorporation in Niuean. *Natural Language & Linguistic Theory* 19:1, 153–197.
- Mithun, Marianne (1984). The Evolution of Noun Incorporation. *Language* 60:4, 847–894.
- Nespor, Marina (1999). Stress Domains. Van der Hulst, Harry (ed.), *Word Prosodic Systems in Languages of Europe*, Mouton de Gruyter, Berlin, 117–160.
- Nespor, Marina & Irene Vogel (1986). *Prosodic Phonology*. Foris, Dordrecht.
- Newell, Heather (2008). *Aspects of the Morphology and Phonology of Phases*. Ph.D Dissertation, McGill University, Montreal, QC.
- Newell, Heather & Glyne Piggott (2014). Interactions at the syntax–phonology interface: Evidence from Ojibwe. *Lingua* 150, 332 – 362.
- Newell, Heather & Tobias Scheer (2017). Prosodic Domains: overthrowing the hierarchy. 25th Manchester Phonology Meeting.
- Richards, Norvin (2017). Some notes on Tagalog prosody and scrambling. *Glossa: a Journal of General Linguistics* 2:1, p. 21.
- Selkirk, Elisabeth (1984). *Phonology and Syntax: The Relation between Sound and Structure*. MIT Press, Cambridge, MA.
- Selkirk, Elisabeth (1986). On derived domains in sentence phonology. *Phonology Yearbook* 3, 371–405.
- Selkirk, Elisabeth (2009). On clause and intonational phrase in Japanese: the syntactic grounding of prosodic constituent structure. *Gengo Kenkyu* 136, 35–75.
- Selkirk, Elisabeth (2011). The syntax-phonology interface. Goldsmith, John, Jason Riggle & Alan Yu (eds.), *The Handbook of Phonological Theory*, Wiley-Blackwell, West Sussex, 435–484.
- Svantesson, Jan-Olof, Anna Tsendina, Anastasia Karlsson & Vivian Franzen (2005). *The Phonology of Mongolian*. The Phonology of the World's Languages, Oxford University Press, Oxford.
- Svenonius, Peter (2004). On the Edge. Adger, David, Cécile De Cat & George Tsoulas (eds.), *Peripheries: Syntactic Edges and their Effects*, Kluwer, Dordrecht, 259–287.
- Ticio, M. Emma (2005). Locality and anti-locality in Spanish DPs. *Syntax* 8:3, 229–286.
- Weber, Natalie (2020). *Syntax, prosody, and metrical structure in Blackfoot*. doctoral dissertation, University of British Columbia.
- Weber, Natalie (2021). Phase-based constraints within Match Theory. Bennett, Ryan, Richard Bibbs, Mykel Loren Brinkerhoff, Max J. Kaplan, Stephanie Rich, Amanda Rysling, Nicholas Van Handel & Maya Wax Cavallaro (eds.), *Supplemental Proceedings of the 2020 Annual Meeting on Phonology*, Linguistic Society of America, Washington, D.C.