Prepositions and case at the syntax–prosody interface[*]

Daniel Greeson

Stony Brook University

1.   Introduction

Syntactically conditioned silence constitutes a longstanding puzzle for linguistic theory. Why should the syntax care about the phonetic content of a given word or morpheme? In this paper, I come at this issue with novel data from a variety of languages in which the covertness or overtness of case-like prepositions and case endings appears to be conditioned by phenomena like movement and the presence of inflectional morphology. I argue that we can account for this distribution of null and overt preposition/case (K) heads entirely outside of the narrow syntax, at the syntax–PF interface.

The theory of K spellout I develop here brings together two strands of syntactic research: (i) a theory of EPP effects as constraints on empty spellout domain edges developed in McFadden and Sundaresan (2018), and (ii) Richards (2016)'s notion of Contiguity, which bans certain syntactically related elements from occurring non-adjacently within a particular prosodic domain. I show that when Contiguity/adjacency is taken into account, the preposition/K spellout facts nicely reduce to the same EPP effects (in short: have something overt at the edge!) long observed in the clausal domain.

Beyond providing an account of K spellout crosslinguistically, this account advances a number of broader theoretical goals, such as (**i**) shifting explanatory burden from the narrow syntax to the process of externalization, a welcome goal if we take the narrow language faculty to be innate and minimally specified (Berwick and Chomsky 2011), and (**ii**) unifying different syntactic domains by showing EPP effects in PP/KP on par with previous work on CP.

*Thank you to the members of my first QP committee for feedback on this work (in alphabetical order): Richard Larson, Tom McFadden, Paco Ordóñez, Sandhya Sundaresan and Jiwon Yun; audiences at Syntax Near NYU (SynNYU), FIND2023 @ Uni Göttingen, SBU Linguistics' Brown Bag series; and Adolfo Ausín, Alan Munn and Cristina Schmitt who encouraged this project when it was in its infancy.

2. Covert elements at the edge of the extended PP

In many languages, when a Place (Svenonius 2010) head like *near*, *inside*, etc. is immediately adjacent to the head of a KP, K is optionally silent. When the output of the syntactic derivation yields discontinuity between Place and K, though, K is obligatorily overt. This is demonstrated in the examples below. In all of the (a) sentences, KP is immediately adjacent to and dominated by Place; in the (b) sentences they are nonadjacent. Accordingly, K may be left covert in the (a) sentences, but must be overt in the (b) sentences.

2.1 Core data

(1) **Kannada**, Dravidian (Data courtesy of two Kannada speakers from Bangalore)

    a. Niivu [$_{PlaceP}$ [$_{KP}$ mane-(**alli**)$_K$] **oLagaDe**$_{Place}$] iddira.
       you   [$_{PlaceP}$ [$_{KP}$ house-(LOC)$_K$] inside$_{Place}$] are.
       "You are inside (of) the house."

    b. Niivu mane*(-**alli**)$_K$ eshtu **oLagaDe**$_{Place}$ iddira?
       You   house*(-LOC)$_K$ how   inside$_{Place}$ are
       "How far inside the house are you?"

(2) **Tamil**, Dravidian (Sandhya Sundaresan, p.c.)

    a. Nii [$_{PlaceP}$ [$_{KP}$ kaar-(**ukku**$_K$)] **pakkattule**$_{Place}$] irukkai.
       you [$_{PlaceP}$ [$_{KP}$ car-(DAT)$_K$] near$_{Place}$] are.
       "You are near (to) the car."

    b. Nii kaar*(-**ukku**$_K$) evvaLavu **pakkattule**$_{Place}$ irukkai?
       You car*(-DAT)$_K$ how   near$_{Place}$ are
       "How near are you to the car?"

(3) **Italian**, Romance (Stanislao Zompì, p.c. & Roberta D'Alessandro, p.c.)

    a. I   ladri   furono [$_{PlaceP}$ **dentro**$_{Place}$ [$_{KP}$ (**al**)$_K$ la   stanza]].
       The thieves went   [$_{PlaceP}$ inside   [$_{KP}$ (to)$_K$ -the store]].
       "The thieves went inside the store." ^{OK}adjacent

    b. **Dentro**$_{Place}$ che furono *(**al**)$_K$la stanza, i   ladri   furono arrestati.
       inside   that went   *(to)-the store,   the thieves were   arrested
       "Once they went inside the store, the thieves were arrested."

(4) **Spanish**, Romance [Data come from two Peninsular Spanish speakers]

    a. Está [$_{PlaceP}$ **cerca**$_{Place}$ [$_{KP}$ (**de**$_K$) la   mesa]].
       is   [$_{PlaceP}$ near$_{Place}$ [$_{KP}$ of$_K$ the table
       "It is near the table."

    b. ¿Cómo de **cerca**$_{Place}$ está *(**de**$_K$) la   mesa?
       how   of near   is   (of)   the table
       "How near the table is it?"

(5) **English *outside*** (Author's judgments)
   a. I'm outside (of) my comfort zone.
   b. How far outside are you *(of) your comfort zone?

(6) **English *near*** (Author's judgments)
   a. I live near$_{Place}$ [$_{KP}$ (to)$_K$ the store].
   b. Near$_{Place}$ though I live *(to)$_K$ the store, I hardly go.
   c. How near$_{Place}$ do you live *(to)$_K$ the store?

2.2 Towards an analysis: enter the IPEG

To explain the contrasts shown above, I propose we make use of the following general-ization, which has its origin in An (2007)'s study of alternations between null and overt complementizers:

(7) **Intonational Phrase Edge Generalization (IPEG)**:
   The edge of an I-Phrase cannot be empty (where the notion of edge encompasses the **specifier** and the **head** of the relevant syntactic constituent).

   This is the right sort of generalization for the data we've seen so far in this paper, because the types of contrasts we illustrated in Dravidian, Romance and English all involve obligatory non-emptiness of the edge of a certain constituent (in our case, KPs). What remains to be argued is that KPs correspond to a natural domain in the prosodic hierarchy (e.g. I-Phrase or the smaller P(honological)-Phrase); this will be argued from the standpoint of phase theory in the following section and bolstered with phonological evidence in the following section.

2.3 An (2007)'s IPEG

An (2007) presents an interface analysis of complementizer deletion in English. As is well known, finite CP–introducing *that* can generally be left covert or overt with no effect on grammaticality or interpretation:

(8) I said { that / ∅ } I was happy.

   However, when the CP has been extraposed because of an intervening adverbial (9), is a subject CP (10), occurs after a gapped verb (11), or is the right node in a right-node raising construction (12), then said CP must be introduced by an overt complementizer.

(9) I believe **very strongly** [$_{CP}$ { that / *∅ } John liked linguistics].   (An) 2007

(10) [$_{TP}$ [$_{CP}$ { That / *∅ } the teacher was lying] was hardly obvious].   (Stowell 1981)

(11) Mary believed that Peter finished school and Bill [$_{CP}$ { that / *∅ } Peter got a job].
   (Stowell 1981)

(12) They suspected and we believed [$_{CP}$ { that / *∅ } Peter would visit the hospital].
   (Bošković and Lasnik 2003)

An's analysis follows the consensus from the prosody–syntax literature that certain constituents are obligatorily parsed as I-Phrases in the mapping from syntax to phonology, particularly those which are offset from the rest of the clause such as matrix clauses, appositives, adjuncts, tag questions, vocatives, and certain moved elements (An 2007, Bošković and Lasnik 2003, Nespor and Vogel 1986, Schütze 1994, Selkirk 1986). After noting that the CPs with obligatorily overt *that* in (9–12) above are a subset of these constituent types, An proposes the following generalization:

(13)   Intonational Phrase Edge Generalization (IPEG)
        The edge of an I-phrase cannot be empty (where the notion of edge encompasses the specifier and the head of the relevant syntactic constituent).

I will use the illicit extraposed CP in (14) as an example to illustrate An's logic.

(14)   *I believe **very strongly** [$_{CP}$ ∅ John liked linguistics].   An (2007)

Following Nespor and Vogel (1986), Inkelas and Zec (1990), we take for granted that extraposed CPs like [$_{CP}$ { that / *∅ } John liked linguistics] obligatorily correspond to intonational phrases. First, a silent C head trivially cannot constitute a prosodic word. Second, the condition that I-phrase boundaries be delineated between prosodic words (Nespor and Vogel 1986) means that the I-phrase boundary cannot occur at the edge of the CP, since there is nothing phonologically overt in Spec or Head of C. Taking everything together, we get a violation of the isomorphism that must hold between the Intonational Phrase and its corresponding syntactic constituent. The material at the left edge of the Intonational Phrase corresponding to "John likes linguistics" maps to the TP [$_{TP}$ John likes linguistics], rather than the CP [$_{CP}$ ∅ John likes linguistics], as the Intonational Phrase edge cannot correspond to a null C.

2.4   Extending the IPEG: McFadden and Sundaresan (2018)

While there are obvious similarities between An's use of the IPEG for cases of obligatory C spellout and the instances of obligatory K spellout presented in this paper (i.e. both involve obligatory overtness at the edge of an XP in cases where XP is nonadjacent to the head selecting for it), there are also some crucial differences.

First, although the IPEG is stated in general terms, An deals only with CPs; in order to generalize to KP it must be shown that KP can correspond to an Intonational Phrase or other natural prosodic constituent.

Second, while all of the cases of obligatorily overt C discussed by An involve nonadjacency between CP and the head selecting for CP, the nonadjacency in each case is caused by *displacement* of CP to a noncanonical position via extraposition, raising or some other operation. In contrast to this, many of the KP/Place non-adjacency examples in Section 2.1 involve cases where KP itself **stays *in situ***, while the head selecting for KP, namely Place, is moved (e.g. (6b), repeated in (15)). When we test analogous examples in the CP domain where CP remains in situ but the head selecting for it is displaced, we get a different result: C may remain covert (16).

(15) How near$_{Place}$ do you live [$_{PlaceP}$ ~~near$_{Place}$~~ [$_{KP}$ *(to)$_K$ the store]]?

(16) How obvious is it [$_{AP}$ ~~obvious~~ [CP (that)$_C$ the teacher's lying]]?

Our solution to these problems will be to adopt McFadden and Sundaresan (2018)'s extension of the IPEG. Under their view, an XP being displaced is only one of two routes to XP becoming an Intonational Phrase subject to the IPEG. The other route is for XP to map to a spellout domain at PF due its status as the complement of a phase head in the syntax. Since CP is itself a phase and not the complement of a phase head, McFadden and Sundaresan (2018) correctly predict that *in situ* CPs like in (16) won't be subject to the IPEG, only displaced CPs like those in (9–12) will. On the other hand, they predict that TP is subject to the IPEG by default due to its status as the complement of the phase head C. They use this line of reasoning to account for the fact that in a language like English with nothing overt in T[1], a sentence like (17) fails to meet the IPEG without an overt subject in Spec-TP, while a language like Spanish with V-to-T movement checks the IPEG without an overt subject (18).

(17) *[$_{TP}$ $\varnothing_{DP}$ $\varnothing_T$ ($_{I-Phrase}$ [$_{VP}$ carefully read the material])]. (***English***)

(18) ($_{I-Phrase}$ [$_{TP}$ leí$_T$ completamente el material]) (***Spanish***)

2.5 KP is a spellout domain

A McFadden and Sundaresan (2018)–style approach to the IPEG is only tenable for KP if we can show that KP is a spellout domain; to do this, I will walk through several diagnostics here that suggest PlaceP is a phase and that its complement KP is the corresponding spellout domain.

One classic diagnostic for phasehood of a phrase XP is whether XP can correspond to its own binding domain (Citko 2014). PlaceP indeed behaves like a phase in this respect: unlike other prepositions (19), spatial prepositions are known to introduce their own binding domains for the sake of principles A and B (**? ?**):

(19) Juan$_i$ talked with/to/by/about him$_{*i/j}$.

(20)   Juan$_i$ put the gun behind/above/near/below$_{Place}$ him$_i$.

Another diagnostic for whether a given head is a phase head X is ellipsis, i.e. whether the complement of X can be elided.[2] In many cases, the KP complement of a Place head can be left silent, and the silent KP behaves like an ellipsis site in having internal structure. For instance, sloppy readings are licensed in the English (21) and Spanish (22) sentences below (Spanish examples due to Francisco Ordóñez, p.c.):

---

[1]This raises the question of how to treat English sentences with overt auxiliaries or modals like *will* in T. McFadden & Sundaresan address this, assuming something they call "IntP extension"; the reader is referred to McFadden and Sundaresan (2018) for details.

[2]If you believe in full-phase ellipsis rather than phase-complement ellipsis (Bošković 2016, Ke 2017), you may take these ellipsis results to suggest that KP itself is phasal. Regardless of phase boundaries, the ellipsis results indicate that KP is a spellout domain.

(21) Juan$_i$ prefers living super near$_{Place}$ [$_{KP}$ to$_K$ his$_i$ school], but Pedro would never live so near ~~to his$_{i/j}$ school~~.

(22) Juan$_i$ no   vive muy cerca$_{Place}$ [$_{KP}$ de$_K$ su$_i$ escuela], pero Pedro sí   que   vive
      Juan NEG lives very near   [of his school] but   Pedro yes COMP lives
      cerca ~~de su$_{i/j}$ escuela~~.
      near ~~of his school~~.
      "John doesn't live very near his school, Pedro does live near (his school)."

Additionally, quantifier raising is possible out of the KP ellipsis site, suggestive of internal structure. This is shown via the presence of an inverse scope reading in English (23) and Spanish (24) below:

(23) Despite social distancing protocols, a doctor came somewhat near to every COVID patient, and then a nurse came really near$_{Place}$ [$_{KP}$ ~~to every COVID patient~~] in order to get a better look.
      (the same nurse for every patient, or for every patient some nurse)

(24) Un médico se   paró   cerca de cada paciente, y   después una enfermera
      a   doctor REFL stopped near of each patient   and after   a   nurse
      se   paró   muy cerca también.
      REFL stopped very near also
      "A doctor came near each patient, and afterwards a nurse came near too."
      (the same nurse for every patient, or for every patient some nurse)

By now we have good syntactic reasons to believe that KP may be a spellout domain: the head that takes KP as its complement introduces its own binding domain, and KP may be elided following Place. But what about strictly phonological evidence for KP mapping to a prosodic constituent? For this we can use the phenomenon of iambic reversal in English, which has been shown to respect phonological boundaries and accordingly been used as a diagnostic for delinating P(honological)–Phrases, a prosodic constituent smaller than I(ntonational)–Phrases (Nespor and Vogel 2007, Barrie 2023)[3] Iambic reversal (henceforth IR) alters one word's stress pattern due to the stress pattern of an adjacent word, it does not apply across a P-Phrase boundary:

(25) fif-téen (*Underlying stress pattern of 'fifteen'*)

(26) **Iambic reversal**: ($_{P-Phrase}$ [$_{NP}$ fíf-teen sól-diers])

(27) **No iambic reversal**: ($_{I-Phrase}$ [$_{TP}$ When I was fif-téen,)
      ($_{I-Phrase}$ [$_{TP}$ sól-diers came to my house.]])

Now we examine IR as it applies to two bisyllabic Place heads, *inside* and *outside*. The underlying stress assignment for both of these (when used as spatial prepositions/Place

---

[3]As its name suggests, the IPEG applies to I-Phrases, but seemingly just because it's only been invoked in the literature to talk about CP and TP, which generally map to I-Phrases. But McFadden & Sundaresan (2018)'s logic, namely that a given XP is subject to the IPEG by default if it's a spellout domain, is not restricted to CP/TP and the prosodic domains they map to. I will continue to use the term IPEG for consistency, but I assume it may apply to other spellout domains that correspond to P-Phrases, not just I-Phrases.

heads) is on the final syllable, i.e. *in-síde* and *out-síde*. However, IR may optionally take place when these Place heads occur immediately before a noun:

(28) 'inside portion' ($_{P-Phrase}$in-síde pór-tion) OR ($_{P-Phrase}$ín-side pór-tion) (i.e. the portion that lies inside)

(29) 'outside portion' ($_{P-Phrase}$out-síde pór-tion) OR ($_{P-Phrase}$óut-side pór-tion) (i.e. the portion that lies outside)

In a phrase like "Have you seen the inside portion of the complex yet?", *inside* can retain its underlying final stress (staying faithful to its lexical entry) or shift to initial stress to avoid a stress clash[4]

Having seen IR successfully apply to *inside$_{Place}$*, we can test whether it may also apply across a KP boundary, as in (30):

(30) I love to go for walks outside/inside$_{Place}$ [$_{KP}$ $\varnothing_K$ castles].

Note that the word *cástles* has initial stress. As such, if *insíde* and *cástles* were part of the same P-Phrase then we would expect them to undergo IR to avoid adjacent stressed syllables Nespor and Vogel (1986), but if they belong to distinct P-Phrases then IR shouldn't be able to take place. What we find is that *out/inside* is only able retain final stress despite the adjacent initial stress of *castle*:

(31) I love to go for walks {outsíde/insíde cástles / *óutside/ínside cástles}.

This suggests that there is a prosodic boundary present before KP when stress assignment takes place:

(32) I love to go for walks inside ($_{P-Phrase}$ [$_{KP}$ $\varnothing_K$ castles]).

This is a desirable result, since KP mapping to a prosodic constituent is what we predict if it is a spellout domain, and is necessary for us to apply the IPEG to KP.

3.   Addressing under- and overgeneration

In the previous section we paved the way for using the IPEG to explain alternation between null and overt K in KP by showing that KP is a spellout domain and prosodic constituent. But if there is always a prosodic boundary before KP, then KPs should *never* be able to escape the IPEG, but this is clearly too strong, given that K may be optionally left covert in examples like (6a), repeated in (33):

(33) ($_{I-Phrase}$ I live near$_{Place}$ ($_{I-Phrase}$ [$_{KP}$ (to)$_K$ the store]))

We can address the undergeneration of sentences like (6a/33) with phonological restructuring (Nespor and Vogel 1986, 2007): at some point after stress assignment (see López 2010 for arguments that this happens very early in English), the P-Phrase containing KP is parsed into the rest of the clause, a single large I-Phrase:

---

[4]To my ears, 'inside portion'/'outside portion' sound a bit more natural with IR than without. However, preservation of the underlying stress as in *in-síde pór-tion* sounds perfectly fine in careful speech. This differs from bona fide compounds like *inside joke* which can only ever take initial stress on *inside*, i.e. *in-síde jóke.

(34) ($_{I-Phrase}$ I live near$_{Place}$ ($_{P-Phrase}$ [$_{KP}$ (to)$_K$ the store]))

(35) ($_{I-Phrase}$ I live near$_{Place}$ [$_{KP}$ (to)$_K$ the store])

If prosodic restructuring can take place (as is generally taken to be the case for embedded P-Phrases; Nespor and Vogel 2007), we can sidestep the IPEG by losing an internal boundary. But now we face a different issue: overgeneration. If phonological restructuring can effectively remove a clause-internal KP edge, we need to make sure that restructuring doesn't incorrectly allow sentences like (36):

(36) *Near$_{Place}$ though I live [$_{KP}$ ∅ the store], I hardly go there.

This is where Richards (2016) comes in.

(37) **Selectional Contiguity**:
If a head X selects a head Y, X and Y must be linearly adjacent.   (Richards 2016)

Crucially, Richards takes Selectional Contiguity to apply only within a single phonological domain. Consider Richards' example in (38).

(38) I think [$_{CP}$ **that**$_C$ [$_{TP}$ Mary **will** win the prize]].   (Richards 2016)

Here, *that* and *will* are discontinuous and yet stand in a selectional relationship with one another. However, the sentence is saved by the fact that the embedded TP is a spellout domain (of the phase head C) and therefore can map to its own intonational or phonological phrase:

(39) Contiguity–obeying representation of (38):
($_{I-Phrase}$I think **that** ($_{P-Phrase}$Mary **will** win the race))   (Richards 2016)

Despite global non-adjacency of *that* and *will* in (39), no Contiguity violation occurs. There is no single domain in which the two elements co-occur, so the conditions for Contiguity's application are not met. Contrast this with the following ungrammatical sentence which is illicit under Selectional Contiguity (selectionally related elements bolded):

(40) * ($_{I-Phrase}$**Is**$_T$ now **John**$_{DP}$ happy?)
cf. ✓($_{I-Phrase}$Now **John is** happy).   (Richards 2016)

Applied to the KP data, Selectional Contiguity allows us to relate non-adjacency of Place and KP to the illicitness of covert K. Consider a sentence like "How near am I *(to) the store?" in which both of the following may not hold at the same time: (a) K is covert and (b) Place and the KP it selects for are non-adjacent. Based on the output of phasal spellout, the initial prosodic constituency is (41):

(41) *($_{I-Phrase}$How **near** am I ($_{P-Phrase}$[$_{KP}$ ∅$_K$ **the store**])?)   *IPEG, ✓Contiguity

The default constituency above does not violate Contiguity because K and Place each belong to their own prosodic domains. It is, however, incompatible with null K, because it would leave us with an empty P-Phrase edge in violation of the IPEG.

We could instead attempt restructuring such that ($_{P-Phrase}$ [$_{KP}$ ∅ the store]) is absorbed into the larger I-Phrase, but now this is illicit due to a Contiguity violation since Place and K are nonadjacent within a single prosodic constituent:

(42)   *($_{I-Phrase}$How **near** am I [$_{KP}$ $\varnothing_K$ **the store**]?) $\checkmark$IPEG, *Contiguity

This gives us exactly the result we want: when KP is nonadjacent to the Place *and* K is left covert, either the IPEG or Contiguity is violated.

4.   Further applications

Beyond accounting for EPP effects in the clausal domain and K omission effects in the prepositional domain, the IPEG might be fruitfully extended to other phase domains like *v*P where similar adjacency effects can be observed:

(43)   *($_{I-Phrase}$I **endorse** wholeheartedly ($_{I-Phrase}\varnothing_K$ **the choices they've made**)).

(44)   ($_{I-Phrase}$I **approve** wholeheartedly ($_{I-Phrase}$of$_K$ **the choices they've made**)).

The IPEG–Contiguity conspiracy outlined here may also bear on theories of morphosyntax. For example, the IPEG appears to treat different affixes differently w.r.t. interrupting adjacency in Spanish:

(45)   Estoy cerquita   (de) la plaza.
       am   near-DIM of   the store
       "I'm near the store."   (diminutivization)

(46)   Estoy cerquísima *(de) la   plaza.
       am   near-DEG of   the store
       "I'm extremely near the store."   (degree inflection)

If the analysis here is on the right track, these data suggest that the diminutive affix in (45) does not change the syntactic category of its host while the degree affix in (46) does, leading to nonadjacency of Place (embedded inside a DegP) and KP.

5.   Conclusion

I have argued that what constrains the distribution of K heads is not the syntax proper, but rather whether a derivation with a covertly-headed KP maps to a well-formed prosodic constituent at PF w.r.t. the IPEG and Selectional Contiguity. The deep motivation for such well-formedness conditions may be attributable to both phonological and 'third factor' considerations; for example, it is well established that children rely on prosodic structure early on in language development to make inferences about syntactic structure (**? ?**), so syntax–PF misalignment is a disfavored outcome of language development.

References

An, Duk-Ho. 2007. Clauses in noncanonical positions at the syntax-phonology interface. *Syntax* 10:38–79.

Barrie, Michael. 2023. *Advanced Generative Syntax*.

Berwick, Robert C, and Noam Chomsky. 2011. The Biolinguistic Program: The current state of its development. *The biolinguistic enterprise: New perspectives on the evolution and nature of the human language faculty* 19–41.

Bošković, Željko. 2016. What is sent to spell-out is phases, not phasal complements. *Linguistica* 56:25–66.

Bošković, Željko, and Howard Lasnik. 2003. On the distribution of null complementizers. *Linguistic Inquiry* 34:527–546.

Citko, Barbara. 2014. *Phase Theory: An Introduction*. Cambridge University Press.

Inkelas, Sharon, and Draga Zec. 1990. *The Phonology-Syntax Connection*. University of Chicago Press.

Ke, Alan Hezao. 2017. Full phase transfer. *Ms. University of Michigan* 10.

López, Luis. 2010. Givenness and discourse anaphors. *Comparative and Contrastive Studies of Information Structure* 165:51.

McFadden, Thomas, and Sandhya Sundaresan. 2018. What the EPP and COMP-trace effects have in common: Constraining silent elements at the edge. *Glossa: A Journal of General Linguistics* 3.

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

Nespor, Marina, and Irene Vogel. 2007. *Prosodic Phonology: With a New Foreword*, volume 28. Walter de Gruyter.

Richards, Norvin. 2016. *Contiguity Theory*, volume 73. MIT Press.

Schütze, Carson. 1994. Serbo-Croatian second position clitic placement and the phonology-syntax interface. *MIT working papers in linguistics* 21:373–473.

Selkirk, Elisabeth O. 1986. *Phonology and Syntax: The Relationship Between Sound and Structure*. MIT press.

Stowell, Tim. 1981. Complementizers and the Empty Category Principle. In *North East Linguistics Society*, volume 11, 24.

Svenonius, Peter. 2010. Spatial P in English. *Mapping spatial PPs: The cartography of syntactic structures* 6:127–160.

Daniel Greeson
daniel.greeson@stonybrook.edu