EPP effects in the prepositional domain and beyond

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0 Abstract

This paper presents novel data from English, Romance and Dravidian to support a broad cross-linguistic generalization regarding optionally covert prepositions (or 'preposition drop'): spellout of an (otherwise optional) preposition or case ending (K) is obligatory if KP is nonadjacent to the head that selects for it, regardless of whether KP itself remains *in situ*. I then show that this generalization interacts in interesting ways with syntactic notions like selection, movement, and phasehood. Zooming in on the domain of locative prepositions, I argue that the puzzle of where covert K is licensed can be fully accounted for via a conspiracy of (i) the Intonational Phrase Edge Generalization (An 2007, McFadden and Sundaresan 2018) and Richards (2016)'s notion of Selectional Contiguity. I also argue that other phenomena such as nominalization and verb-fronting may be amenable to a similar analysis in the interest of providing a unified analysis of nullness across domains.[1]

keywords: syntax–phonology interface, PF, prepositions, case, intonational phrases, prosody, spellout, phase theory

[1]I follow Svenonius (2010) in referring to preposition-like elements that denote locational relations, e.g. *inside*, *near*, *above*, *behind*, as Place heads. Also following Svenonius, I refer to simple prepositions that are dominated by Place heads, e.g. English *to* (*near* ***(to)*** *X*) and *of* (*inside* ***(of)*** *X*) with the label K, which I also use for case endings in languages that deploy case marking where English & other languages deploy elements like *to* or *of*. Unless otherwise sourced, all data were elicited from native speakers by the author, or come from the author's own intuitions (English).

1 Introduction

Syntactically conditioned covertness/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 K prepositions like *to*, *of*, *at* appears to be mediated by things like syntactic movement and various types of morphosyntactic inflection on adjacent words.

My analysis of the factors regulating (non)pronunciation of K heads builds off of recent work on the nature of the syntax–PF interface. I show that there is no need to depart from the standard Y-model and assume countercyclic reference to phonological primitives in the syntax. Instead, I adopt a generalized notion of the Intonational Phrase Edge Generalization (IPEG) (An 2007, McFadden and Sundaresan 2018), a constraint that applies at PF and filters out representations with illicit PF/syntax mismatches.

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) 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!) classically observed in the clausal domain. Although the bulk of the data concern the prepositional domain, I show that other similar effects in the *v*P domain are amenable to a similar analysis.

Beyond providing a satisfying account of preposition 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 largely uniform across humankind (Berwick and Chomsky 2011), and (**ii**) unifying different phasal domains by showing EPP effects in PP/KP and *vP* on par with previous work on CP.

1.1 Roadmap

In **section 2**, I walk the reader through the core data of this paper, which concern minimal pairs that differ in terms of K's ability to be covert. I then present the Constraint on null K, which relates non-adjacency of Place and KP to the ability of K to be left covert. Finally, I sketch a way forward building off of previous interface theories of covertness from An (2007) and especially McFadden and Sundaresan (2018), who argue that the classic EPP requirement for overt subjects of finite clauses can be tied to An's Intonational Phrase Edge Generalization

In **section 3**, I work out the details of extending the Intonational Phrase Edge Generalization (IPEG) (An 2007, McFadden and Sundaresan 2018) beyond the clausal domain, leading me to formulate the Generalized Phrase Edge Generalization (GPEG). Because the IPEG/GPEG is closely tied to phase boundaries, I proceed to argue for the phasality of PlaceP, before eventually walking through what happens to the output of Transfer when it reaches PF and is subject to the GPEG; this is where I develop a theory of prosodic restructuring mediated by Contiguity Theory (Richards 2016).

In **section 4**, I compare my work on KP spellout with previous work on CP spellout, providing novel data to support a distinction between how the ways in which two are constrained, which I go on to relate to differences in phasal boundaries.

In **section 5**, I extend the empirical scope of the paper in several ways. First, I show that similar EPP-type effects to those in the KP and clausal domains also occur in the *v*P domain and potentially also the DP domain. Second, I provide new data from inflected Place$^{\circ}$ and heads in Spanish and English to pin down the interaction between syntactic word building and the GPEG, also extending this to a novel analysis of nominalizations like 'destruction of the city'.

Section 6 considers the advantages and disadvantages of my approach to Collins (2007)'s influential analysis of null prepositions.

Section 7 concludes and considers potential implications of this work for linguistic theory.

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 syntactic derivation leads to discontinuity between Place and K, though, K is obligatorily overt. This is demonstrated in the examples below, which we will now walk through in turn.

2.1 Core data

(1) **English**, Germanic

a. I'm [$_{PlaceP}$ **near**$_{Place^\circ}$ [$_{KP}$ (**to**)$_{K^\circ}$ the store]]. *adjacent*

b. I'm [$_{PlaceP}$ **outside**$_{Place^\circ}$ [$_{KP}$ (**of**)$_{K^\circ}$ my comfort zone]]. *adjacent*

c. How **near**$_{Place^\circ}$ are you *(**to**)$_{K^\circ}$ the store?

d. **Near**$_{Place^\circ}$ though I am *(**to**)$_{K^\circ}$ the store, I hardly go. *nonadjacent*

e. As far **outside**$_{Place^\circ}$ as I am *(**of**)$_{K^\circ}$ my comfort zone, I'm not panicking. *nonadjacent*

f. He lives near, apparently, ??(to) Dallas.

g. He lives just outside, apparently, *(of) Dallas.

In English, we see that K can be left covert if Place is immediately adjacent to K, as in (1a) and (1b). However, any derivation that ends in non-adjacency of Place and K results in the obligatory overtness of K. This non-adjacency can occur when KP is left *in situ* while Place is fronted across intervening material, as in (1c), (1d), and (1e). Alternatively, non-adjacency may occur as a result of KP itself being extraposed due to an intervening appositive or adverbial, as in (1f) and (1g). The end result is the same: K must be spelled out.

(2) **Kannada**, Dravidian (Medhini Urs, p.c. & Bharathi Devarajurs, p.c.)

a. Niivu [$_{PlaceP}$ [$_{KP}$ kaar-(**ige**)$_{K^\circ}$] **hattira**$_{Place^\circ}$] iddira.
you [$_{PlaceP}$ [$_{KP}$ car-(DAT)$_{K^\circ}$] near$_{Place^\circ}$] are.
"You are near (to) the car." *adjacent*

b. Niivu [$_{PlaceP}$ [$_{KP}$ mane-(**alli**)$_{K^\circ}$] **oLagaDe**$_{Place^\circ}$] iddira.
you [$_{PlaceP}$ [$_{KP}$ house-(LOC)$_{K^\circ}$] inside$_{Place^\circ}$] are.
"You are inside (of) the house." *adjacent*

c. Niivu kaar*(-**ige**)$_{K^\circ}$ eshtu **hattira**$_{Place^\circ}$ iddira?
You car*(-DAT)$_{K^\circ}$ how near$_{Place^\circ}$ are
"How near are you to the car?" *nonadjacent*

d. Niivu mane*(-**alli**)$_{K^\circ}$ eshtu **oLagaDe**$_{Place^\circ}$ iddira?
You house*(-LOC)$_{K^\circ}$ how inside$_{Place^\circ}$ are
"How far inside the house are you?" *nonadjacent*

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

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

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

In both Dravidian languages exemplified, a Place head marks the KP complement it dominates by means of an affixal case ending, which may be dative or locative in the examples we've seen. Interestingly, these case affixes behave exactly like Engish 'to' and 'of' in terms of spellout and nonadjacency: when the case-marked complement KP is adjacent to and immediately dominated by the Place head that selects for it, the case ending is optionally covert. By contrast, when there is non-adjacency (e.g. from intervening adverbials or *wh*-words), the case ending is obligatorily overt. Note: both of these languages are *wh*-in-situ.

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

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

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

(5) **Spanish** (Francisco Ordóñez, p.c. & Adolfo Ausín, p.c.)

a. Está [$_{PlaceP}$ **cerca**$_{Place^{\circ}}$ [$_{KP}$ (**de**$_{K^{\circ}}$) la mesa]].
is [$_{PlaceP}$ near$_{Place^{\circ}}$ [$_{KP}$ of$_{K^{\circ}}$ the table
"It is near the table." *adjacent*, K optional

b. ¿Qué tan **cerca**$_{Place^{\circ}}$ está *(**de**$_{K^{\circ}}$) la mesa?
how so near is ∅ the table
Intended: "How near the table is it?" *nonadjacent*, K must be overt

In Romance, just as in English, we see that displacing the Place head such that it's non-adjacent to its KP complement forces spellout of K. In Italian, this looks like the obligatory spellout of *a* ('to'), and in dialects of Spanish that allow null *de* in *near* constructions, this looks like the obligatory spellout of *de* ('of').

So far we've seen for numerous languages of different language families that a case marker or case-like preposition, K, is optionally overt when the KP is immediately dominated by a Place head, but obligatorily covert otherwise. The non-adjacency can arise for a wide array of reasons including movement of the Place head out of its base position such that it crosses over other overt material or the merging of something other than Place (e.g. an adverbial) immediately above K. I call this generalization the **Constraint on locative null K**:

(6) **Constraint on Locative null K**: In locative PPs crosslinguistically, deletion of case markers (e.g. GEN, DAT) or case-like prepositions (e.g. *to*, *of*) is less restricted when K is immediately dominated by and adjacent to Place. Any other configuration leading to non-adjacency results in null K being illicit.

2.2 Introducing the IPEG/GPEG

To explain the contrasts shown above, I propose we make use of the following generalization from An (2007)'s study of the alternation between null and overt complementizers and McFadden and Sundaresan (2018)'s study of EPP effects:

(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 Romance, Dravidian, English, and Japanese 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 section 4.

2.3 An (2007)

An (2007) presents a novel 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).

Although stated as a separate constraint, An derives the IPEG via three independently justified assumptions:

(14) Deriving the IPEG (An 2007)
   a. I-phrasing must occur at the juncture between two prosodic words (Nespor and Vogel 1986, Schütze 1994).
   b. I-phrases are isomorphic with syntactic constituents that are obligatorily parsed as I-phrases (Nespor and Vogel (1986):190).
   c. Prosodic words can be informally defined as phonologically independent words that bear stress (Schütze 1994)

I will use the illicit extraposed CP in (15) as an example to illustrate An's logic.

(15) *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, An notes that the definition of prosodic word in (14c) precludes null C from being counted as a prosodic word. Second, the condition that I-phrase boundaries be delineated between prosodic words (14a) means that the I-phrase boundary cannot be in 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 [ʤɑn lʌɪks lɪŋˈgwɪstɪks] corresponds to the TP [$_{TP}$ John likes linguistics], rather than the CP [$_{CP}$ ∅ John likes linguistics], as the TP edge cannot correspond to a null C.

An notes (citing an anonymous reviewer) that the principles in (14) can be used to explain the Japanese complementizer deletion facts described in Saito (1986). The generalization for null C in Japanese is that C may be null when CPs occur in canonical position (16), but scrambled CPs must have an overt complementizer (17):

(16) John-ga [$_{CP}$ Koobe-ni iku (te)] yuuta.
John-NOM [$_{CP}$ Kobe-to go (that)] said.
"John said that he was going to Kobe." (Canonical position)

(17) [$_{CP}$ Koobe-ni iku *(te)] John-ga yuuta.
[$_{CP}$ Koobe-to go (that)] John-NOM said
"John said that he was going to Kobe." (Scrambled CP)

In (17), scrambling mirrors extraposition in English in that both (a) involve an *ex situ* CP, and (b) said CP must be headed by an overt complementizer.

2.4 McFadden and Sundaresan (2018)

An (2007) reaches a satisfactory explanation for obligatory overtness at the edge of displaced constituents, but its scope does not extend to cases of syntactically conditioned overtness at the edge of constituents that remain *in situ*. For the present study of locative PPs, though, *in situ* constituents comprise many cases of constituents whose edge must be overt in certain syntactic configurations. Take for example the following minimal pair, repeated from (1a, 1d):

(18) I am [$_{PlaceP}$ near$_{Place}$ [$_{KP}$ (to)$_{K}$ the store].

(19) Near$_{Place}$ though I am [$_{PlaceP}$ ~~near~~ [$_{KP}$ *(to)$_{K}$ the store]

Although these two sentences indeed differ in terms of the adjacency of the heads Place and K, they do not appear to differ in terms of whether or not

KP remains in situ. In order to account for this sort of contrast, then, we need a theory of obligatorily overt phrase edges at prosody-syntax interface that offers a way to account for empty edge effects in both *in situ* and *ex situ* constituents. This is precisely what McFadden and Sundaresan (2018) achieve with their extension of the IPEG to account for the EPP. Their analysis in a nutshell says that there are two ways a given constituent XP may ultimately correspond to an intonational phrase: (i) because XP is in a non-canonical position, as in the cases analyzed already by An (2007), or (ii) because XP corresponds to the spellout domain of a particular phase head and thus is one of the starting units on which the prosodic hierarchy is built. McFadden and Sundaresan (2018) use (ii) to account for EPP effects (obligatory overtness at the TP edge), but I will show in the next section that their analysis can also account for the KP spellout facts from section 2 with the help of some basic observations about prosodic (re)organization. First, though, let's walk through how McFadden and Sundaresan analyze the EPP through the lens of the IPEG.

2.4.1 Deriving the EPP from the IPEG

Following standard phase theory Chomsky (2001), McFadden and Sundaresan assume that the spellout domain of a phase corresponds to the complement of the relevant phase head. They furthermore posit that spellout domains correspond by default to intonational phrases, reasoning that 'as the chunk of structure shipped from the narrow syntax to the interfaces, it is reasonable to think that they [spellout domains/complements of phase heads] will function as a starting point for building prosodic structure.'

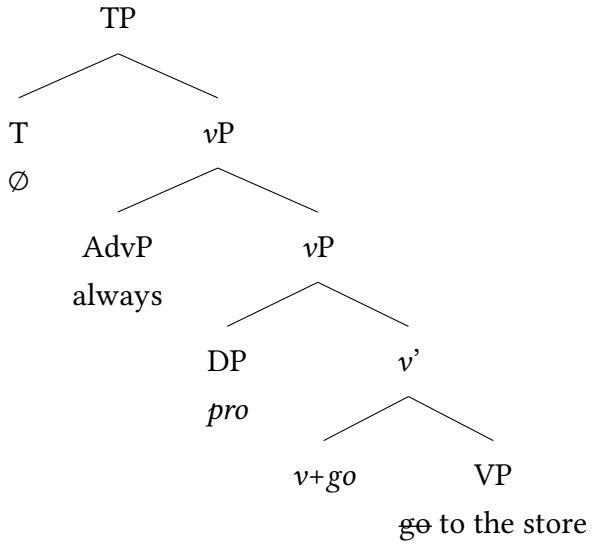
For the CP phase, then, TPs will be subject to the IPEG since TP is the complement of the phase head C. Applying the IPEG to TP gives us the obligatory overtness of some element at the edge of TP, which essentially captures the requirement for overt subjects in many languages (the EPP). Languages that do not obey the EPP may check the IPEG via other overt material at the edge, such as V-to-T movement. We will now see how this applies in two different languages, English and Spanish.

(20) {I/**pro*} always go to the store. (English)

(21) {Yo/*pro*} voy siempre al mercado. (Spanish)

Beginning with English, we see that a derivation for this sentence with *pro* rather than an overt subject results in an empty TP edge, since nothing overt is in T or Spec,T[2]:

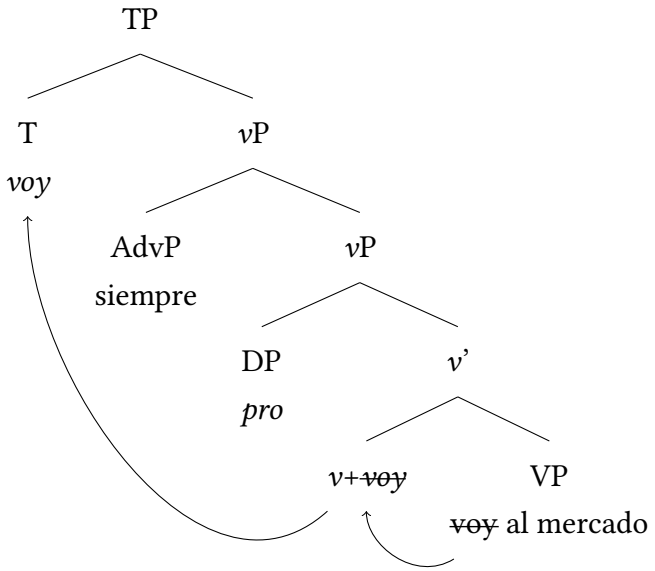
(22)



In Spanish though, which has V-to-T movement, there is always something overt in T, thereby checking the IPEG:

[2]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 "ιP extension" in which movement out of an ιP into a constituent containing it, YP, results in YP becoming the new Intonational Phrase. Assuming a more complex clause structure for finite clauses than for non-finite clauses (Wurmbrand 2001, McFadden 2014), M&S posit that the constituent that maps to an I-Phrase for finite clauses is FinP, which crucially at least one projection more than the more reduced TP structure of non-finite clauses. Since auxiliaries/modals reside in T, not Fin, they are too low to check the IPEG. In infinitival clauses which have nothing left of TP in the same clause (thus I-Phrase = TP), though, overt *to* is enough to license a null subject.

(23)



To recap, the contrast between English and Spanish is explained as follows: In both languages, C is a phase head, and its complement TP is the corresponding spellout domain of the phase. Under McFadden & Sundaresan's analysis of intonational phrases, this means that TP corresponds to an *ι*P and is obligatorily subject to the IPEG. The IPEG says that the edge of the *ι*P cannot be empty, so we check for both languages if the TP edge has any overt material. In Spanish, the answer is yes: we have overt material in T as a result of V-to-T movement. It doesn't matter that Spec,T is empty in Spanish because we already have at least one overt element in the edge. However, both Spec,T and T are absent if we have a null subject in English, resulting in an illicit sentence.

3 The IPEG in the prepositional/KP domain

An (2007)'s explanation of spellout in terms of the IPEG is limited to cases of constituents in noncanonical positions, and we already saw in examples like (1d) that syntactically-conditioned KP spellout is found both in *ex situ* and *in situ* KPs. In order to use the IPEG to account for KP spellout, then, we need to use McFadden and Sundaresan's account of the IPEG in terms of phasal spellout domains since this approach can handle *in situ* empty edge effects. In this section I will argue that Place heads like *near*, *outside*, *etc.*

and their crosslinguistic equivalents are phase heads. Accordingly, I argue that KPs like "to the store" in "near **to the store**" are subject by default to the IPEG under McFadden and Sundaresan's view, since these KPs are the complements of Place and thus correspond to phasal spellout domains. If this is the case, then the obligatory spellout of K heads like *to*, *of* and their crosslinguistic equivalents (as seen in section 2) is predicted as a result of these elements' position at the edge of a prosodic domain.

For concreteness, we will assume this prosodic domain is not an I-Phrase, which is generally taken to correspond to entire (esp. root) clauses (Nespor and Vogel 1986, Selkirk 1986) but rather a Phonological Phrase (henceforth **P-Phrase**), also known as a Major Phrase, Intermediate Phrase, or Φ. Regardless, the exact level of the prosodic domain that KPs map to is not the crucial point here: the important thing is that KPs, due to their status as spellout domains, map to a natural prosodic boundary. Following Kratzer and Selkirk (2007), let's assume that "The highest phrase within the spellout domain of a phase corresponds to a prosodic major phrase in phonological representation" (K&S)", mirroring McFadden and Sundaresan (2018)'s position that TP maps to an intonational phrase because of its status as a spellout domain for C. For the Place^{o} phase head, the spellout domain is instead KP. In this KP spellout domain, the highest phrase is KP itself, resulting in KPs being obligatorily parsed in the phonology as a P-Phrase[3]. Furthermore, I assume that deviations from this mapping result in illicit PF representations, just as An (2007) and McFadden and Sundaresan (2018) assume for Intonational Phrases. This means that just as obligatory I-Phrase boundaries ought to coincide with the boundaries of the syntactic constituents they are built from, obligatory P-Phrase boundaries ought to coincide with the boundaries of the syntactic constituents they are built from (in our case, KPs).

A terminological note before moving on: the *IP* in IPEG stands for 'into-

[3]The word *obligatory* is a bit misleading here, as we will see later that there are many cases where KP is absorbed into a larger prosodic domain and fails to independently constitute a prosodic constituent. We will return to this point when discussing prosodic restructuring in section 5. Looking ahead, I will argue that all the data from section 2 in which K is obligatorily spelled out constitute cases in which prosodic restructuring is blocked, thereby forcing KP to be parsed as a P-phrase. The crucial point is that all the cases of obligatory K spellout treated in this paper ultimately concern KPs which are indeed obligatorily parsed as P-Phrases, so we can extend An's reasoning from (14) without trouble.

national phrase', but we want to use essentially this exact constraint in other domains as well. From now on, I will refer to what I call the GPEG, which is just a generalized version of the IPEG:

(24) **The Generalized** (Prosodic) **Phrase Edge Generalization** (**GPEG**): The edge of an prosodic constituent cannot be empty (where the notion of edge encompasses the specifier and the head of the relevant syntactic constituent that maps to the prosodic constituent).

3.1 Evidence for a PlaceP phase

To use McFadden and Sundaresan's phase-based analysis of the IPEG/GPEG, we first need to determine where exactly a phase head lies in the prepositional domain, if one exists there at all. I argue that *inside*, *near* and other Place heads constitute phase heads. The phasal status of Place in turn means that the complement of Place, namely KP, corresponds to an intonational phrase and by default is subject to the GPEG. But before getting into the implications of this, I proceed with several diagnostics regarding the phasehood of PlaceP.

3.1.1 Binding domains

One standard diagnostic for phasehood of a given XP is whether XP can constitute its own binding domain (Citko 2014). Locative prepositional phrases involving Place appear to license pronouns that would otherwise be subject to Principle B were they not part of their own binding domain:

(25) Daniel$_i$ pulled the blanket over$_{Place}$ him$_i$.

(26) Daniel$_i$ saw a gun near$_{Place}$ him$_i$.

(27) Daniel$_i$ has a demon inside$_{Place}$ him$_i$.

(28) Daniel$_i$ drew the book towards$_{Place}$ him$_i$

Compare this to similar sentences in simple non-locative PPs, where a Principle B violation is observed:

(29) *Daniel$_i$ talked with him$_i$.

(30) *Daniel$_i$ sent flowers to him$_i$.

(31) *Daniel$_i$ is afraid of him$_i$.

(32) *Daniel$_i$ stole from him$_i$.

This suggests PlaceP to be a binding domain, support phasehood of PlaceP.

3.1.2 Ellipsis

One PF-oriented diagnostic for phasehood is whether the complement of the hypothesized phase head can be elided (Citko 2014). I argue that cases like (33–34) constitute ellipsis of the complement of Place (KP), supporting the phasehood of PlaceP:

(33) I live sort of near$_{Place}$ [$_{KP}$ to the store], but Sarah lives really near ~~to the store~~.

(34) I'm pretty far outside$_{Place}$ [$_{KP}$ of the building], but Sarah is only a little bit outside ~~of the building~~.

However, to show that these are truly cases of ellipsis and not pronominal locatives or locatives with null complement anaphora, we will use two diagnostics that demonstrate there is in fact an ellided complement with its own syntactic structure: the availability of sloppy readings under ellipsis, and the possibility of inverse scope (implicating QR out of the elided material).

Sloppy readings

(35) Daniel$_i$ lives really near$_{Place}$ [$_{KP}$ to his$_i$ church, but John$_j$ would never live that near ~~to his$_{i/j}$ church~~.]

(36) Daniel$_i$ always has to wait really far outside$_{Place}$ of his$_i$ parents house on Christmas morning before he can go in, but John$_j$ would never have to wait so far outside [$_{KP}$ ~~of his$_{i/j}$ parents house~~].

The fact that the pronoun in the elided material can refer to either Daniel or John shows that both strict and sloppy identity is possible, a characteristic property of ellipsis.

Inverse scope A second diagnostic is whether a quantifier in the ellided material can scope over a quantifier in the non-ellided material. I show this is the case:

(37) 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. (✓∃∀, ✓∀∃)

In (37), two readings are possible. First, the surface scope reading: there is a nurse, and that one nurse came near every COVID patient. Second, the inverse scope reading: For every COVID patient, there was a nurse who came near that COVID patient (potentially multiple nurses). The fact that the inverse scope reading is available suggests that QR has taken place out of the elided material, which is only possible if that material has its own internal structure.

3.1.3 Phasehood: recap

We've seen via ellipsis and binding that Place behaves like a phase head according to standard phase diagnostics (Citko 2014). Following McFadden and Sundaresan (2018)'s logic, this means that the complement of the phase head Place, namely KP, corresponds to an intonational phrase by default.

Let's consider what would be the predicted empirical correlate of a PlaceP phase under McFadden and Sundaresan's analysis. In section 4.1, I argued that Place is a phase head, which in turn means that its complement is a spellout domain. Since KP is the complement of Place, it is a spellout domain and thus an intonational phrase by default. This in turn means that KP is subject to the GPEG; that is, KP must have overt material in its edge. Notice, though, that this is far too strong of a generalization: we saw in section 2 that KPs in Italian, Spanish, Japanese, Kannada, Tamil and English may have empty edges whenever they are immediately adjacent to an overt Place head. This apparent undergeneration problem will be given a phonological solution below.

3.2 After syntax

In this section I will address what happens in the phonology after the syntactic derivation converges and the resulting tree is sent off to PF. The first point to be addressed is the potential modification/reconstruction of the pre-existing prosodic boundaries established during each Phase Transfer such that a given KP is or isn't ultimately parsed as a P-Phrase in the phonology. After this, I use novel Iambic Reversal (IR) data as phonological evidence for a prosodic boundary occurring immediately before certain KP constituents.

3.2.1 'Absorbing' KP

As previously noted, if KP is the complement of a phase head (Place) and thus corresponds to an *ι*P by default, then our default expectation should be obligatory overtness of some material in the edge of KP. But then what about all the cases where K is optionally covert, as shown in section 2.1 in all cases where Place° and K° are adjacent to each other? The answer is that complements of phase heads/spellout domains merely provide the starting point of how intonational phrases are parsed from the output of the narrow syntax. Spellout determines the *default* classification of a given syntactic constituent as a P/I-Phrase, but either other prosodic or syntactic factors may intervene such that (a) a potential P/I-Phrase is not parsed as one, or (b) a constituent that does not initially map to a P/I-Phrase becomes one (e.g. CPs [which are *not* default spellout domains] that end up in non-canonical positions, as in An (2007)).

McFadden and Sundaresan give embedded TPs as an example of (a): in a number of languages (e.g. Czech, Hebrew, Brazilian Portuguese and Old French, per Kučerová (2014)), there are cases where matrix TPs must have an overt subject at the left edge, but embedded TPs may optionally have covert subjects. Their idea is that when a potential Intonational Phrase is embedded within a larger *ι*P, the smaller one may be parsed into the larger one, creating a single large Intonational Phrase with only one edge (the specifier and head of the matrix clause in this case). We can see this via an example from Old French (Kučerová 2014):

(38) [$_{CP}$ C [$_{TP}$ *(Je) m'en aille en France.]].
[$_{CP}$ C [$_{TP}$ *(I) go.1SG to France]]
Intended (approximation): "I leave for France." (unattested with null subject)

(39) ainz [$_{CP}$ que [$_{TP}$ m'en aille en France]
before [$_{CP}$ that [$_{TP}$ go.1SG to France].
"before I leave for France"

The matrix/embedded *pro*-drop contrast can be explained if an intonational phrase can be 'absorbed' into a larger one as in the following:

(40) (ι xxx (ι yyy)) –> (ιP xxxyyy)[4]

In both (38) and the embedded clause in (39), TP is a spellout domain and corresponds by default to an ιP. However, the embedded TP in (39) can escape its status as an I-Phrase if it is parsed into a larger prosodic phrase, and this is possible because it indeed has overt material to its left[5] to be absorbed into. On the other hand, the TP in (38) has no such way to escape its classification as an I-Phrase, having no material to its left.

This change in how a given clause is parsed into intonational phrases is known in the prosody literature as prosodic restructuring (not to be confused with syntactic clausal restructuring), and may be triggered by a number of different factors including focus assignment, resyllabification, and movement (Nespor & Vogel 1986).

I posit that prosodic reconstruction optionally results in KP-derived P-Phrases being 'absorbed' into the larger prosodic domain they're embedded in, on par with the embedded TP cases examined above. We now proceed to a sample derivation of the sentence "Mei is near (to) the store" in which the K head 'to' is optionally covert.

(41) a. First, [$_{DP}$ the store] is merged as the complement of to_K, yielding [$_{KP}$ to the store].

[4]If you adopt the Strict Layer Hypothesis [Nespor and Vogel (1986)], then self-similar embedding of an I-Phrase in another I-Phrase is not allowed. For the sake of the examples discussed in this paper, though, the embedded phonological constituent in question is undoubtedly phonologically less prominent than a root clause, so the labels of the prosodic constituents are unlikely to be the same.

[5]Whether the edge is on the left or right isn't particularly important and varies by language; in English, it just happens that left side is the prosodically active side Richards (2016).

b. KP is merged as the complement of $near_{Place}$, yielding [$_{PlaceP}$ near the store]

c. The complement of $near_{Place}$ is sent to Transfer, where it is flagged as a future P-Phrase in the phonology[6].

d. ...the rest of the clause is built, up to TP... (omitted for space)

e. TP is merged as the complement of declarative C, yielding [CP C_{decl} Mei is near (to) the store].

f. The complement of C_{decl}, namely [$_{TP}$ Mei is near (to) the store] is sent to Transfer, where it is flagged as a future I-Phrase in the phonology.

g. The syntactic derivation is done and the entire clause is converted into the following phonological object [note the retention of syntactic information!]:
[$_{CP}$ (ˌmeɪ ɪz [$_{PlaceP}$ nɪr ($_{\phi}$tə ðə stɔr))]

h. (Optional)[7] This phonological object undergoes prosodic restructuring such that the P-Phrase ($_{\phi}$to the store) is parsed into the I-Phrase containing it, yielding simply
(ˌmeɪ ɪz nɪr tə ðə stɔr).

If the optional restructuring in (41h) takes place, then *to the house* is not obligatorily subject to the GPEG and thus the K head *to* may be left null. However, this doesn't appear to be an option for sentences like (42a–42b), repeated from (1c–1d), in which K must be overt:

(42) **English**

a. How **near**$_{Place^{\circ}}$ are you ***(to**$)_{K^{\circ}}$ the store? *nonadjacent*

[6]When I refer to a given spellout domain undergoing Spellout or Transfer, I assume that Transfer retains all syntactic information from the phase domain at the interfaces and does not modify or destroy the final product of the narrow syntax—it can only add (e.g. phonological, semantic) information to the representation. Only when the whole clause or utterance is linearized and converted into a phonological object at the end of the derivation does reconstruction occur; this contrasts with a back–and–forth approach where syntactic information is destroyed and syntactic outputs are converted into phonological objects at each Transfer.

[7]There does not appear to be a consensus on the exact nature of this optionality, but it appears to depend on a variety of phonological, lexical, sociolinguistic, and other factors (Barrie 2023).

b. **Near**$_{Place^\circ}$ though I am *(**to**)$_{K^\circ}$ the store, I hardly go. *nonadjacent*

What sets these sentences apart from sentences like *I'm near (to) the house* is that the KP is non-adjacent to the Place head that selects for it. Since this paper has built an analysis of K spellout that crucially depends on whether KP maps onto an independent P-Phrase, we need a way relate the **non-adjacency** condition to the conditions on prosodic restructuring. Fortunately, Richards (2016)'s notion of Selectional Contiguity (a subcase of Generalized Contiguity) does exactly this:

(43) **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 (44).

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

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 maps to its own intonational or phonological phrase:

(45) Contiguity–obeying representation of (44) (from Richards (2016)):
($_\iota$I think **that** ($_\phi$Mary **will** win the race))

Selectional Contiguity only assesses a single prosodic domain at a time. This means that despite global non-adjacency of ***that*** and ***will*** in (45), 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:

(46) * ($_\iota$**Is**$_T$ now **John**$_{DP}$ happy) ?
cf. ✓($_\iota$Now John is happy.)

The sentence in (46) is illicit because ***is*** and ***John*** are in (i) a selectional relationship with each other, (ii) co-occur within a single prosodic domain, and (iii) are non-adjacent.

When applied to our KP data, Selectional Contiguity offers a principled way 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 provided by the syntax, the initial prosodic grouping is as in (47):

(47) *(ι How **near** am I (ϕ [$_{KP}$ **ø**$_{K}$ **the store**]))

This default prosodic grouping is incompatible with null K, because that would leave us with an empty ϕ-phrase edge. At this point, we have the option of restructuring such that ([$_{KP}$ ø the store]) is absorbed into the larger I-Phrase. Doing so would result in the following:

(48) *(ι How **near** am I [$_{KP}$ ∅$_{K}$ **the store**])

Notice, though, that the representation in (48) is illicit due to a **contiguity violation** now: there is one prosodic single domain containing non-adjacent elements that bear a selectional relationship to each other, namely ***near*** and KP. The representation in (48) is thus not a viable one, leaving us with the default parse (repeated here) as the only option:

(49) (ι How **near** am I (ϕ [$_{KP}$ *∅$_{K}$ **the store**]))

This gives us the desired result: KP must be its own P-Phrase and is thus subject to the GPEG, forcing spellout of **to**$_{K}$. Contrast this with what happens when we apply restructuring to a sentence like "I am near (to) the store":

(50) Default parse: (ι I am **near** (ϕ [$_{KP}$ **(to) the store**]))

(51) Restructured parse: (ι I am **near** [$_{KP}$ **(to) the store**])

Here the restructured parse doesn't incur a Contiguity violation because *near* and KP are indeed adjacent. The P-Phrase corresponding to KP may thus be freely absorbed into the rest of the clause, preventing application of the GPEG at the KP edge.

To recap: we answered the question of why null K is ever allowed by making use of prosodic restructuring. By optionally allowing KP's prosodic material not to be parsed as an independent P-Phrase, we free KP from the

GPEG. Then, to explain why non-adjacency of Place and KP forces the GPEG to apply, we turned to Richards (2016)'s notion of Selectional Contiguity: Place and KP can't be in the same prosodic domain or they'll violate Selectional Contiguity due to their non-adjacency.

3.2.2 Iambic reversal

So far we have delineated prosodic boundaries in a wholly syntax-driven way. If these boundaries are phonologically real, we should also be able to confirm their existence via *phonological* diagnostics as well. One way to check this would be to take a phonological process that is domain-bound to a single P-Phrase and test whether it applies across the KP boundary. One phonological phenomenon argued to apply only within a single P-Phrase is Iambic Reversal (IR). IR involves the modification of one word's stress pattern due to the stress pattern of an adjacent word. One instance in which IR occurs is when leaving the original stress patterns intact would result in a stress clash (two adjacent stressed sylalbles) within a single P-Phrase. This is illustrated in the following example, adapted from Barrie (2023), citing Nespor and Vogel (1986):

(52) 'fifteen' [fɪf.ˈtin] *Underlying stress pattern of 'fifteen'*

(53) 'soldiers' [ˈsoʊl.ʤərz] *Underlying stress pattern of 'soldiers'*

(54) **Iambic reversal**: [$_{NP}$ fifteen soldiers] ($_{\phi}$ˈfɪf.tin.ˈsoʊl.ʤərz)

(55) **No iambic reversal**: ($_{\iota}$When I was [fɪf.ˈtin]) ($_{\iota}$[ˈsoʊl.ʤərz] came to my house.')

For the sake of the present study we will be looking at IR as it applies to two polysyllabic Place heads, *inside* and *outside*. The underlying stress assignment for both of these (when used as spatial prepositions/Place heads) is on the final syllable, i.e. [in.ˈsaɪd] and [aʊtˈsaɪd]. However, IR may optionally take place when these Place heads occur immediately before a noun:

(56) 'inside portion' ($_{\phi}$ɪnˈsaɪd ˈpɔrʃən) OR ($_{\phi}$ˈɪnsaɪd ˈpɔrʃən) (i.e. the portion that lies inside)

(57) 'outside portion' ($_{\phi}$aʊtˈsaɪd ˈpɔrʃən) OR ($_{\phi}$ˈaʊtsaɪd ˈpɔrʃən) (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[8]

Having seen IR successfully apply to $inside_{Place}$, we can test whether it may also apply across a KP boundary, as in

(58) I love to walk around outside/inside$_{Place}$ [$_{KP}$ $\emptyset_K$ castles].

IR is domain-bound, and 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 can't take place. What we find is that *out/inside* is only able retain final stress despite the adjacent initial stress of *castle*:

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

This suggests that there is a prosodic boundary before KP, yielding the following:

(60) I love to go for walks inside ($_{\phi}$ {of/$\emptyset$}$_K$ castles).

There's a small problem here, which is that I already argued that optional P-Phrase restructuring/absorption is what licenses null K in sentences like (59), and since this very sentence has a null K then we shouldn't have a P-Phrase boundary. In reality, this is only an issue if we assume stress assignment takes place late in the derivation after prosodic restructuring is done. There is good reason to believe, though, that English stress assignment happens early enough that this isn't a concern: López (2010) carefully compares the factors that contribute to stress assignment in English and Catalan and concludes that stress assignment in English takes place "[before] computation of prosodic trees and linearization", since English stress is highly sensitive to syntactic information.

In short: English spatial prepositions like $inside_{Place}$ do not undergo Iambic Reversal even under threat of a stress clash with the following material. This

[8]To my ears, 'inside portion'/'outside portion' sound a bit more natural with IR than without. However, preservation of the underlying stress [ɪn'saɪd 'pɔrʃən] is not illicit and in careful or slow speech sounds fine. This differs starkly from bona fide compounds like *ínside jóke* which can only take initial stress on *inside*.

suggests a prosodic boundary between Place and KP is present during at least some part of the derivation (i.e. whenever stress is assigned), which aligns with the boundary I've argued for in the rest of this paper.

3.3 Interim summary

So far I have argued that the alternation between optionally and obligatorily overt K shown in section 2.1 follows from An (2007) Intonational Phrase Edge Generalization via McFadden and Sundaresan (2018) positional route to becoming an *ι*P. Temporarily taking phasehood of PlaceP for granted, Place being a phase head means that its complement KP corresponds to an intonational phrase by the categorial route. This in turn requires KP to have an overtly filled edge in the default case, which would result in the overtness of K. However, as we have seen, K is optionally left covert in many cases, which I argued is due to absorption of the potential P-Phrase corresponding to KP into the rest of the clause. K's obligatory overtness comes about when KP is non-adjacent to the Place head that selects for it, which blocks P-Phrase absorprtion due to Selectional Contiguity.

4 Comparison with CP spellout

We now return to the difference between the CP empty edge effects discussed by An (2007) and the KP empty edge effects discussed in the current study. As noted previously, a major difference between the two studies is that An's analysis is limited to cases of **non-canonically located** CPs while many of the cases I discuss involve *in situ* KPs that are nonetheless subject to empty edge effects. In this section, I will present further empirical support for analyzing both the CP and KP cases under the GPEG (as it [or rather the IPEG] is configured in McFadden and Sundaresan (2018)).

Now we return to the core KP–spellout data of this paper and see how it differs minimally from An (2007)'s CP-spellout data. The following KP data differ along two axes: (i) whether the Place head and its KP complement are adjacent to each other, and (ii) whether KP has moved from its base-merged position.

(61) **KP spellout**

a. I am near$_{Place}$ [$_{KP}$ (to)$_{K}$ the store]

b. How **near**$_{Place^{\circ}}$ are you { **to** / *$\emptyset$ }$_{K^{\circ}}$ the store?

c. I got really near yesterday *(to) that new statue on 3rd Ave.

In (61a), both the place head *near* and its KP complement remain *in situ* and adjacent to each other; K maybe optionally left covert.

In (61b), KP remains *in situ* while *near*$_{Place}$ is displaced leading to non-adjacency; K is obligatorily overt.

In (61c), KP is displaced via extraposition while *near* remains *in situ*; K is obligatorily overt.

These data show that what matters for the sake of K spellout is not whether KP remains *in situ*, but rather whether KP is immediately adjacent to the Place head that selects for it. This is made clear by the fact that all cases of non-adjacency (61b, 61c) result in obligatory spellout of K regardless of whether or not KP has been moved from its base position.

By contrast, C spellout is conditioned solely by movement of CP itself. Contrast the CP extraposition in (63) with the novel piece of data I present in (64), in which CP remains *in situ* while the (in this case adjectival[9]) head that selects for it is displaced. In the former case, the moved CP must be headed by an overt complementizer. In the latter case, the *in situ* CP can be headed by a null complementizer despite non-adjacency between CP and the element that selects for it.

[9] A potential objection here is that this data involves CPs embedded under adjectives and therefore constitutes a different phenomenon than the CPs previously discussed in this paper, which are all embedded under verbs. This modification was necessary because English doesn't allow verb fronting, but adjectives are easily displaced (e.g. via wh-movement as in the examples shown above). Fortunately, though, spellout of C in CPs embedded under adjectives seems to parallel the verb-embedded cases exactly. Extraposition (2), A-movement to Spec,TP (3), right node raising (4), gapping (5) all lead to an otherwise optionally covert C becoming obligatorily overt, just as in the verbal cases we've seen previously.

(1) It is obvious (that) the teacher is lying. (CP remains *in situ*)

(2) It was obvious to me yesterday [$_{CP}$ *(that) the teacher was lying]. (Extraposition)

(3) [$_{CP}$ *(That) the teacher was lying yesterday] was obvious. (A-movement)

(4) It was obvious and disappointing [$_{CP}$ *(that) the teacher was lying]. (RNR)

(5) I found it obvious (that) I was telling the truth, and Bill, [$_{CP}$ *(that) the teacher was lying]. (Gapping)

(62) It is obvious (that) the teacher was lying. (Both CP and selecting adjective in situ)

(63) I found it obvious yesterday [$_{CP}$ *(that) the teacher was lying]. (CP displaced)

(64) How obvious is it ~~is obvious~~ [$_{CP}$ (that) the teacher is lying]. (Adj. displaced, CP *in situ*)

The crucial minimal pair for the C/K contrast is highlighted below for convenience:

(65) How obvious is it [$_{CP}$ { that / ∅ } the teacher is lying]?

(66) How **near**$_{Place^{\circ}}$ are you { [$_{KP}$ **to** / *∅ }$_{K^{\circ}}$ the store]?

The distinction is as follows: mere non-adjacency with the selecting head is enough to induce an empty edge effect in KP, even if KP is *in situ*. For CP, an *in situ* CP does not suffer any empty edge effect even if its selecting head is not adjacent.

This non-parallel between the CP and KP cases strengthens the case for a McFadden and Sundaresan (2018)–style explanation in terms of phasal spellout domains. If KP/CP empty edge effects were exclusively the result of a KP/CP corresponding to a spellout domain, *or* exclusively the result of a KP/CP occuring in a non-canonical position, KP and CP should have identical behaviors. But in an account like M&F's in which there are two distinct routes to I-Phrase-hood, CP and KP are subject to different predictions regarding empty edge effects. Since CP is itself a phase but *not* a spellout domain (its complement TP is), CP is not subject to the GPEG by default. CP only becomes subject to the GPEG if it is forced into I-Phrase-hood when displaced from the rest of the clause. However, due to its status as the complement of the phase head Place (see section 4), KP corresponds to a phasal spellout domain and is thus always a potential candidate for I-Phrase-hood. As a result, we predict KP to be constrained by empty edge effects in even more contexts than for CP. This prediction is indeed borne out by the fact that CP is only constrained the GPEG when CP itself has moved, while KP is constrained by the GPEG not only when KP has been displaced, but also when KP stays in its base position. In fact, KP is potentially **always** subject to the GPEG but only escapes in cases where prosodic restructuring is

possible (namely when KP is adjacent to Place, per Selectional Contiguity (Richards 2016; see (72)).

I propose that the underlying reason for the asymmetry between null K and null C is that null C is subject to the GPEG via the *positional* route only, while null K is subject to the GPEG via the *categorial* route. That is, null C is not ruled out because of the position of CP with respect to a phase head, but rather ruled out when CP shows up in a non-canonical position that forces it to be parsed as an GPEG for non-syntactic reasons. Meanwhile, null K is subject to the GPEG because of its position in the edge of the complement of the phase head Place. This difference falls out from differences in where the phase heads lie for CP and KP. In a CP, C itself is the phase head, so in canonical cases where CP is *in situ* the constituent subject to GPEG via the positional route is a TP (CP's spellout domain), not the whole CP. KPs, however, correspond to a spellout domain by default given their position as the complement of a phase head.

5 Extending the scope

In this section I will discuss a possible extension of my proposed constraint on locative K deletion to other (i.e. non-locative) domains. I will suggest that all cases of null K are subject to the same constraint, namely: if K occurs at the edge of a spellout domain and is not directly adjacent to the head that selects for KP, K must be obligatorily overt. In showing that this constraint applies widely, I support an analysis of the GPEG (An 2007, McFadden and Sundaresan 2018) as a general, non–domain-specific constraint at the syntax-PF interface.

5.1 KP complements of little v

English generally doesn't allow verbs and their complements to be non-adjacent:

(67) *I heard quickly the objections.

(68) *I endorse completely the choices you've made.

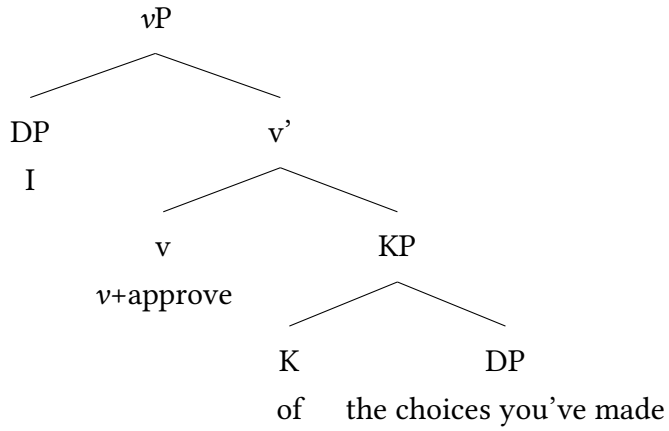
Note, though, that the above example involves a simple DP complement with no case marking (e.g. with a case-like preposition). However, many verbs select for complements that are case-marked with a case-like preposition such as *at*, *to*, *of*. When this is the case, the KP complement of the verb can be stranded:

(69) I listened quickly [$_{KP}$ to$_{K}$ the objection].

(70) I approve completely [$_{KP}$ of$_{K}$ the choices you've made].

I propose that the GPEG also underlies this asymmetry, but the relevant intonational phrase edge corresponds to the spellout domain of the *v*P edge rather than PlaceP/PP. That is, I propose that constituents like "to the objection" and "of the choices you've made" are the complements of little *v*. In particular, I posit that "to" and "of" are analagous to little *v*, except that they introduce the internal argument rather than the external argument. I thus assume a fully neo-Davidsonian event structure where both the external and internal argument are severed from the verb (see Elliott (2020), Ahn (2022) for recent arguments in favor of this). A proposed structure is given below:

(71)



Assuming that *v*P constitutes a phase (Chomsky 2001, Citko 2014), then KP corresponds to a spellout domain and is subject to the GPEG by default. However, in canonical cases where the verbal complex is immediately adjacent to the internal argument K is not obligatory because P-Phrase restructuring may take place such that the verb and its object are a single phonological phrase. Thus, in ordinary verb phrases we typically *don't* see an overt K introducing the internal argument (e.g. there is no K in "I approved the

document") unless a null K is blocked for some other reason (e.g. where presence or absence of an overt K head changes the meaning, as in 'approve (of)'). However, given Selectional Contiguity (given in (43), repeated in (72) below), non-adjacency will prevent us from dissolving the P-Phrase via prosodic restructuring.

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

The insertion of an adverbial before the internal argument thus forces KP to be parsed as its own P-Phrase to avoid a Selectional Contiguity violation, which means that it must have a non-empty edge. In the cases where the verb lexically selects for complement with overt K, as in *approve (of)* or *listen (to)*, there is no problem. However, when the verb selects for a bare internal argument, non-adjacency results in a KP with an empty edge:

(73) *(${}_{\iota}$I **heard** quickly (${}_{\phi}$ $\emptyset_K$ **their objections**)).

So far we have derived the fact that verb fronting is only possible in English when a verb selects for a KP complement whose K is an overt preposition. In the majority of cases of verbs that select for null K–headed KPs, verb fronting creates a non-adjacency that partitions the VP into two distinct P-Phrases. The rightmost P-Phrase corresponding to KP violates the GPEG, creating an illicit PF representation. This is contrasted with the non V-fronting cases below:

(74) Default prosodic structure of VPs with V *in situ* **before restructuring** (selectionally related elements bolded):
   a. ✓(${}_{\iota}$ I **stared**$_V$ (${}_{\phi}$ [$_{KP}$ **at her**]))
   b. * (${}_{\iota}$ I **saw**$_V$ (${}_{\phi}$ [$_{KP}$ $\emptyset$ **her**])) (empty ϕ edge!)

(75) Prosodic structure of VPs with V *in situ* **after restructuring** (selectionally related elements bolded):
   a. ✓(${}_{\iota}$ I **stared**$_V$ [$_{KP}$ **at her**])
   b. ✓(${}_{\iota}$ I **saw**$_V$ [$_{KP}$ $\emptyset$ **her**]) (no more empty ϕ edge after restructuring)

(76) Default prosodic structure of VPs with fronted V **before restructuring** (selectionally related elements bolded):

a. ✓($_\iota$ I **stared**$_V$ for a long time ($_\phi$ [$_{KP}$ **at her**]))

b. * ($_\iota$ I **saw**$_V$ for a long time ($_\phi$ [$_{KP}$ ∅ **her**])) (empty ϕ edge!)

(77) Prosodic structure of VPs with fronted V before restructuring (selectionally related elements bolded):

a. ✓($_\iota$ I **stared**$_V$ for a long time [$_{KP}$ **at her**])

b. * ($_\iota$ I **saw**$_V$ for a long time [$_{KP}$ ∅ **her**]) (no empty ϕ edge, but Contiguity violated)

5.2 Interaction with affixal morphology

5.2.1 Degree morphology on near

In all of the cases we've seen so far in which KP is nonadjacent to the head selecting for it, the nonadjacency is straightforward: there is overt movement of one of these elements, or there is intervening prosodic in the form of adverbials or appositives. We have not looked at any cases where the intervening material occurs in the form of an affix on the KP-selecting head. However, data I will present from English and Spanish in this section suggest that intervening affixes (of at least some types) appear to result in the ungrammaticality of null K. Note that with English *near*, unaffixed *near* may be followed by other an overt or a null *to*. However, when *near* takes degree affixation, it must be followed by an overt *to*.

(78) I live near (to) the store.

(79) I live nearish *(to) the store.

(80) I live nearer *(to) the store.

(81) I live nearest *(to) the store.

Similarly, in some dialects of Spanish, the equivalent of 'near', *cerca*, may be followed by either an overt or a silent K-preposition (*de*):

(82) Estoy cerca (de) la casa.
am near (of) the house
I'm near (to) the store.

However, testing the possibility of silent *de* when *cerca* has been suffixed yields mixed results:

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

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

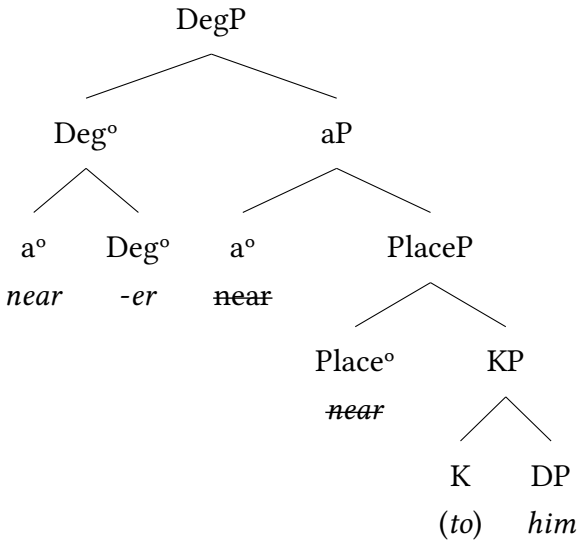
Here we see that diminutive suffixation does not block null *de*, but degree suffixation does (like it does in English).

My explanation for this is as follows: degree inflection involves displacement of the Place head out of the prepositional domain, while diminutivization involves attachment of the diminutive suffix directly at the root, without changing the category of the root it attaches to.

5.2.2 Degree inflection (Matushansky 2013)

My analysis of degree inflection follows Matushansky (2013), who proposes that Deg(ree)° selects for an a(djective)P complement, and the adjective inside aP raises to Deg° in order to receive degree inflection. The problem with these applying Matushansky's analysis to degree-inflected forms like *near* and *cerquísima* is that standard accounts Matushansky's account has Deg select for aP and not PlaceP. I do not wish to analyze *near* as always heading an aP, as *near*-headed phrases obey traditional diagnostics of prepositional phrases, like *right* modification in 'I'm right near the store' (see Ramchand and Svenonius (2002) on the position of *right*). Instead, I suggest that adjectival degree inflection of *near* involves adjectivalization, which I sketch in (85) for *nearer*. My analysis combines a modified version of Punske (2016)'s v°-to-n° head-movement approach to nominalization with Matushansky (2013)'s a°-to-Deg° analysis of degree inflection. The result is that near undergoes successive Place°-a°-Deg° head movement to derive *nearer to him* from *near (to) him*.

(85)



As we can see here, this derivation involves displacement of Place such that it is no longer adjacent to KP. Per Selectional Contiguity, Place and KP may not coexist in the same prosodic domain. Consequently, the following restructuring may not take place:

(86) **(**$_{\iota}$ I live **(**$_{\phi}$ [**near**$_{Place}$-er]$_{Deg}$ [$_{KP}$ **(to) him**])) $\longrightarrow$ * **(**$_{\iota}$I live [**near**$_{Place}$-er]$_{Deg}$ [$_{KP}$**(to) him**]) *Contiguity is violated!*
Selectionally related elements (bold) contained in a single I-Phrase are non-adjacent.

5.2.3 Diminutivization

My analysis of diminutivization will take a similar head-movement approach to word formation as with degree inflection. However, the crucial difference lies with respect to the respective heights of the Deg° and Dim(inutive)°; I argue that Dim° is much lower. Observe that *-it* diminutives productively occur across a wide array of syntactic categories (Fábregas 2017):

(87) *dormir*$_{V}$ 'to sleep' / *dorm-it-ar* 'to nap'

(88) *despacio*$_{Adv}$ 'slow' / *despac-it-o* 'slow; leisurely'

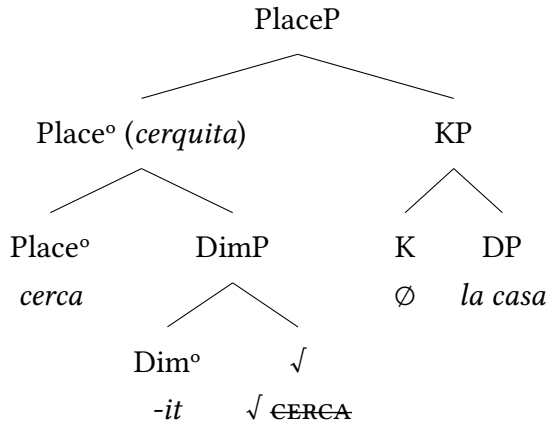
(89) *cerca*$_{Place}$ 'near' / *cerqu-it-a* 'really near'

(90) *gato*$_{N}$ 'cat' / *gat-it-o* 'kitten'

I posit accordingly that Dim° attaches before the categorizing head and does not change the syntactic category of a word (i.e. the resulting word does *not* have the category Dim).

In the case of *cerquita la casa*, this will look like the following:

(91)



Note that we still have Place still immediately dominating KP, so there is no Contiguity violation as in the Deg° examples. As a result, the following prosodic restructuring may take place:

(92) ($_\iota$Estoy cerquita ($_\phi$la casa)) → ($_\iota$Estoy cerquita la casa)
I-am near–DIM the house . I-am near–DIM the house
"I'm near the house."

The end product is licit even with null K: there is no internal P-Phrase boundary and Contiguity permits Place and KP to co-exist within the same domain due to their adjacency.

5.2.4 Nominalizations

A well known fact about nominalizations in many languages is that, at when they involve overt nominal affixation, they require the spellout of a case-like preposition that is not necessary in canonical *v*Ps. Consider the following contrast:

(93) He destroyed the city.

(94) His distruc$_V$-tion$_N$ *(of) the city.

Before diving into an analysis of the contrast, let's first note the striking similarity between the obligatoriness of a K-type preposition when a nominal affix (*-tion*) intervenes between the verb and its complement and the obligatoriness of a K-type preposition when a degree affix intervenes between Place and its complement, illustrated below with the by-now familiar English example:

(95) He's near$_{Place}$ the city.

(96) He's near$_{Place}$-er$_{Deg}$ *(to) the city.

I suggest that this similarity is not coincidental, and that the GPEG underlies both contrasts. This requires two assumptions: **(i)** Nominalizations of the 'destruction of the city' type involve head movement. **(ii)** The KP 'of the city' in 'destruction of the city' corresponds to a spellout domain/is the complement of a phase head (presumably *v*. Regarding (i), the reader is referred to Punske (2016) for arguments in favor of a head movement analysis in which DESTROY undergoes v°-to-n° movement. Regarding (ii), just as in the previous section I assume a fully neo-Davidsonian event structure in which complements of verbal predicates are underlyingly KPs introduced either by null K or an overt preposition (subject to lexical variation); thus, the complement of *v* is KP and KP is a spellout domain.

6 An alternative analysis: Collins (2007)

Collins (2007) focuses on the null/overt preposition alternation with English locative pronouns like *there* and *where* and light nouns like *home*. These are notable because they occur after verbs that typically select for a KP headed by *to*, like *go*, but generally do not occur with *to* or any other K-type preposition (although *where* optionally allows *to*), as in (97-99):

(97) I went (*to) there.

(98) I went (*to) home.

(99) Where did you go (to)?

Contrast this with other typical *go*–complements which obligatorily realize *to*:

(100) Why don't you go *(to) the store?

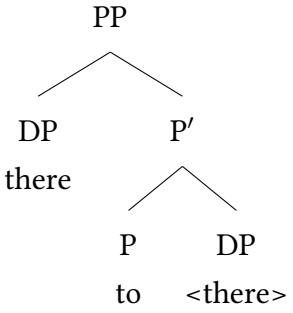
(101) I don't go *(to) church.

Collins' analysis of these data relies on a generalized version of the Doubly-Filled COMP filter:

(102) **Generalized Doubly-Filled COMP**:
(a) Edge(X) [=spec & head of XP] must be phonetically overt (where X = strong phase head).
(b) The condition in (a) applies in a minimal way so that either the head, or the specifier, but not both, are spelled out overtly.

In order to account for the obligatory absence of *to* in (97–99), Collins assumes that PP constitutes a phase, then proposes that locative pronouns like *there* and light nouns like *home* start as the complement of P and then obligatorily move to Spec,PP[10]:

(103)



This movement results in violation of condition (b) in (102), since the edge of PP is filled overtly with both the moved locative and the P head *to*. This results in the obligatory covertness of *to* in (97–97).

However, Collins proposal for movement of locatives to the PP edge only applies to light nouns and locative pronouns like *there*, which have overt evidence of movement in other languages like Dutch. He assumes such movement does *not* take place with other PP complements of verbs like *go*. This means that in a sentence like (100), the preposition is the only thing in the edge of the PP and thus must be spelled out as per condition (a) of (102).

[10]Note: I am labeling *to* as a P in this example following Collins.

6.0.1 Issues with this framework

Collins' proposal to account for the null *to* elegantly captures cases like *home* and *there*, but the configuration of doubly-filled COMP given in (102) suggests that (a) and (b) are equally active constraints on prepositional spellout. However, the data I showed at the beginning of the section suggest an asymmetry. Condition (a), namely that there must be something overt at the edge, appears crosslinguistically robust in that all languages sampled so far seem to require an overt K-type preposition or case marking when nothing else is present at the edge of the locative phrase. Condition (b), namely that the edge be filled overtly with only one element, is implemented by Collins to suggest that *to* is rendered null by the presence of another overt element like *there* at the PP edge. However, as we see in the Italian, Tamil, and English data, this type of generalization is less robust: it does seem to be the case that K-type prepositional heads are often *optionally* null when something else is present at the edge, but they are certainly not obligatorily null. Obligatory overtness of at least one element at the PP edge appears to be a more robust generalization than the economical spellout of only one element at the edge. However, to the extent that obligatory nullness is attested, my analysis offers a way to analyze this as the result of prosodic variation in terms of where and when restructuring is allowed to happen.

7 Conclusions

In this study, I showed that a diverse array of facts regarding the spellout of K heads in different positions and configurations can be analyzed as the consequence of the Generalized Phrase Edge Constraint, a syntax–PF interface constraint in which prosodic domains built off of the narrow syntax's output are forced to have something overt at the edge. I made extensive use of phase theory, showing that edge effects pop up exactly where we expect them at the edges of phase complements. I also provided novel evidence that Richards (2016) Contiguity Theory governs prosodic restructuring such that contiguity–violating representations are ruled out as restructured prosodic domains.

7.1 Some final thoughts on phonology

In the course of this study we've seen numerous times the importance of phonological concepts like P-Phrases and prosodic restructuring. This paper has primarily touched on phonology only via its adjacency to output of the syntax, but further exploration of the phonological consequences of my analysis is needed.

7.1.1 Syntactic variation as phonological variation?

One fruitful vein of the generative syntactic enterprise, particularly in recent years, has been the pursuit of the idea that linguistic variation need not be solely understood in terms of syntactic parameters, but rather that differences in *externalization* underlie said variation in many (or all) cases (Berwick and Chomsky (2011) and many others). Having given a PF/interface–oriented analysis of the distribution of null elements in a variety of domains, we are in a position to further this line of research and explain crosslinguistic variations in null K distribution in terms of prosodic/phonological variation. For example, some dialects of English spoken in Northwest Britain allow null prepositions in contexts where they are banned in American English (Myler 2011, Myler 2013, Biggs 2015, Bailey 2018):

(104) Let's go to the pub. (✓Northwest British English, ✓American English)

(105) Let's go the pub. (✓Northwest British English, * American English)

In both varieties, a directional KP complement headed by overt *to*, i.e. [$_{KP}$ to the pub] is licit. However, only Northwest British English allows [$_{KP}$ ∅ the pub] to be the KP complement. While many syntactic explanations have been pursued (see citations above), another (non–mutually exclusive) possibility is that we're looking at variation in terms of how speakers delineate prosodic boundaries. This has previously been identified as a locus of variation between speakers: Peppé et al. (2000) set out to experimentally investigate whether and how different reflexes of prosody varied systematically among Southern British English speakers. One of the areas where the authors found inter-speaker variation in production and comprehension was in what they called "chunking", or the delineation of prosodic boundaries.

If we extend variation in boundary formation to examples like (104–105) above, we may be able to reach a phonological explanation of the observed variation. One possibility is that American English speakers obligatorily parse locative arguments like "to the store" as distinct P-Phrases, yielding ($_\iota$ Let's go ($_\phi$ to the pub)), while Northwest British English speakers optionally restructure such that *to the pub* is not a P-Phrase, yielding ($_\iota$Let's go (to) the pub), in which null K is possible due to the lack of a P-Phrase edge[11].

More generally, I have referenced a number of PF or interface-oriented constraints in my analysis of null K heads, chief among them Contiguity and the GPEG. Depending on one's preferred theory of phonological variation, different rankings of these constraints or differences in derivational timing may yield distinct outputs in different languages.

7.1.2 The GPEG as a phonological constraint on onsets?

Stanislao Zompì (p.c.) points out that the GPEG as I use it appears to be a phonological constraint saying "prosodic constituents must have onsets". This in turn resembles a domain-general version of the classic Optimality Theoretic (Prince and Smolensky (1993), McCarthy and Prince (1993)) constraint ONSET:

(106) ONSET: A syllable must have an onset.

One can imagine that something like ONSET applies not only to syllables, but also to larger chunks such as prosodic words, phonological phrases, and intonational phrases:

(107) GENERALIZED ONSET: The prosodically active edge of a prosodic domain must be non-empty.

Versions of this have been proposed by Itô and Mester (1999), Kaufman (2010) and others. Kaufman in particular notes that there is a universal ty-

[11] A possible exception to this analysis comes from the Liverpool preposition deletion pattern identified by Biggs (2015) where adjacency between *go* and K is not required to license silent *to* in constructions like *I'm going (to) the store.* If we want to reconcile these data with the present analysis, one possibility is that the complement of directional *to* in Liverpool English obligatorily moves to Spec,KP such that there is always something in the edge.

pological tendency towards domain-initial fortition and formulates a constraint *WEAKSTART, which assigns a violation for each prosodic constituent that begins with a weak element.

We can combine this idea with a syntactically-informed notion of what counts as the beginning of a paritcular prosodic domain via the GPEG, which imports the phase-theoretic notion of 'edge' (= **head** and **specifier** of a spellout domain or syntactic constituent otherwise obligatorily mapping to an I-Phrase or P-Phrase) to prosodic phrasing.

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