

# THE INTERNAL STRUCTURE OF PLACE CLASS PREPOSITIONAL PHRASES IN ENGLISH\*

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## 1. Introduction

English prepositional phrases perform a myriad of functions. Commonly, they convey information about movement and location in the physical world, as seen in (1).

- (1) a. *The cow jumped over the moon.*  
b. *The cow jumped in the field.*

In this paper, I examine the behaviour of phrases headed by seven prepositions that have been posited to form a group called PLACE CLASS<sup>1</sup>, namely, *above*, *behind*, *below*, *beyond*, *in front (of)*, *inside* and *outside*. Although an account of the internal structure for *in front of* has been given, how its universal structure would extend to the other members of the class has not been explicitly detailed. Drawing heavily on recent proposals by Svenonius, I explore the extension of the structure to the entire class, and I demonstrate that what has been suggested to be a null AXIAL PART head is better explained by the conflation of two heads: AXIAL PART and PLACE.

## 2. Prepositions: Recent Proposals

Recent syntactic research on prepositions (e.g., Noonan 2007, Svenonius in press) has focused on teasing out a universal structure of the PP by examining cross-linguistic data. Svenonius (to appear) proposes a fixed hierarchy of functional heads, as shown in (2). This hierarchy permits iteration and/or nesting of elements, and null heads are possible.

- (2)  $p - \text{DEG(REE)} - \text{DEIX(IS)} - \text{PLACE} - \text{AX(IAL)PART} - \text{K} - \text{DP}$   
(Svenonius, to appear:13)

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<sup>1</sup> The term “Place” in the literature means different things to different authors, and to the same author at different times. Except when citing another author, I will use the following terms in this paper:

- PLACE: A syntactic head with properties defined below
- PLACE CLASS: The group of prepositions under study here that are posited to form a class

The prepositional *p* head is analogous to the verbal *v* head (see Svenonius, in press:28). Most prepositions, including those under examination here, occur in the PLACE head. As the complements of PPs are commonly (cross-linguistically) marked for case, the structure includes a CASE head (K) above the DP. The workings of PLACE, AXIAL PART and K, the elements relevant to the discussion in this paper, are covered in detail below.<sup>2</sup>

Svenonius (to appear) proposes that English prepositions form classes. Using syntactic behaviours observed in various prepositions, he classifies English prepositions into PLACE, BOUNDED, EXTENDED, and PARTICLE.<sup>3</sup> His population for each type is given in Figure 1 (Svenonius, to appear:2).

<b>Place</b>	<b>Bounded</b>	<b>Extended</b>	<b>Particle</b>
behind	among	around	up
in front of	between	through	down
inside	next to <sup>4</sup>	across	on
outside	beside	along	off
above	upon	over	in
below	near	under	out
beyond	against	past	away

Figure 1

When looking at the list of the seven prepositions that make up the PLACE CLASS, one seemingly exceptional entry is *in front of*, which, on the surface, looks less like a canonical preposition than a phrasal locative expression, possibly with two prepositions: *in* and *of*. Svenonius (2006) tackles the question of the nature of *in front of* and similar expressions, such as *on top of*, and demonstrates that the elements in these expressions act as a unit. Though *of* is often treated as a preposition in its own right, Svenonius describes it instead as a case marker.<sup>5</sup> Svenonius argues that a reanalysis has taken place in expressions like *in front*. Historically, he argues, meaning in these phrases came

<sup>2</sup> As nothing in my analysis hinges on what occurs above the level of the PLACE head, the discussion and syntactic trees to follow only involve the PLACE head and lower.

<sup>3</sup> Of course, this is not the only possible categorization of prepositions. Kracht (2002), for example, proposes a semantically-based division which groups *in front of* and *between together* as a type called “localisers” (prepositions not indicating change of location). The focus of the analysis in this paper, however, is on *syntactic* structures.

<sup>4</sup> At first glance, this entry has two P elements. However, *to* in this case does not mean *in the direction of*, and thus it appears that *next to* is a unit, i.e., the two elements together form the PLACE head, rather than being compositional in nature. See Gorrie (2008) for an alternative analysis.

<sup>5</sup> There is certainly no spatial content in *of* in cases like *in front of*, so this proposal is reasonable, and I will discuss it in more detail in the next section. Other cases, where *of* does have a prepositional meaning (e.g., *out of the door* = *out through the door*), would be a different story, and beyond the scope of this paper.

from a locative element - the initial preposition (such as *in* or *on*) - combined with a nominal element (*front* or *top*). The nominal element originally indicated a specific physical part of an object. Over time, reanalysis resulted in a change to the meaning of the element *front*; it now refers to “a space defined with reference to [the front] part” instead of referring to the front<sup>6</sup> part itself (Svenonius, 2006:49). Thus, *in front* acts as an entity, rather than as a combination of two elements.

Svenonius (2006) provides ample evidence for the distinction between the expression *in front* as a unit and its behaviour as a composition of *in* (P) + *front* (N). Three of these differences are shown here. First, as seen in (3), the two expressions indeed refer to different spaces:

- (3) a. There was a kangaroo in the front of the car  
 b. There was a kangaroo in front of the car

(Svenonius, 2006:49-50)

Furthermore, as demonstrated by (4), it is possible for an adjective (and a determiner) to intervene between the preposition and the nominal in (a), whereas the insertion of the adjective is ungrammatical in (b).

- (4) a. There was a kangaroo in the smashed-up front of the car  
 b. \*There was a kangaroo in smashed-up front of the car

(Svenonius, 2006:50)

Finally, it is possible to replace the N use of *front* with a pronoun, but not when *in front* acts as an entity, as seen in (5):

- (5) a. There was a kangaroo in [the front of the car]<sub>i</sub>, but the koala wasn't in it<sub>i</sub>  
 b. \*There was a kangaroo in [front of the car]<sub>i</sub>, but the koala wasn't in it<sub>i</sub>

(Svenonius, 2006:51)

Based on distinctions in English like those above, and a large body of cross-linguistic data too extensive to discuss here, Svenonius (2006) argues that components such as *front* in expressions like *in front of* are neither true N nor true P, and he proposes a new, universal element, called AX[IAL] PART.

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<sup>6</sup> The reanalysis in the case of *in front of* does not preclude the continued existence of polysemous *front* as a true nominal which refers to a specific physical part of an object, such as *the front of the building*.

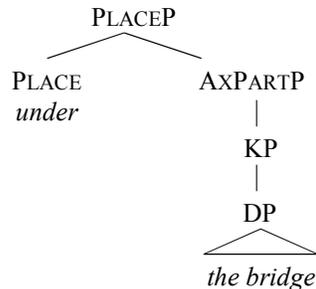
Historically, Svenonius observes, N elements were commonly recruited as AXPART, but other categories, such as adpositional terms were also used. For instance, he decomposes English *beneath* as historically a P element plus a directional term: *be* (*by*) + *niðan* (*down*). In terms of meaning, Svenonius (2006) argues that all AXPARTS refer to *spaces* rather than physical parts, as seen with *front*.

### 3. Null AXPART?

Svenonius does not explicitly discuss AXPART in the single-word prepositions in the PLACE CLASS, e.g., *above* or *beyond*. However, he states that when the “Place head *in* takes any DP complement, for example in *in the car*, the Place head *in* combines directly with the DP *the car* (or there is a null AxPart, and/or a null K)” (2006:51). Presumably, the null AXPART analysis is meant to be applied to *above*, *beyond* and the other members of PLACE CLASS.

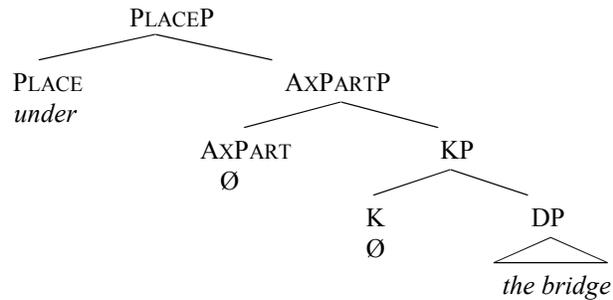
Svenonius explicitly discusses a null AXPART in the single-word preposition *under*, a member of the EXTENDED class (in press:13). Given that it is possible to have *underneath* (where *-neath* is an AXPART, as discussed for *beneath* above), the suggestion of a null AXPART in *under* is entirely reasonable. Svenonius gives the structure for *under* and its null AXPART, as shown in (6).

(6) *under the bridge* (Svenonius, 2006:61)



This structure is consistent with the hierarchy in (2), which requires the complete collection of structural elements to be present in any prepositional phrase, even when an element is null. Assuming mandatory binary branching, and explicitly indicating the implied null elements in the tree, the structure given by Svenonius in (6) can be expanded to (7):

(7) *under the bridge* (expanded)



At first glance, most of the members of PLACE CLASS would appear to have a similar structure to *under*. However, on closer examination, there is compelling evidence that this is not the case.

There are two lines of evidence that AXPART is not null. First, unlike *under*, which can be combined with an AXPART such as *-neath*, it is not possible to combine an AXPART with any of the single-word PLACE CLASS prepositions as seen in here:

- (8) a. \*above front (of) the boat<sup>7</sup>  
 b. \*behind top (of) the room  
 c. \*beyond-neath (of) the road

The data in (8) indicate that the AXPART position is occupied.

Second, despite the notorious unreliability of orthography to indicate syntactic behaviour, the orthography does provide a hint that there is a component of AXPART in PLACE prepositions: the two obvious cases are *inside* and *outside*. Both cases contain an orthographic indication of a prepositional element (*in* and *out*) and an AXPART, *side* (Svenonius, 2006:50). Furthermore, the etymology given in the OED for *above*, *below*, *beyond* and *behind*, decomposes these four prepositions as the prepositional elements *a-* and *be-* affixed to various roots. Svenonius (2006) considers the elements *be-* and *a-* in English prepositions to be historically PLACE heads; it is reasonable to assume they continue to perform the same function. Therefore, it is also reasonable to assume that the modern representations of the roots, that is *-bove*, *-yond*, *-low* and *-hind*, are AXPART. This non-null status of the AXPART has consequences for the structure, which I discuss in section 5.

<sup>7</sup> Cases like *above board* are possible, but are not prepositions: \**above board (of) the process*.

#### 4. Implications from the Hierarchy on the Assignment of Case

Svenonius explicitly outlines many, but not all, of the features of each element in his structure. Furthermore, while he discusses case marking in a number of languages, he does not discuss the assignment of case in English in great detail. Therefore, I have made some assumptions that are consistent with (and based on the implications in) the hierarchy in (2). These assumptions are described in this section.

First, the presence of the K head suggests that DPs cannot take case directly. The necessity of the presence of the K head is an open, but separate, question. I maintain the K head in order to remain consistent with the proposed hierarchy, but the analysis I describe also works if the DP can directly receive case.

Second, I assume that only PLACE heads can assign ACCUSATIVE case. Moreover, as indicated by the absence of a K head above AXPART in the hierarchy, I assume AXPART can receive ACCUSATIVE case (assigned by a preposition) directly. As AXPART has already been demonstrated to be different from a canonical N, the direct case assignment can be allowed, even if case assignment to a canonical NP/DP is not.

Finally, Svenonius states that, cross-linguistically, the K head is “for functional prepositions and case-markers” (to appear:25). With regard to English specifically, he describes *of* as a case marker (e.g., in press:13, 26; *inter alia*); in his trees, *of* appears in the K head (see 2006:60; to appear:4; *inter alia*). The alternative, as discussed for *in the car* in the previous section, is a null K. As alternation is not always possible (e.g., \**above of the trees*), Svenonius suggests that “[s]ome Place heads take null K, others take an overt one” (to appear:4).<sup>8</sup> However, the overt marker in English is always *of*, not some other case element, and the selection of a null or overt K seems rather stipulative.

Therefore, as an alternative to the selection of *of* or *null* by the preposition, I propose another explanation for the absence/presence of the element *of*. Many AXPARTS have a nominal equivalent (for instance, *front* in English) and/or have some demonstrably nominal-like<sup>9</sup> features. Thus, like other nominals, an AXPART phrase with another nominal element in complement position will trigger *of*-insertion, as described in Chomsky (1986). In other words, AXPARTS have inherent case (but not structural case) to assign and *front of the car* is similar to *destruction of the city*. I assume that KPs behave in the same manner as the nominals described in Chomsky, at least in this respect. Therefore, I will assume that K heads in English are always null, and that *of*-

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<sup>8</sup> In addition, according to the hierarchy, the PLACE head Merges with the AXPART, not K. Therefore, it is not clear how the selection would be managed in a derivation, since K and PLACE would not be in a sister relationship.

<sup>9</sup> For example, plural marking on some AXPARTS in Persian, see Svenonius (2006) for extensive discussion.

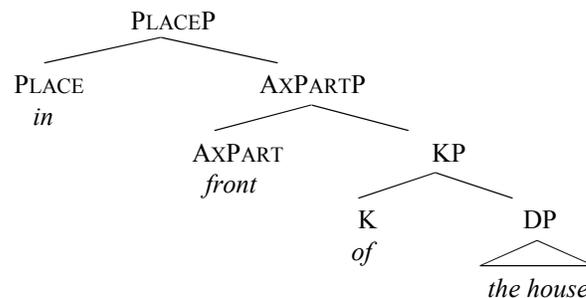
insertion takes place when the KP is in complement position to an AXPART. While both KP and AXPART are always present in the structure, the KP is not always in complement position, as I will demonstrate below.

Now that I have outlined all the assumptions I am making with regard to the assignment of case, I move to a discussion of a derivation based on them.

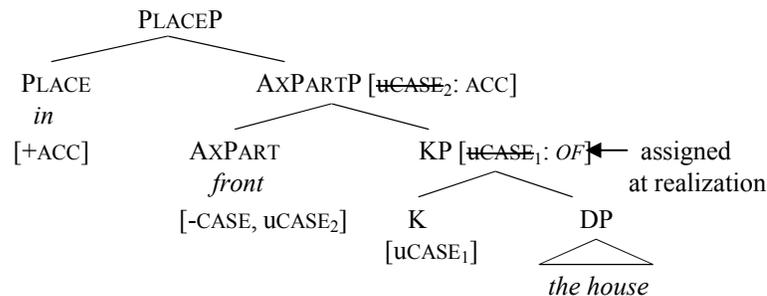
### 5. The Internal Structure of PLACE CLASS Phrases

Applying the assumptions from the previous section to the structure for *in front of the house*, given in (9) (from Svenonius (to appear)), I provide a derivation in (10), which is discussed after the trees.

(9) *in front of the house* (Svenonius, to appear:4)



(10) *in front of the house* (derivation)



The PLACE head has an uninterpretable [AXPART] feature and ACCUSATIVE case to assign. The AXPART head has an uninterpretable [K] feature, and, as noted previously, it can receive CASE, meaning that *front* has an uninterpretable [CASE] feature (uCASE<sub>2</sub>). The K head also has an uninterpretable [CASE] feature (labelled uCASE<sub>1</sub>). The derivation proceeds as follows:

1. The DP *the house* Merges with the K head to form a KP.
2. The KP then Merges with *front*, the AXPART head. However, no value is assigned to uCASE<sub>1</sub>.

3. The AXPARTP Merges with the PLACE head. The PLACE head assigns ACCUSATIVE case to uCASE<sub>2</sub> on AXPARTP.
4. At the end of the derivation, the uninterpretable [CASE] feature on the KP (uCASE<sub>1</sub>) has not been valued. However, [*front* [*the house*]] has the structure of a nominal element (*the house*) in complement position to the nominal-like AXPART, and therefore, per Chomsky (1986), *of*-insertion will take place at realization, thus assigning the KP 'OF' case.

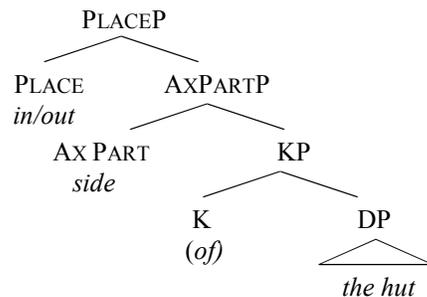
The case of *in front* is straightforward, but how would this structure apply to the other members of PLACE CLASS? In particular, although the evidence indicates that an AXPART is not null for all the members of the PLACE CLASS, *of*-insertion is not possible with all these prepositions; for example, *\*above of* is unacceptable. Furthermore, some prepositions show variation, as seen here:

- (11) a. Mary is standing inside/outside of the hut  
 b. Mary is standing inside/outside the hut<sup>10</sup>

Examining the cases where both *of* and null are possible suggests a solution to the cases without *of*.

The variation in (11) can be explained if (a) and (b) have different structures. Based on the structure of *in front of the house*, the structure for *inside/outside of the hut* is straightforward, and shown in (12):

- (12) *inside/outside of the hut*

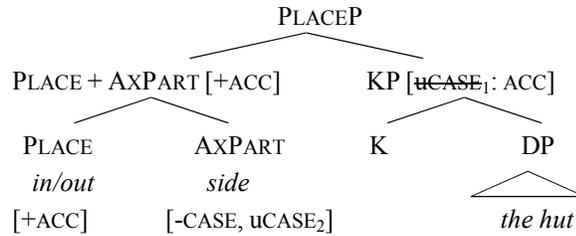


However, for cases such as (11b), where *of*-insertion is not required with *inside* and *outside*, there is a different structure. Chomsky states that the “rule of *of*-insertion is a ‘default case’, applying only when there is no preposition available that inherently assigns the theta-role” (1986:194). This implies that, in cases such as *inside the hut*, the KP is not in the complement position of AXPART, i.e., the AXPART has not Merged directly with KP. Instead, the KP has Merged with

<sup>10</sup> I find these to be semantically equivalent, but the analysis is compatible with a variation of meaning and/or two cases each of *inside* and *outside*.

something that is prepositional, rather than nominal, in nature, such as PLACE. The absence of *of*-insertion is unproblematic if AXPART has been conflated with PLACE, as seen in (13), and the conflated element is Merged with KP.

(13) *inside/outside the hut*

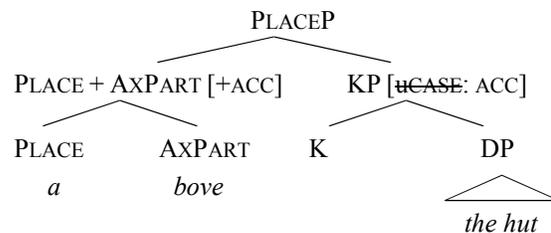


The conflated PLACE + AXPART head has ACCUSATIVE case to assign, thus obviating *of*-insertion. That is, the combined PLACE + AXPART head assigns ACCUSATIVE case directly to the KP when they Merge, so *of*-insertion does not apply. The conflation of AXPART and PLACE also checks the uAXPART feature on PLACE, allowing for a consistent definition of features on all PLACE heads.

In addition, conflation allows for the uCASE<sub>2</sub> feature on AXPART to remain unvalued without crashing the derivation. Baker (1988) states that incorporated nouns do not need to receive case, because, by virtue of being incorporated, they successfully pass through the case filter without having been explicitly assigned case. The same process can be assumed to take place for conflation. Thus, the difference between cases with *of*-insertion, and without it, is the result of a structural difference involving the conflation of AXPART.

The conflation demonstrated for *inside* and *outside* can also reasonably be assumed to be the case with *above*, *below*, *beyond* and *behind*. As previously mentioned, cases such as *above* can be considered to be the PLACE head *a-* and the AXPART *-bove*. The structure is given in (14).

(14) *above the hut*

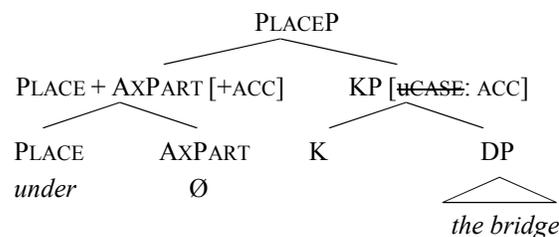


This structure is also plausible for *below*, *beyond* and *behind*.

To sum up, in this section, I applied the assumptions on case assignment outlined in the previous section to the internal structure of

prepositional phrases headed by the members of PLACE CLASS. I demonstrated that in some, but not all cases, the PLACE and AXPART heads have been conflated, and that variation in *of*-insertion can be explained by variation in structure. One final consequence of this analysis is that the structure given in (7) for *under* can be reconsidered. As it is possible to have both *underneath the bridge* and *underneath of the bridge*, it appears that, like *inside* and *outside*, two structures are possible, one with a conflated AXPART and one with AXPART as an independent node on the tree. Assuming a parallel structure, the null AXPART in *under the bridge* would also be conflated, as shown here:

(15) *under the bridge*



I leave the definitive resolution of this question for future research.

## 6. Summary

In this paper, I examined the behaviour of PLACE CLASS prepositional phrases, that is, those headed by *above*, *behind*, *below*, *beyond*, *in front (of)*, *inside* and *outside*. First, I established that all members of PLACE CLASS have a non-null AXIAL PART. Next, I demonstrated that the presence of *of* in cases such as *in front of* is better explained as the result of a nominal in complement to another nominal-like element (similar to *the destruction of the city*), rather than as a result of selectional criteria of the preposition. Finally, I extended the internal structure proposed by Svenonius (to appear) for *in front of* to the other members of the class, and outlined how variation between cases in which *of*-insertion is required, and those where it is not, depends on whether the AXIAL PART is conflated with PLACE.

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