THE INTERNAL STRUCTURE OF PPS
SOME SYNTACTIC AND SEMANTIC MATTERS

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Abstract: *The internal structure of Prepositional Phrases (PPs) has been the topic of various analyses and it has focused on teasing out their basic structure. The goal of this presentation is to propose an examination of the basic structure of directional spatial expression in terms of their (a) semantic and (b) syntactic features. We will argue that directional PPs are PathPs, while locative PPs are PlacePs and last but not least, we will show that the Path head is not a unique projection hosting directional elements, but it consists of several heads, each with its unique syntactic structure.*

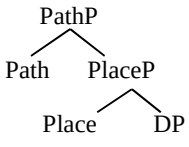
Keywords: *preposition, PathP, PlaceP.*

1. Introduction

On examining the basic structure of directional spatial expressions- that is the Place and Path distinction, one cannot fail to consider the two different frameworks which also represent the starting point of our discussion: (i) a *semantic approach* and (ii) a *syntactic approach*. The two functional heads in the syntactic structure of directional expressions- *Place* and *Path*- presuppose also a semantic decomposition, as each of the heads in the syntactic structure is expected to have some semantic contribution. Thus, a discussion of the two heads unavoidably raises both syntactic and semantic matters.

In light of this view, there is a general consensus (Jackendoff, 1985; Mateu 2008; Svenonius 2008, 2010; Pantcheva 2009, 2011) that the syntactic structure of directional expressions consists of two heads: a *Path head* and a *Place head*. Under this view, the *Place head* encodes location while the *Path head* hosts directional markers regardless whether they encode Source or Goal of Motion. The minimal syntactic structure can be diagrammed as follows, where Path is built on top of Place:

(1)



The paper is organized as follows: Section 2 faces two distinct approaches which offer interesting accounts of the Place- Path distinction: a semantic approach as proposed by Jackendoff (1985, 1990) and a syntactic approach based on the works of Svenonius (2000, 2010) and Pantcheva (2009, 2011). Section 3 discusses the distribution of Place and the distribution of Path, and accounts for the idea that the Path head is not a unique head in the syntactic structure but it has a richer structure than previously assumed. Section 4 briefly summarizes the main conclusions.

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2. The internal structure of PPs

2.1. A semantic approach

Jackendoff (1983, 1990) proposes a semantic treatment for the Path and Place distinction. He identifies a set of conceptual categories, the "semantic parts of speech", which includes such entities as Thing (or Object), Event, State, Action, Place, Path, Property and Amount. There is a principle of correspondence between syntax and conceptual structure in the sense that every content-bearing major phrasal constituent of a sentence (such as S, NP, PP, etc.) corresponds to a conceptual constituent. Consider the following example where a PP can express a Place and a Path:

(2) a. Syntactic structure

$[_S[_{NP}$ Bill$][_{VP}$ went$[_{PP}$into$[_{NP}$the house$]]]]$

b. Conceptual structure

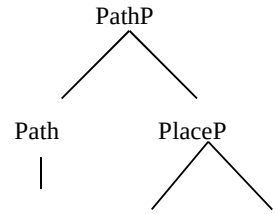
$[_{Event}$ GO $([_{Thing}$ JOHN$], [_{Path}$ TO $([_{Place}$ IN $([_{Thing}$ ROOM$])])])]$

In the above conceptual structure, the verb corresponds to the Event-function Go[1], thus the sentence expresses motion. The subject of the sentence corresponds to the first argument of Go and the PP corresponds to the second argument of Go. The second argument consists of a Path-function TO which takes a Place as its argument. Place decomposes itself into the Place-function IN and a Thing argument-ROOM, which is expressed by the object of the preposition. Each semantic category can be further elaborated. It is not our intent to elaborate all of the above semantic categories; we will concentrate mainly on the most important distinction within the class of senses of spatial PPs, that is [Paths] and [Places].

While a **[Place]** projects into a point, illustrated by a state verb, and is accepted by a verb as illustrated in (3a), a **[Path]** consists of a path function and a reference object, given by a motion verb (3b). Jackendoff (1983: 163) notices that the function Path dominates the function Place as illustrated below:

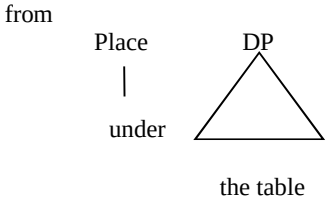
(3) a. John in in the room. (state verb)
A lamp is standing on the floor.
([Thing] occupies [Place])

b. The mouse ran from under the table. (motion verb)
$(_{Path}$ FROM $([_{Place}$ UNDER $([_{Thing}$ TABLE $])])]$



[1] The category Event can have two functions: a GO or STAY function, each of which takes two arguments. The arguments of GO (which shows motion along a path) are the Thing in motion and the Path it traverses, while the arguments of STAY (which shows stasis over a period of time) are the Thing standing still and its location (Jackendoff, 1990)

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Following Jackendoff (op.cit), [Paths] have a varied structure as compared to [Places]. On the one hand, the internal structure of a [Path] consists of a path-function and a reference object as in *toward the mountain*, *around the tree*, *to the floor*. The argument of a path-function may be a reference place, expressed by such phrases as *from under the table*. On the other hand, the internal structure of a [Place] consists of a Place-function plus an argument that belongs to the category Thing. A PP in English may mention a reference object as the object of the preposition as in *on the table*, or even two, as in *between the square and the circle*. Each place-function brings about conceptual constraints on the nature of the reference object. Furthermore, a Place-function takes as an argument a thing and gives as an output a place, while a Path-function takes as argument a Place and returns a Path.

According to the path's relationship to the reference object, Jackendoff (op cit.) suggests three main types of paths. Firstly, we can speak of **bounded paths**. They include *goal paths*, encoded by the English preposition *to* (4a), and *source paths* encoded by *from* (4b). The second type of paths is called **directions**, where the reference object does not fall on the path. They are expressed through *source directions* encoded by such prepositions as *away from* (5a) and *goal directions* encoded by *toward* (5b). The last type of paths is **routes** exemplified through *by*, *along*, *through* (6a) (Jackendoff, 1983:165):

(4) a. John ran to the house. (bounded path)
b. John ran from the house. (bounded path)
(5) a. John ran away from the house. (direction)
b. John ran toward the house. (direction)
(6) a. The car passed by the house. (route)
along the river. (route)
through the tunnel. (route)

In a nutshell, Jackendoff (1983, 1990) sets out to give a semantic treatment to the major conceptual categories involved in the structure of directional spatial expressions. Within the class of senses of spatial PPs the ontological categories [Place] and [Path], expressed by prepositional phrases were mainly given attention to. Under this view, a [Place] projects into a point, illustrated by a state verb *A lamp is standing on the floor*, while a [Path] consists of a path function and a reference object, given by a motion verb *The mouse ran from under the table.* Drawing on the work of Jackendoff (op cit.), Svenonius (2008, 2010) and Pantcheva (2009, 2011) develop a syntactic approach which will be under close examination in the following section.

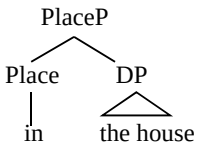
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2.3 A syntactic approach

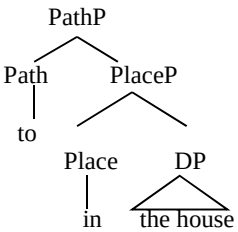
Svenonius (2006, 2010) and Pantcheva (2009, 2011) develop a syntactic approach which draws on the influential work of Jackendoff (1985) and which analyses the functional structure of the PPs (Svenonius, 2008, 2010). In the same vein, Pantcheva (2009, 2011) proposes that the syntactic structure of directional expressions is quite rich; under this view, she proposes a decomposition of the commonly assumed *Path* head into a *Source* head dominating a *Goal* head, thus pointing towards the fact that the Path head is not a unique head in the syntactic structure but it has a richer structure than previously assumed.

In the same line of thought, Svenonius (op. cit) points out that the main distinction between the location and direction lies in the differences in the internal functional structure projected by the PPs. Thus, while locative PPs are PlacePs (even though they might be ambiguous between a locative and a directional reading), directional PPs are always PathPs. Consider the following schematic structure which spells out the locative PP in the house (7), while a directional PPs into the house will be attributed a structure as in (8), where Path embeds Place, thus the Path head to takes a PlaceP complement:

(7)



(8)



Starting from the idea that, syntactically, directional expressions are decomposed into a multiple projections, *Path* and *Place*, thus the following section will provide a description of the very different syntactic distribution of the two heads.

3. Distribution of the two heads

3.1 Distribution of Place

Place elements provide information about the *Figure* and the *Ground*. Following Talmy (1978, 2000a) the *Figure* is the entity, object in motion, while the *Ground* represents the location with respect to which the Figure is located. In most of the situations the complement of the preposition is always the Ground and the Figure is expressed by the direct object of the verb. Take the following examples where this pattern is expressed; the reverse cannot be used (2000a:312):

(9) a. Max stuck his finger in his nose. *Max stuck his nose around his finger.

b. The kids put decorations on the tree. *The kids put the decorations among the tree.

However, in some cases the two entities may cast in each of the roles:

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(10) a. The bridge is above the river.
b. The river is below the bridge.

Furthermore, PlaceP can be the complement of stative verbs expressing location (11a) or can appear as a locative adjunct to VP with non-motion verbs (11b) (Svenonius, 2008: 3)

(11) a. The boat remained *behind* the hill.
b. The boat burned *beyond* the city limits.

Place prepositions can function as restrictive modifiers in co-occurrence with common nouns (Svenonius, 2008: 4)

(12) a. the boat behind the hill
b. the boat inside the cave

Svenonius (2006) notices that the omission of the ground can be possible with some prepositions (13a, b) when anaphoric identification is realized. However, some Place heads (14a, b) disallow anaphoric identification. Consider the following examples:

(13) a. I saw a line of soldiers. The one *in front* (of it) was talking on the phone.
b. Nils looked over the snowdrift. The frozen fjord *beyond* (it) was dotted with seals.

(14) a. As the group approached the final summit, Espen stayed *among** (them).
b. There was a beach. *Next** (to it), the cliffs swarmed with birds.

Svenonius(2006), following Kayne (1994) suggests that the spatial words *here* and *there* can appear in a PP, to the left of the preposition as illustrated in (15a-d) and they can also be added to full DPs as in (number c, d):

(15) a. Come *here* inside the closet.
b. Lie *there* behind the dresser.
c. the house there
d. the man there

The most basic prepositions in English (in, on) which occupy the *Place* position, take the role of particles in expressions as *put the coat on*, *take the laundry in*; consider the following expressions which have a locative meaning in PP constructions:

(16) a. The cat is up the tree.
b. The horse is down the hill

Place expressions can easily be combined with particles like up, down, etc. as illustrated in the following examples (Svenonius, 2008:3):

(17) a. The boat drifted from **up** above the dam.
b. The boat drifted from **down** inside the cave.

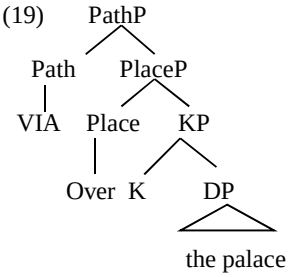
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3.2 Distribution of Path

Paths contain Places- *Over*, *under*, *across* are PathPlace heads; they are constructed from both a Path and a Place (Svenonius, 2007)

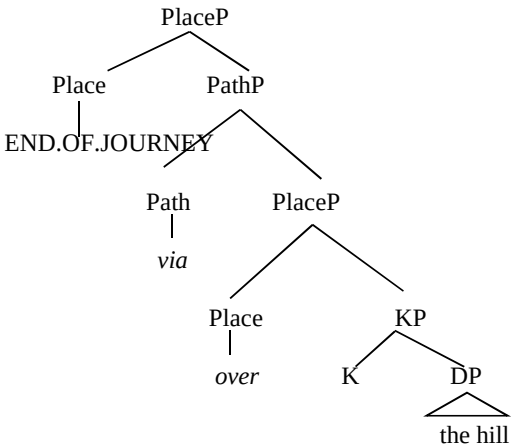
(18) a. The plane flew *over* the palace.
b. The rabbit jumped *through* the cage.

(19)



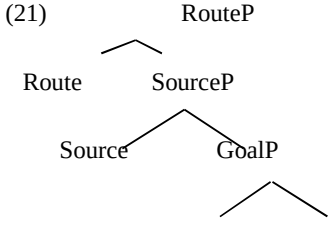
Places can sometimes be formed from Paths:

(20) The sawmill is over the hill from the library.

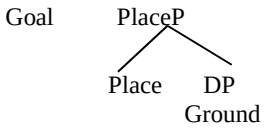


In a similar vein, **Pantcheva** (2011) illustrates that directional expressions are built on top of Locatives. In this respect, she proposes a split of the PathP into several hierarchically ordered heads (Route, Source, Goal), which will be each discussed in detail in what follows:

(21)

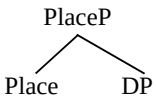


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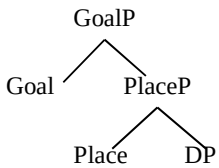
Locative constructions are formed by adding PlaceP to a DP:

(22)



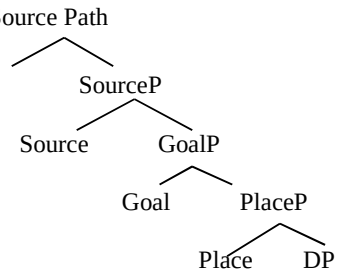
A goal Path is realized by adding a Goal head to a Locative construction:

(23)



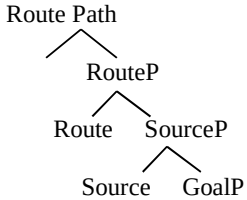
Source expressions are built on top of Goal expressions by simply adding a morpheme, thus accounting for a hierarchical structure between the two expressions:

(24)

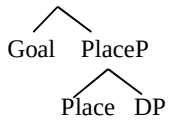


The syntactic structure of Route paths can be illustrated by the following tree, where Route Paths are formed on top of Source Paths by adding a Route head, thus it takes the Source Path as its complement:

(25)



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4. Conclusions

Within the analysis, I have argued that directional PPs are PathPs, while locative PPs are PlacePs. Semantically, locative PPs locate entities/ events in space, directional PPs specify a direction and an endpoint for the motion. With respect to directional PPs, they are relatively free in what concerns the positions they appear in as opposed to locative PPs which are adjoined to a projection of a verb, which itself licenses an endpoint. Moreover, locatives can get a directional reading with a limited set of verbs of motion which will also constitute the object of an in depth analysis. Last but not least, the Path head is not a unique projection hosting directional elements, but it consists of several heads, each with its unique syntactic structure. The syntactic structure of Paths varies depending on whether we have a Goal-oriented path, a Source-oriented path or a non-oriented Route path.

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