THE SYNTAX AND SEMANTICS OF ARABIC SPATIAL PS[*]

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Abstract

This paper explores the internal syntax and semantics of Arabic spatial prepositions. It is shown that Arabic prepositional elements can be divided into the two main spatial domains: place and path. Moreover, the categorial status and semantics of the two main classes of Arabic prepositions, true prepositions and semi-prepositions, show differences according to their realization and distribution in the spatial P projection hypothesis. Elements within the semi-prepositions, for example, seem to lexicalise different functional heads within a place P projection. The goal of the paper is to propose an extended spatial P projection model for Arabic spatial Ps based mostly on Svenonius (2010) and Pantcheva's (2011) proposals, which will help further distinguishing between the true and semi-prepositions on one hand and the two subclasses within the semi-prepositions on the other. Along these lines, certain modifications to Svenonius' (2010) will also be suggested in terms of the way elements used in a place and path domain should be understood.

1. Introduction

Arabic P(reposition)s can be divided into two main classes: true prepositions and semi-prepositions (Badawi, Carter & Gully 2004, Ryding 2005, 2014, Abu-Chacra 2007, inter alia).[1] This division is constructed on a lexical-syntactic basis. The internal syntax of Arabic Ps in general and spatial Ps in particular, has not been paid attention to or examined in the literature of Arabic, leaving lots of gaps in our understanding of the prepositional system of Arabic. For example, in a PP construction as in (1), what does each of *mɨn* and *xəlf* lexicalise in a fine-grained PP structure and to which class each of them belongs.[2]

(1) mɨn xəlf ʃ-ʃaʃə
from behind DEF-screen
'from behind the screen'

In this paper, I will try to look at the morphological, syntactic and semantic properties of Arabic spatial Ps, in an attempt to define their positions or distributions within a spatial P projection. For this purpose, I will adopt the hypotheses of P projection made by Svenonius (2010) and Pantcheva (2011). The decomposition model suggested by Svenonius (2010), in particular, helps further characterising and distinguishing the elements that belong to the category P in Arabic. For example, true prepositions can lexicalise one specific functional

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[1] My Arabic data are from Modern Standard Arabic (MSA). The examples are either constructed or cited from the arabiCorpus. The examples are transcribed according to the International Phonetic Alphabet (IPA).

[2] I use the following abbreviations in the glosses: ACC = accusative case, DEF = definite article, F = feminine, GEN = genitive case, IMP = imperative, M = masculine, NOM = nominative case, PC = pronominal clitic, PST = past, PL = plural, POSS = possessive, PRS = present, 1 = first person, 2 = second person, 3 = third person, SG = singular, Ø = No corresponding element. Dashes (-) are used to separate both affixes and clitics from the stems and periods (.) to separate multiple categories represented by one morpheme.

head, which is Loc in Svenonius (2010), while elements within semi-prepositions are subdivided between Loc and AxPart based on their nominal features. Furthermore, while I agree with Svenonius' (2010) P projection, I make a few arguments and proposals which capture the way elements used in a place and path domain should be understood and defined. I argue that elements used in a path domain should be viewed as Path Relators while those used in a place domain as Place Relators. As a result I present a fine-grained decomposition model that can work for Arabic spatial Ps. The main functional heads that will be recognised on a morphological and semantic basis are PathRel, PlaceRel and AxPart.

The paper is organised as follows. Section 2 presents a general overview of Arabic prepositional system and its classification. Section 3 presents a detailed syntactic analysis of Ps used in a place domain. The analysis includes discussing their semantic properties and function, morphological make-up and syntactic decomposition. In section 4, I carry out a similar analysis for Ps used in a path domain. A summary and conclusion is presented in section 5.

2. Arabic prepositional system

For the purpose of setting the scene, in this section I will present a brief overview of the prepositional system of Arabic. The overview will include a general sketch of the syntactic and semantic characteristics of the two classes of Arabic Ps as well as the types of complements involved in a PP construction. As mentioned earlier, the two main classes of Arabic Ps are: (a) true prepositions; this is the mono-functional category which includes items that can function only as prepositions; and (b) semi-prepositions; this is a multi-functional category and includes items that can function as adverbs, nouns and prepositions (Badawi, Carter & Gully 2004, Ryding 2005, 2014, Abu-Chacra 2007). This division is constructed on a lexical-syntactic basis; that is, while the true prepositions display all the unique properties of prepositions, the semi-prepositions do not. The true prepositions can be further subdivided into two categories on an orthographic basis: separable and inseparable. The separable Ps are independent elements, e.g. *fi* 'in', *ʕala* 'on', *ʔila* 'to'. The inseparable prepositions, of which there are only few, are prefixed to their complements, e.g. *bi-* 'at/in', *li-* 'to'. See appendix 1 for representative examples.

Exploring the grammatical structure of the true prepositions and the semi-prepositions reveals certain similarities and differences. Consider the examples below:[3]

(2) a. wəðˤəʕ-tu-hu ʕala l-minðˤədə
put.PST-1SG-3SG on DEF-table
'I put it on the table.'

b. wəðˤəʕ-tu-hu fawq-ə l-minðˤədə
put.PST-1SG-3SG above-ACC DEF-table
'I put it above the table.'

Semantically, *ʕala* 'on' and *fawq* 'above' express the spatial notion of location, and syntactically, in both cases, the following noun is in the genitive case.[4] However, in Arabic

[3] In the translation of the Arabic prepositions, I will give the most representative English equivalent(s).

[4] The genitive case on the DP complement takes different surface realizations depending on the noun type. For example, in classical Arabic, where it is mostly marked, the genitive case is usually marked by *-i* for singular nouns, such as *fawqə lminðˤədət-i* 'above the table'. Since this is not the main goal of the paper, I refrain from presenting or discussing further forms of genitive case in Arabic (for a detailed list the reader is referred to Ryding 2014: 149-155).

grammar books, *ʕəla* 'on' is categorised as a preposition, and *fawq* 'above' as a noun or adverb of place (see e.g. Abi Asbar 1968, Abdul Hameed 1980, Al-Shumasan 1987). A basic difference between them involves inflection; while prepositions are not inflected, nouns are. Thus, due to their nominal properties, the semi-prepositions can receive inflectional cases such as accusative and genitive markers according to their syntactic functions and positions in the sentence. For example, *fawq* in (2b) receives the accusative case marking *-ə* due to its function as an object in the sentence. The case-marking sensitivity of these prepositional elements, however, is more apparent in classical Arabic.[5]

Another nominal property displayed by the semi-prepositions is that some of them can function as DP complements. See examples below:

(3) a. xəlf ʃ-ʃaʃə
behind DEF-screen
'behind the screen'

b. miṅə l-xəlf
from DEF-back
'from the back'

In (3a), *xəlf* functions as a preposition, while in (3b) it is a DP complement of the preposition *miṅə* 'from'.[6] So *xəlf* in (3b) has totally shifted its category. In addition, some of the semi-prepositions show further nominal properties beside definiteness, such as diminutiveness, e.g. *qəbl ~ qʉbeil* 'a little before' and *bəʕd ~ bʉʕeid* 'a little after'. However, despite their nominal features, the semi-prepositions do not accept modification by adjectives or occur with numerals and quantifiers, a feature shared by the prepositional class.

To conclude the discussion so far, words such as *fawq* 'above', *xəlf* 'behind', *qəbl* 'before' and the like are similar to the true prepositions *fi* 'in', *bi-* 'at/in' and *ʕəla* 'on' syntactically and semantically, yet not identical due to their nominal origin. They are followed by nouns which are in the genitive case and denote spatial and temporal meanings mostly. Accordingly, I argue that elements such as *fawq* 'above', *xəlf* 'behind', *qəbl* 'before' are prepositions that have been grammaticalised from nouns. To reflect their nominal behaviour in some cases, I refer to them as semi-prepositions, following Ryding's (2005: 367) terminology.[7]

As to the type of DP complements, Arabic prepositions can take a range of different complements including noun phrases and clauses (Badawi, Carter & Gully 2004, Ryding 2005). Nouns are the most common complement type and all above examples are of this type. As to pronoun complements, in Arabic these can only be in the form of a pronominal clitic, as in (4):

(4) sə-ʔəðhəb-ʉ ʔiṅlei-hiṁ
will-go-1SG.NOM to-PC.M3PL
'I will go to them.'

Another complement type is that of clause. The clauses include those introduced by the subordinate marker *ʔən* 'that' followed by verbs in the subjunctive case. Another clause

[5] In general case endings in MSA are usually pronounced by newscasters and speakers of al fuṣḥa Arabic.
[6] When *miṅ* is followed by definite noun complements, it ends with the vowel *-ə*.
[7] Other suggested terms are 'prepositionals' (Badawi, Carter & Gully 2004) and 'secondary prepositions' (Abu-Chacra 2007).

type is that initialised by *ma* 'what' which is rather a nominal clause. Examples are given in (5a-b):

(5) a. wəʕəd-t-ʉ-hʉm bi-ʔən ʔədrʉs-ə bɨ-ʤɨd
promise.PST-1SG-NOM-M3PL to-that study.PRS-ACC with-hard
'I promised them to study hard.'

b. fəkər-t-ʉ fi-ma qʉl-tə-h
think.PST-1SG-NOM at-what say.PST-2SG-3SG
'I thought about what you said.'

Finally, in Arabic, prepositions can be deleted in certain cases without affecting the grammaticality of the sentence. For instance, prepositions can be optionally deleted when followed by complements in the form of question words, such as *kəm* 'how much', and also when they are used with a motion verb which can express the path notion. Examples (6a-b) illustrate these two cases:

(6) a. (bɨ-) kəm r-rʉz
by how much DEF-rice
'How much is the rice?'

b. dəxəl-na (lɨ-) l-ħədiqə
enter.PST-1PL to DEF-garden
'We entered the garden.'

In the following sections, I examine the distribution of true and semi-prepositions in a spatial P projection. Thus, I will use only those prepositions with spatial uses and/or meanings, using examples of the types made up of [Ps + DP complements] only.

3. Arabic Ps in a place domain

Among the prepositions that are used in static locative relations are *fi* 'in', *bɨ-* 'at/in', *ʕəla* 'on', *qʉrb* 'near/beside', *bein* 'between/among', *ʔəmam* 'in front of', *mʉqabɨl* 'opposite', *xəlf* 'behind', *fawq* 'above', *təħt* 'below', *qəbl* 'before', *bəʕd* 'after', *jəmin* 'right', *jəsar* 'left', *wəsətˁ* 'middle', *daxɨl* 'inside', *xarɨʤ* 'outside', *ʔəʕla* 'up', *ʔəsfəl* 'down'. Morphologically, these Ps do not seem to have a complex structure. They are all mono-morphemic words, most of which are free independent morphemes while a few are bound morphemes prefixed to their DP complements such as *lɨ-* 'to'. Some of these elements belong to the true-prepositions and some to the semi-prepositions. The question that arises here is how the true and semi-prepositions are distributed in a place P projection. Before answering this question, a brief overview on place P projection is due.

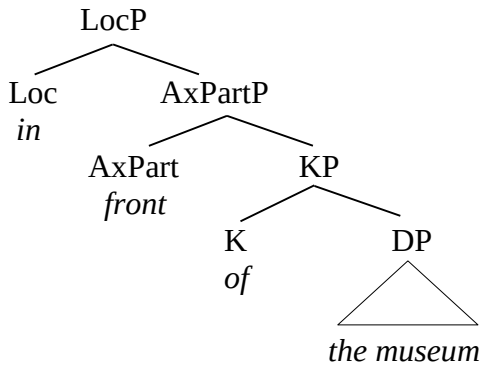
In the literature on the internal syntax of spatial adpositions, several proposals have been made and attested across languages (see Riemsdijk 1990, Kracht 2002, Svenonius 2008, 2010, Koopman 2010, Dikken 2010, Terzi 2010 among others).[8] The analyses are based on the cartographic approach to phrase structure pioneered by Cinque (1999) and further developed in Cinque (2002), Rizzi (2004) and Cinque and Rizzi (2008). Within this framework, it is argued that phrases and clauses have a complex rich internal structure which can be broken down into several functional elements. Among these, I adopt the syntactic

[8] I use the term 'adposition' when I abstract over pre- and postpositional elements, otherwise I use the term 'preposition', especially when discussing Arabic data.

model of place P projection developed by Svenonius (2010), because it has been applied across several languages with promising results, e.g. Persian (Pantcheva 2006), Hungarian (Hegedűs 2006) and Serbian (Bašić 2007). Besides, as will later be shown, Svenonius' model works well for Arabic data, although a few modifications and proposals are necessary.

Svenonius (2010) decomposes an English P such as *in front of* into three functional heads, each of which has a definite semantic function. These are Loc, AxPart and K. The semantic function of Loc is to map regions onto vector spaces.[9] For example, in the interpretation of *above the window*, he proposes a bunch of vectors that project from the window and point upward. AxPart is a function from the set of points occupied by the Ground object in space to some other regions or axes of the Ground such as its top, bottom, front, sides, edges, proximity, etc. (Svenonius 2006, 2010). Thus it hosts nominal elements such as *front* in *in front of*, *top* in *on top of*, etc. As to the functional head K, semantically it is a 'function from a Ground DP to a region' (Svenonius 2010: 132). That is, Svenonius (2010) assumes that K is the element that returns the set of points occupied by the Ground and he refers to this set of points as eigenplace, following Wunderlich (1991). An illustrative example is given in the structure in (7) for the English PP *in front of the museum*:

(7)



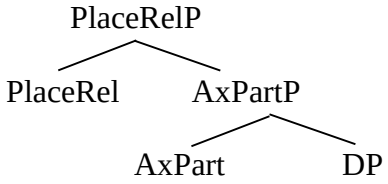
While I agree with Svenonius (2010) in terms of the functional sequence these heads maintain across languages, I assume slightly different semantic functions for them, Loc and K in particular. In Saeed (in preparation), I suggest that elements such as *in/on/at* relate Figures to a specific space with reference to a Ground, and refer to them as Place Relators, hence the functional head PlaceRel.[10] For instance, *in* relates a Figure to an inner space of the Ground, while *on* relates it to a surface space, and so on. That specific space to which a Figure is related represents the AxPart, which forms a part-whole relationship with the Ground. Finally, following Romeu (2014), I assume that K has a possessive function. It just defines the possessive construction or the part-whole relationship that holds between AxPart elements and the Ground. In English, K can be lexicalised by *of*, otherwise it is null mostly. In Arabic, K is null and will always be null as Arabic does not spell it out.[11] Accordingly, the maximal structure I propose for Arabic PPs used in a place domain is as in (8):

[9] Svenonius (2010) follows the theory of vectors proposed by Zwarts (1997) and Zwarts and Winter (2000). The latter propose a vector space theory for place adpositional phrases and their modifiers. Vectors are 'one-dimensional objects with direction and length which define points in a space when they are drawn from a region' (Svenonius 2006: 52).

[10] The terms Figure and Ground are adopted from Talmy (1975). The Figure is the entity whose location is determined, and the Ground is the entity or the location with reference to which a Figure's location is defined.

[11] It is worth mentioning that, as far as Arabic data reveal, when PlaceRel elements are present and AxParts are absent (phonologically), it is PlaceRel which assigns genitive case to the DP complement. In contrast, when AxParts are lexicalised, the genitive case of the DP complement is assigned in the construct state configuration that holds between AxParts and DP complements. This observation leads satisfactorily to the non-necessity of having a K head in Arabic place P projection.

(8)



Next I examine the lexicalisation of the heads PlaceRel and AxPart among the Arabic Ps used in a place domain. At first glance, the place expressions within the true prepositions could be said to lexicalise PlaceRel, while those within the semi-prepositions class may lexicalise the AxPart head due to their nominal properties presented above. However, for elements to be assigned to the PlaceRel or AxPart node, certain characteristics should be met. Below I will discuss the properties of the Arabic place-domain Ps in more detail, in terms of (1) their main meanings, (2) co-occurrence with each other, (3) allowing null DP complements, and (4) compatibility with modification expressions.

To start with, the true prepositions *fi* 'in', *bɨ-* 'at/in' and *ʕəla* 'on' relate a Figure to a specific space with reference to a Ground. It is the inner space in case of *fi* 'in' and *bɨ-* 'at/in', and the surface space in case of *ʕəla* 'on'.[12] Illustrative examples are:

(9) a. kan-u fi l-məlʕəb
be.PST-3PL in DEF-stadium
'They were in the stadium.'

b. dˁəʕ-hʉ ʕəla l-mɨnðˁədə
put.IMP.2SG-3SG on DEF-table
'Put it on the table.'

In addition to these simple uses, these true prepositions can also precede a number of semi-prepositions, such as *ʔəsfəl* 'down', *wəsətˁ* 'middle' and *daxɨl* 'inside'. For example:

(10) a. fi wəsətˁ l- beit
in middle DEF-house
'in the middle of the house' (arabiCorpus, Watan02)

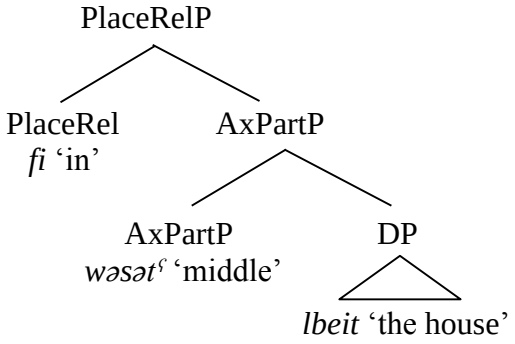
b. bɨ ʔəsfəl l-qaʔɨm l-ʔeiməna
at bottom DEF-port DEF-right
'at the bottom of the right port' (arabiCorpus, Ghad01)

c. ʕəla ʔəsfəl sˁ-sˁɨnduq
on bottom DEF-box
'on the bottom of the box' (arabiCorpus, Thawra)

Therefore, based on their semantic properties and the word order they have when appearing with the semi-prepositions, these true prepositions seem to lexicalise the syntactic head of PlaceRel. Thus, a PP construction such as *fi wəsətˁ lbeit* 'in the middle of the house' has the following tree structure:

[12] These Ps show some allomorphy. The preposition *ʕəla* 'on' has the basic forms *ʕəla* in MSA when followed by complements of different types. However, when followed by pronominal clitics, it is *ʕəlei-* in MSA.

(11)



As can be seen, I have inserted *wəsətˁ* 'middle', which is a semi-preposition, under the AxPart node. This is due to its semantic property of identifying a specific relative frame of reference, the middle space or part of a Ground. Next, I will examine in detail the syntactic and semantic properties of the semi-prepositions.

The semi-prepositions seem to be of two types in terms of displaying nominal features, frames of reference and co-occurrence with true prepositions. For example, *wəsətˁ* 'middle', *ʔəʕla* 'up', *ʔəsfəl* 'down', *ʔəmam* 'front', *xəlf* 'back', *daxɨl* 'inside', *xarɨj* 'outside', *jəmin* 'right', *jəsar* 'left' and *ʤanɨb* 'side' seem to display properties that justify treating them as AxParts, whereas *fawq* 'above', *təħt* 'below', *qʉrb* 'near/beside', *bein* 'between/among', *qəbl* 'before' and *bəʕd* 'after' are not likely to be AxParts. For easy reference, I will refer to the former elements as Group A and the latter examples as Group B.

For elements to be categorised as AxParts, they should display specific syntactic and semantic patterns. Syntactically, they should display specific nominal properties and be licit in the position below PlaceRel in a prepositional hierarchy. Semantically, they should define a relative frame of reference – a specific space or part of a Ground. Examples of Group A meet these two conditions. They can be used as nouns and AxParts. As nouns, as in (12a), they can function as a DP Ground, while as AxParts, as in (12b), they define a specific region projecting from a DP Ground, e.g. *ʔəsfəl* 'down' denotes the bottom space, *ʔəʕla* 'up' the top, *xəlf* 'back' the back and so on.

(12) a. wədˁəʕ-tʉ-hʉ fi l-ʔəsfəl
put.PST-1SG-3SG at DEF-bottom
'I put it at the bottom.'

b. wədˁəʕ-tʉ-hʉ fi ʔəsfəl l-bab
put.PST-1SG-3SG at bottom DEF-door
'I put it at the bottom of the door.'

In addition, Group A can co-occur with the true prepositions *fi* 'in', *bɨ-* 'at/in' and *ʕəla* 'on', as shown in examples (10a-c). In fact, a search in the arabiCorpus reveals further examples made up of *ʕəla* 'on', *fi* 'in' and a semi-preposition (some are given in (13)).

(13) a. jədʉ-ha n-nəħilə təqbɨðˁ ʕəla ʔəsfəl l-lwəʤh
hand-POSS.F3SG DEF-thin hold.PRS on down DEF-face
'Her thin hand was holding the bottom of her face.' (arabiCorpus, Hayat96)

b. təmtəd ʔəswarʉ-ha ʕəla ʔəʕla qɨməm l-ʤɨbal
stretch.PRS.3SG fences-POSS.3SG on top peaks DEF-mountains
'Its fences stretch out on top of the mountains.' (arabiCorpus, Hayat96)

c. fi xarɨdʒ l-məntˁiqə aw fi daxɨl-i-ha
in outside DEF-area or in inside-GEN-PC.3SG
'outside or inside the area' (arabiCorpus, Sayd)

d. fi ʔəmam məʕbəd l-məlɨkə
in front temple DEF-queen
'in front of the queen's temple' (arabiCorpus, Hayat97)

The semi-prepositions in Group B are *fawq* 'above', *təħt* 'below', *qʉrb* 'near/beside', *bein* 'between/among', *qəbl* 'before' and *bəʕd* 'after'. They share a single feature with nouns, which is case inflection. As mentioned earlier, the semi-prepositions can receive inflectional cases such as accusative and genitive according to their syntactic positions in the sentence (recall the example in (2b)). These case markers, however, are mostly apparent in classical Arabic, not the colloquial varieties of Arabic (see the footnote in 5). Thus, these semi-prepositions seem to be dropping their nominal properties and shifting class historically. Moreover, none of them suggest a space or subpart of a Ground or co-occur with any of the true place prepositions. As a result, Ps within Group B cannot be said to lexicalise the AxPart head.

Instead, I assume that these semi-prepositions are more like the true prepositions *fi* 'in', *bɨ-* 'at/in' and *ʕala* 'on', syntactically and semantically. They relate Figures to specific spaces with reference to a Ground, such as a relative vertical position in case of *fawq* 'above' and *təħt* 'below', closeness such as *qʉrb* 'near' and *ʕɨnd* 'at', and so on. Table 1 shows the categorisation of the true and semi-prepositions among the PlaceRel and AxPart projections.

Table 1: Distribution of place-denoting Ps in MSA

PlaceRel	AxPart
fi 'in'	*ʔəmam* 'in front of'
bɨ- 'at/in'	*xəlf* 'behind'
ʕəla 'on'	*wəsatˁ* 'middle'
fawq 'above'	*daxɨl* 'inside'
təħt 'below'	*xarɨdʒ* 'outside'
qʉrb 'near/beside'	*ʔəʕla* 'up'
bein 'between/among'	*ʔəsfəl* 'down'
qəbl 'before'	*jəmin* 'right'
bəʕd 'after'	*jəsar* 'left'
ʕɨnd 'at'	

However, the semi-prepositions in the PlaceRel column differ from the true prepositions listed there in several respects. First, unlike true prepositions, they do not combine with elements that are AxParts, hence the ungrammaticality of **fawq ʔəmam* 'above

front' and **qʉrb xəlf* 'near behind'. This is probably due to their original nominal features, i.e. the ungrammaticality of [N + AxPart + DP]. Second, none of the true place prepositions can occur without a phonologically realised DP complement. The complement can be a full DP (14a-b) or a pronominal clitic (14c), yet not a null element.

(14) a. kɨtab-ʉk ʕəla *(r-rəf)
book-POSS.2SG on DEF-shelf
'Your book is on the shelf.'

b. kɨtab-ʉk bɨ-*(sˁ-sˁɨnduq)
book-POSS.2SG in-DEF-box
'Your book is in the box.'

c. wəqəf-na ʕalei-hɨm
stand.PST-1PL on-PC.3PL
'We stood on them.'

On the other hand, some PlaceRel semi-prepositions, such as *fawq* 'above' and *təħt* 'below' can occur without a DP complement. In such case, they are mostly treated as locative adverbs (see e.g. Badawi, Carter & Gully 2004, Ryding 2005, 2014). Illustrative examples are:

(15) a. kitab-ʉk fawq
book-POSS.2SG above
'Your book is above.'

b. sar-u ʃərqən
walk.PST-3PL east
'They walked to the east.'

With regard to modification, the true and semi-prepositions used in a place domain can be both preceded by modification expressions. However, the syntactic position of the degree modification seems to differ in each case. Consider the examples below.

(16) a. sə-yəzid ʔɨrtɨfaʕ l-məbna θəmanijətə ʔəmtar ʕəla
will-increase height DEF-building eight metres on
ʔəʕla məbna fi l-ʕaləm
higher building in DEF-world
'The building will be eight metres higher than the highest building in the world.' (arabiCorpus, Hayat97)

b. ʕəla ʕʉmq səbʕət ʔəmtar fi l-bəħr
on depth seven metres in DEF-sea
'At a depth of seven metres in the sea.' (arabiCorpus, Hayat96)

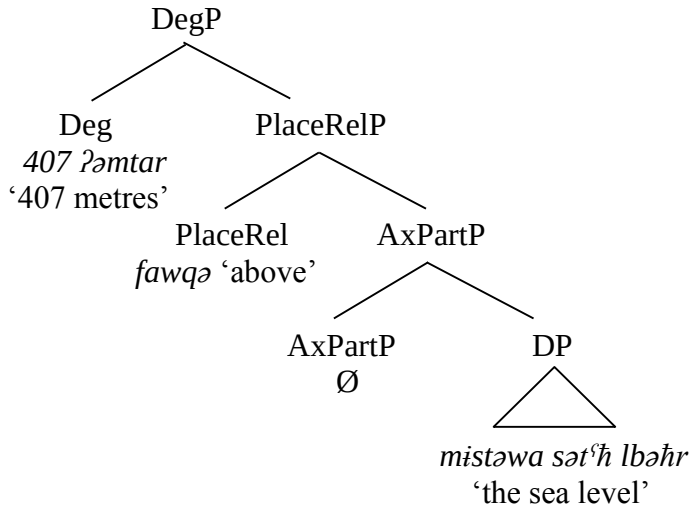
In (16a), *θəmanijətə ʔəmtar* 'eight metres' is specifying the height difference between the new building and the currently highest building. In (16b), *səbʕət ʔəmtar* 'seven metres' specifies the depth of something that will be made in the sea. Although these examples may superficially look like having modified Ps, they are actually not. Rather the modifiers are in affiliation with the preceding constituents. The PPs are just identifying a locative space. Contrary to these, consider:

(17) a. 407 ʔəmtar fawq-ə mɨstəwa səṭˁħ l-bəħr
407 metres above-ACC level surface DEF-sea
'407 metres above the sea level' (arabiCorpus, Hayat96)

b. təmtəd li-ʔəmtar təħt-ə l-ʔərdˁ
stretch.PRS.3SG for-metres under-ACC DEF-earth
'It stretches for metres under the earth.' (arabiCorpus, Masri2010)

In (17a-b), the preceding measure phrases seem to define the length of the upward and downward vectors suggested by *fawq* and *təħt*, respectively. It can, therefore, be said that the projection Deg (for degree modification), following Svenonius (2010), can be present phonologically (or morphologically) in an Arabic PP made up of PlaceRel and DP Ground, provided the PlaceRel is lexicalised by a semi-preposition.[13] (However, there are exceptions; Ps such as *qʉrb* 'near' and *ʕɨnd* 'at' do not allow modification). The position of the Deg is above PlaceRel in a PP structure. This can be illustrated in the following structure for the PP in (17a):

(18)



The differences between the Place Relator true prepositions *fi* 'in', *bɨ-* 'at/in' and *ʕəla* 'on', on the one hand, and the Place Relator semi-prepositions, on the other hand, are summarised in table 2.

[13] Degree modification is also allowed in some [AxPart + DP Ground] constructions (with the PlaceRel being not lexicalised). For example:

(i) xəmsət ʔəmtar ʔəmam l-bab
five metres front DEF-door
'Five metres in front of the door' (arabiCorpus, Hayat96)

Table 2: True and semi-prepositions: Place Relators

Property	True Ps	Semi-Ps
Co-occurrence with AxParts	+	-
Null DP Complement	-	- (+ in case of *fawq* 'above' and *təħt* 'below')
Degree modification	-	+ (- in case of *qʁrb* 'near' and *ʕɨnd* 'at')

In sum, Arabic seems to have a morphological representation for the functional projections PlaceRel and AxPart. The true prepositions and some of the semi-prepositions lexicalise PlaceRel (represented as Group B), while semi-prepositions in Group A are lexical representations of AxPart. With regard to Deg, it is present in case of semi-prepositions only.

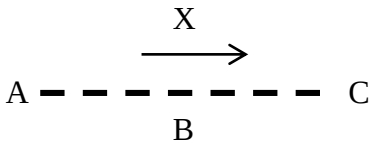
4. Arabic Ps in a path domain

In this section, I analyse the prepositional elements used in the path domain in Arabic. The analysis will capture their typology, semantic properties and internal syntax. However, I first examine the components involved in a path domain and the role of prepositions in such a domain, both syntactically and semantically.

4.1. Path domain: Background

A path is made up of a set of contiguous points (Herweg & Wunderlich 1991, Nam 1995, Krifka 1998). The components or elements involved in a path are a direction, a starting point, an end point, some middle points and a moving object (cf. Zwarts 2005 and Piñón 1993). Thus, a schematic representation of a path would look like the one in figure 1. A represents the starting point, B represents the middle points, C stands for the end point, X is the object that undergoes movement and the arrow signals the direction followed by the object in the specified path (in this case it is from left to right).

Figure 1: The schematic representation of path and its components



(Saeed: in preparation)

Based on these observations, one conclusion is that direction is a component of path and not the reverse. This, however, does not imply that every path necessarily involves a direction, or even a specified starting point or an end point. It rather depends on the type of adposition in use, e.g. *to* suggests a direction and an end point; *from* suggests a starting point, and so on.

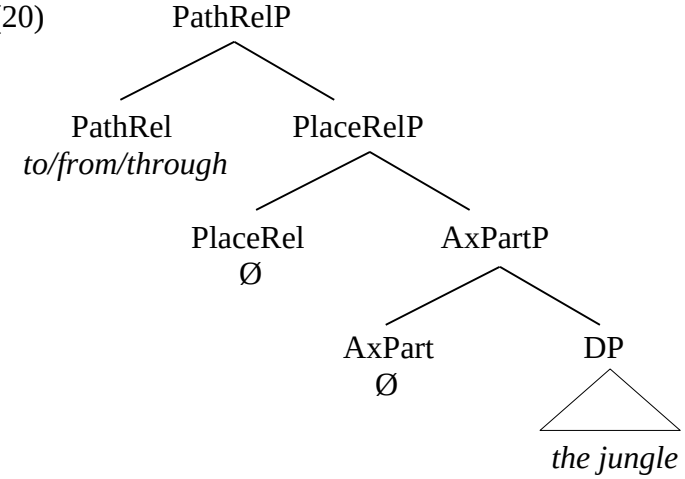
In the literature on adpositional elements that denote non-locative spatial meanings, such as English *to, from, through* and *across*, several labels have been used, the two main terms being path (e.g. Jackendoff 1983, Zwarts 1997, Gehrke 2008, Svenonius 2010, Pantcheva 2011) and directional (e.g. Riemsdijk & Huybregts 2002, Helmantel 2002,

Koopman 2010, Dikken 2010, Noonan 2010). Moreover, they have been claimed to lexicalise the head of a Path projection, which dominates a Place projection (Dikken 2010, Svenonius 2010, Pantcheva 2011, among others). These elements are usually used in dynamic constructions that include a motion verb and a DP Ground which defines a specific point in a path domain. This can be the end point of a path, (19a), the starting point, (19b), or some intermediate point(s), (19c).

(19) a. She went to the beach.
b. She came from the beach.
c. She went through the tunnel.

However, in Saeed (in preparation), I suggest that English elements such as *to/from/through* are better referred to as Path Relators since their main role or function is to relate a Figure to a specific point with reference to a path. For example, *to* relates a Figure to a Ground which defines the end point of a path, *from* relates a Figure to a Ground which defines the starting point of a path and *through* relates a Figure to a Ground which defines the middle point(s) of a path. This suggestion is based on the fact that a path is entailed, but not lexicalised, neither by non-locative elements such as *to/from/through* nor by other elements. Accordingly, *to/from/through* lexicalise a Path Relator projection (hence PathRel). Moreover, the position where such elements (PathRels) are introduced into the syntax of a complex prepositional phrase is above PlaceRelP (cf. Jackendoff 1973, 1983, 1990, Koopman 2010, Dikken 2010, Svenonius 2008, 2010). Thus, the structure of a PP such as *to/from/through the jungle* can be represented as in (20):[14]

(20)



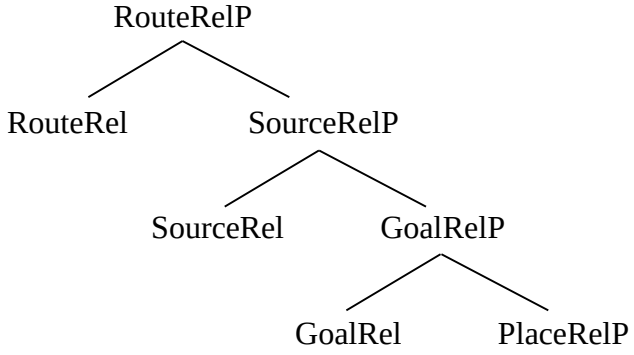
It is worth mentioning that the PathRel can be further decomposed into several basic functional heads. This decomposition is based on Pantcheva's (2011) model of path P projection. Based on morphological evidence drawn from various languages, Pantcheva (2011) decomposes the Path head of a path PP (which corresponds to Saeed's (in preparation) PathRel) into five functional heads: Goal, Source, Route, Scale and Bound. Each of these forms the head of a correspondent phrase which includes a Spec, head and complement, and serves a syntactic and semantic function. Semantically, each of these functional heads contributes a specific meaning distinct from all others. In what follows, I briefly review

[14] Although it is tempting to assume a silent PATH projection beneath PathRel, I will disregard this idea to avoid complexity and leave it for further research in the future.

Pantcheva's (2011) analysis for the first three functional heads only (Goal, Source and Route) since they form the three main points involved in a path.[15]

The decomposition that Pantcheva proposes is based on the assumption that 'morphological complexity indicates syntactic complexity' (Pantcheva's 2011: 63). That is, the morpho-syntactic properties of the PathRelP determine its internal syntactic structure. Pantcheva (2011) assumes that route-denoting paths (in her terms) dominate a source-denoting path, which in return dominates a goal-denoting path. This generalisation is based on cross-linguistic morphological evidence of languages with a rich spatial case system, e.g. Source elements contain Goal elements in the Daghestanian language Chamalal and in Imbabura Quechua (see Pantcheva 2011: 46*ff* for representative examples), Route elements embed Goal elements as in Slovak, and Route elements also embed Source elements as in the Daghestanian language Akhvakh and Avar. Thus, Pantcheva (2011) assumes the following functional sequence Route>Source>Goal. This can be represented in the structure in (21), adapted from Pantcheva (2011). RouteRel hosts the Route Relators, Source hosts the Source Relators and GoalRel hosts the Goal Relators.

(21)



Arabic Path Relator Ps in general do not display a complex morphological structure. Thus, I mainly apply the structure in (20) for Arabic relevant elements. The decomposition model given in (21) will be used to analyse cases such as *mɨn xɨlal* 'from through' and *mɨn ħawlə* 'from around' later. In sum, the entities involved in a spatial relationship that includes Path Relators are a Figure and a Ground. The Figure's location is determined with reference to a Ground. The Ground forms a specific point with reference to a path. It can be a starting point (Source), an end point (Goal) or some intermediate points (Route). The main role or function of Path Relators such as *to/from/through* is to relate the Figure to one of these points. Syntactically, they lexicalise the projection PathRel. In section 4.2, I examine the typology, semantics and syntax of Path Relators as used in Arabic.

4.2. Path Relators in Arabic

In MSA, there are only a few such Ps that relate Figures to the three canonical points in a path: Goal, Source and Route. These are: *ʔɨla/lɨ-* 'to', *ħəta* 'until/up to', *nəħwə* 'towards', *mɨn* 'from', *ʕən* 'away from', *xɨlal* 'through', *ʕəbrə* 'across' and *ħawlə* 'around'.[16,17] The distribution of these Ps over the three canonical Path Relator types is given in table 3:

[15] For a comprehensive account of Pantcheva's (2011) proposed model, the reader is referred to her work.

[16] Although in most of the Arabic references *nəħwə* 'towards' is not categorised as a true or semi-preposition except in Ryding (2005) who lists it among the semi-prepositions, I include it in this paper since it behaves similar to prepositions in terms of allowing a DP complement.

Table 3: Types of Path Relator Ps in MSA

Goal Relators	Source Relators	Route Relators
ʔiɬa/liɬ- 'to'	*miɬn* 'from'	*xiɬlal* 'through'
nəħwə 'towards'	*ʕən* 'away from'	*ʕəbrə* 'across'
ħəta 'until/up to'		*ħawlə* 'around'

While *ʔiɬa/liɬ-* 'to', *ħəta* 'until/up to', *miɬn* 'from' and *ʕən* 'away from' are true prepositions, *nəħwə* 'towards', *xiɬlal* 'through', *ʕəbrə* 'across' and *ħawlə* 'around' are semi-prepositions (Badawi, Carter & Gully 2004, Ryding 2005). The elements listed within each of the columns, however, do differ in terms of specific properties and need further classification. For this purpose I follow Pantcheva's (2011) path typology, which as far as I know is the most recent and thorough study of path Ps. Her study is a development of path typologies proposed in Jackendoff (1983), Piñón (1993), Kracht (2002) and Zwarts (2008). For example, Jackendoff (1983: 165) identifies three basic types of path 'according to the path's relationship to the reference object or place': Bounded, Directions and Routes. The first two are subdivided in turn into two types, so the total number of path types in Jackendoff's (1983) typology of paths is five. However, on the basis of data from approximately 80 genealogically different languages, Pantcheva (2011) identifies eight types of paths divided into three canonical path types (Goal, Source and Route). This division is based on the presence or absence of specific properties: ±TRANSITION, ±ORIENTATION and ±DELIMITATION.

By transition, she means paths may contain a 'transition from one spatial domain to a complementary spatial domain' (Pantcheva 2011: 14). Some path adpositions have a transitional property and some do not; moreover, those with the transitional property can include one transition or two. Orientation, on the other hand, refers to presence of direction in the movement denoted by a path adposition. Again, some path adpositions denote a specific direction while some do not. Finally, delimitation is related to the presence of a terminative or starting point in a path. The eight path types are given in (22-24) along with their properties and representative Ps from English (see ibid 31).

(22) Goal
a. Cofinal (+TRANSITIONAL, +ORIENTED, -DELIMITED): *to the school*
b. Terminative (+TRANSITIONAL, +ORIENTED, -DELIMITED): *up to the school*
c. Approximative (-TRANSITIONAL, +ORIENTED, -DELIMITED): *towards the school*

(23) Source
a. Coinitial (+TRANSITIONAL, +ORIENTED, -DELIMITED): *from the school*
b. Egressive (+TRANSITIONAL, +ORIENTED, +DELIMITED): *starting from the school*
c. Recessive (-TRANSITIONAL, +ORIENTED, -DELIMITED): *away from the school*

(24) Route
a. Transitive (+TRANSITIONAL, -ORIENTED, -DELIMITED): *past the school*
b. Prolative (-TRANSITIONAL, -ORIENTED, -DELIMITED): *along the school*

[17] The small number of Path Relator Ps in MSA may be due to the fact that Arabic is a verb-framed language. That is, in motion events the path is lexicalised in the verb, a strategy common in French and Spanish also. See Talmy (1985) for the typological distinction between verb-framed and satellite-framed languages.

A general observation is that paths can have different shapes, but not different types. There is no goal or source or route path type as such. Instead Goal, Source and Route can be said to represent the points involved in a path as was discussed in section 4.1. That is, the Goal represents the ending point of a path, the Source represents the starting point of a path and the Route represents the intermediate points. Thus, what Jackendoff (1983) and Pantcheva (2011) refer to as path types should be understood as types of Path Relators; they relate Figures to Grounds which define specific points in a path. Below I examine the list of Ps in table 3 in terms of these properties in an attempt to see how many types of Path Relators exist in Arabic.

The Ps listed in the leftmost column in table 3, which includes *ʔɨla/lɨ-* 'to' and *ħəta* 'until/up to', belong to the type of Goal Relators. See the MSA examples below (the relevant elements are in bold):

(25) a. wəsˁəl-ə-t ʔəxirən **ʔɨla** məħətˁət l-metro
arrive-PST-3SG finally to station DEF-metro
'At last she arrived at the metro station.' (arabiCorpus, Chicago)

b. mənəʕ-u ʔəħəd l-mʉʃəʤɨʕ-in mɨnə n-nʉzul **lɨ**-l-
prevent.PST-3PL one DEF-fans from DEF-descending to-DEF-
məlʕəb
stadium
'They prevented one of the fans from entering the stadium.' (arabiCorpus, Ghad02)

d. təqəʕ ʕəla nəhr zaʔir ʔləði jəsˁɨl **ħəta**
locate.PRS.3SG on river Zaire which reach.PRS up to
l-ʕasˁɨmə kinʃasa
DEF-capital Kinshasa
'It is found on the river Zaire, which reaches up to the capital city Kinshasa.' (arabiCorpus, Hayat97)

c. θʉmə ʔɨtaʤəh-a **nəħwə** s-seijarə
then go-PST.3SG towards DEF-car
'He then went towards the car.' (arabiCorpus, AhlamFawda)

The basic use of all these Path Relator Ps is to relate a Figure to the end point (the goal) of a path. Thus, they are all goal-oriented elements. Differences among them do exist, though, in terms of Pantcheva's (2011) other properties: transition and delimitation. For example, *ʔɨla* and *lɨ-* 'to', (25a-b), being parallel to English *to*, are supposed to display the properties +T(ransitional), +O(riented) and -D(elimited). That is, e.g. in (25a), the Figure (represented by *she*) is supposed to undergo a transition from one spatial domain to another. However, *ʔɨla* and *lɨ-* 'to' do not suggest the end point represented by the Ground *məħətˁət lmetro* 'the metro station' to be a termination of a path. Thus, they can be characterised as a Cofinal path type, in Pantcheva's (2011) typology of path.

ħəta 'until/up to', (25c), on the other hand, involves a Figure's transition to the end point, but contrary to *ʔɨla* and *lɨ-* 'to', the end point forms the termination of a path. That is, the Figure's path ends at the Ground identified. For example, in (25c), the DP Ground *lʕasˁɨmə kinʃasa* 'the capital city Kinshasa' is taken as a boundary to the Figure's movement in a path. Accordingly, *ħəta* 'until/up to' can be said to display the properties +T, +O and +D, and can thus be considered a Terminative element.

Finally, *nəħwə* 'towards' is non-transitional and non-delimited. The PP *nəħwə sseijarə* 'towards the car' in (25d) neither forms the ending point of the Figure's path nor delimits its

path. *nəħwə* is thus -T, +O and -D and exemplifies an Approximative path element in Pantcheva (2011).

The Path Relator elements listed in the middle column in table 3, that is *mɨn* 'from' and *ʕən* 'away from', relate a Figure to the starting point or the source of a path. Thus, they are source-oriented. In terms of transition and delimitation, *mɨn* 'from' displays the same properties as its corresponding goal elements *ʔɨla* and *lɨ-* 'to'. It suggests a transition of a Figure from the Ground spatial domain to an outer location; besides, the Ground is not set as the initial boundary of the path. Accordingly, *mɨn* 'from' is a Coinitial element associated with the properties +T, +O and -D. An illustrative example is:

(26) lən təxrʉdʒi mɨnə l-beit ljawm
not go.PRS.2SG from DEF-house today
'You will not go out of the house today.' (arabiCorpus, Madbuli)

As to *ʕən* 'away from', it is similar to *mɨn* 'from' in terms of being source-oriented and suggesting a non-delimitation. However, it differs with respect to transition. Contrary to *mɨn* 'from', *ʕən* does not involve a Figure's transition from the starting point to an outer location. This entails that *ʕən* is -T, +O and -D, exemplifying thus the Recessive path type in Pantcheva's (2011) typology of path.[18]

I turn now to the elements listed in the third column under Route Relator type. These are *xɨlal* 'through', *ʕəbrə* 'across' and *ħawlə* 'around'. Example sentences with these Ps are:

(27) a. ʔəmʃi xɨlal d-dar
walk.PRS.1SG through DEF-house
'I walk through the house.' (arabiCorpus, Aghani)

b. ʔɨsˁtˁəħəb-ə-ni ʕəbrə rʉdhat l-qɨsm
accompany-PST.M3SG-1SG across lobbies DEF-department
'He accompanied me across the lobbies of the department.' (arabiCorpus, Chicago)

c. ʔɨnðˁəməm-tʉ ʔɨla l-dʒalsin ħawlə r-radjo
join-PST.1SG to DEF-sitting around DEF-radio
'I joined those sitting around the radio.' (arabiCorpus, Miramar)

All three relate a Figure to the intermediate points involved in a path; besides, all three lack orientations and delimitations. With respect to the transition property, *xɨlal* 'through' suggests a transition of the Figure from a position outside the Ground to a position inside it and then out of it. Therefore, I assume that it displays transition. The same applies to *ʕəbrə* 'across'. The difference between them is in terms of the Ground dimensional type; it is usually bounded in the case of *xɨlal* and unbounded in the case of *ʕəbrə*. As to *ħawlə* 'around', the Figure does not undergo a transition as it occupies the whole middle sets of points of the path at some time. Thus, it can be said to be a non-transitional element. Accordingly, while *xɨlal* and *ʕəbrə* are Transitive elements, *ħawlə* is a Prolative element, in Pantcheva (2011). However, a search in the arabiCorpus shows that *xɨlal*, *ʕəbrə* and *ħawlə* are used mostly with atelic verbs, such as *ʔəsir* 'walk' and *ʔərkʉðˁ* 'run'. A few illustrative examples are given in (28):

[18] *ʕən* is also used to denote distance, occurring with non-motion verbs, as in *jəʤlisʉ bəʕidən ʕən-hʉm* 'He is sitting far away from them'.

(28) a. təsir-ʉ xɨlal n-nʉxaʕ l-ʃawki
walk.PRS-3SG.NOM through DEF-cord DEF-spinal
'It goes through the spinal cord.' (arabiCorpus, Ghad01)

b. jərkʉðˁ-ʉ ʔəbrə sˁ-sˁəħari
run.PRS-M3SG.NOM across DEF-deserts
'He runs across the deserts.' (arabiCorpus, Hayat97)

c. rəkəðˁə ħawlə beit-ɨh
run.PST.M3SG around house-POSS.M3SG
'He ran around his house.' (arabiCorpus, Hayat97)

Thus, these Ps can be described as unbounded elements and may not involve a transitional property. To avoid drawing premature conclusions, I will disregard the two subtypes of Route elements suggested in Pantcheva (2011) and classify *xɨlal, ʕəbrə* and *ħawlə* as Route Relator Ps.

To conclude, in MSA, there are lexical representatives of six path types identified in Pantcheva's (2011) typology of path Ps. These are summarised in (29):

(29) a. *ʔɨla/lɨ-* 'to': +T, +O, -D = Cofinal
b. *ħəta* 'until/up to': +T, +O, +D = Terminative
c. *nəħwə* 'towards': -T, +O, -D = Approximative
d. *mɨn* 'from': +T, +O, -D = Coinitial
e. *ʕən* 'away from': -T, +O, -D = Recessive
f. *xɨlal* 'through', *ʕəbrə* 'across' and *ħawlə* 'around': -O, -D = Route

Morphologically, these Ps are simple and thus lexicalise the PathRel functional head. However, in a more fine-grained structure, each of these lexicalises the relevant functional head as suggested in Pantcheva's (2011) decomposition model, e.g. *ʔɨla/lɨ-* 'to', *nəħwə* 'towards' and *ħəta* 'until/up to' will be hosted by the GoalRel node, *mɨn* 'from' will go under SourceRel and *xɨlal* 'through', *ʕəbrə* 'across' and *ħawlə* 'around' will be under RouteRel.

Two interesting cases are the co-occurrence of *mɨn* 'from' with *xɨlal* 'through' and *ħawlə* 'around', forming complex constructions such as *mɨn xɨlal* 'from through' and *mɨn ħawlə* 'from around'. See examples below:

(30) a. l-mijah sə-təsir mɨn xɨlal s-səd
DEF-water will-flow from through DEF-dam
'The water will flow through the dam.' (arabiCorpus, Masri2010)

b. ʔɨltəfət-ət ʔɨla ʔəbnaʔɨ-ha mɨn ħawlɨ-ha
turn.PST-F3SG to kids-POSS.F3SG from around-PC.F3SG
'She turned to her kids around here.' (arabiCorpus, Hayat96)

As can be seen, the order displayed by these Path Relator Ps is the reverse of what I assumed earlier (see the structure in (21)). That is, here the Source element embeds the Route element, where it should be the reverse according to Pantcheva (2011). Thus, I assume that there is a kind of movement yielding the order in (30a-b). That is, *mɨn* has possibly moved to Spec of RouteRelP, giving the order SourceRel>RouteRel.

Finally, in terms of co-occurrence of Place Relators and Path Relators in Arabic, these elements display specific behaviour. Except for *ʔɨla/lɨ-* 'to' and *mɨn* 'from', the rest of the Path Relators do not allow PlaceRels or AxParts. *ʔɨla/lɨ-* 'to' allows lexicalised AxParts only,

while *mɨn* 'from' allows lexicalised PlaceRels and AxParts (one exception being **mɨn fi* 'from in'). See examples below:

(31) a. ʔɨla daxɨl məħətˁət l-metro
to inside station DEF-metro
'to inside the metro station'

b. ʔɨla wəsətˁ l-mədinə
to middle DEF-city
'to the middle of the city'

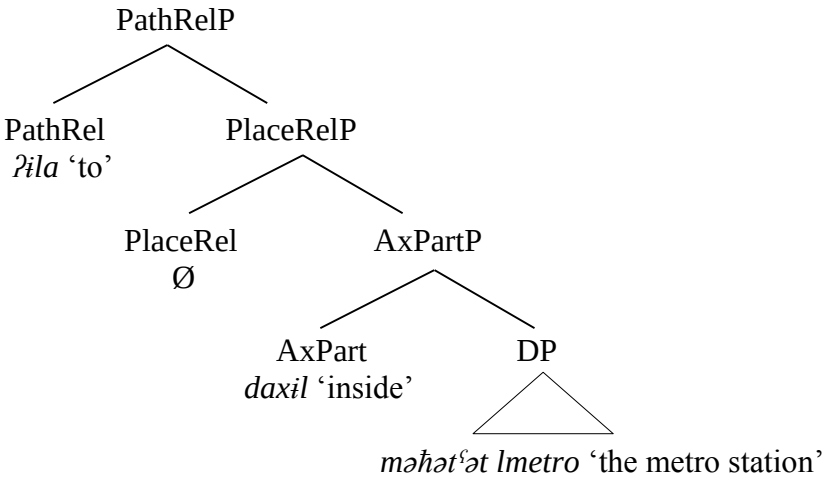
(32) a. mɨn ʕəla t-təl
from on DEF-hill
'from the top of the hill'

b. mɨn fawq t-təl
from above DEF-hill
'from the top of the hill'

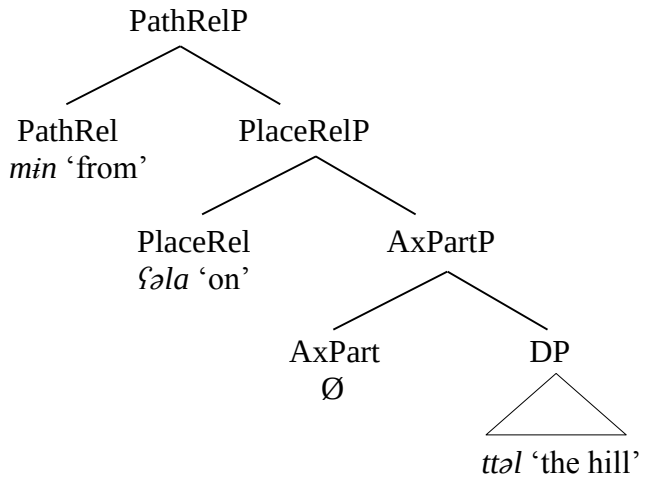
c. mɨn xarɨdʒ l-mədinə
from outside DEF-city
'from outside the city'

In (31a-b), *ʔɨla* lexicalises the PathRel functional head. The elements *daxɨl* 'inside' and *wəsətˁ* 'middle' are semi-prepositions and they lexicalise the AxPart terminal node. In (32a-b), *mɨn* 'from' is the PathRel element, while *ʕəla* 'on' and *fawq* 'above' are under the PlaceRel node. The difference between the two is that *ʕəla* 'on' is a true preposition and *fawq* is a semi-preposition. In (32c), *xarɨdʒ* 'outside' is the lexicalisation of the AxPart element. For expository purposes, I provide the tree structures of the examples in (31a) and (32a). These are given in (33) and (34), respectively. For simplicity I assume a non-decompositional analysis of the PathRel projection.

(33)



(34)



5. Summary and conclusion

In this paper, I have examined the prepositions used in Arabic in the two main spatial domains: place and path. The elements used in a place domain have been referred to as Place Relators, and those in the path domain as Path Relators. First, I examined the internal syntax of Place Relators. This included a discussion of their semantics and the types of elements (morphological or lexical) that lexicalise the functional heads included in an extended spatial P projection. Investigation shows that Arabic has a lexical representation for the functional heads PlaceRel and AxPart. The true prepositions always lexicalise the PlaceRel, while elements of the semi-prepositions are distributed among PlaceRel and AxPart.

The second half of the paper was devoted to elements used in a path domain. Examining the morphological structure of Arabic Path Relators has not revealed a rich or complex syntactic structure. That is, most of the path elements are mono-morphemic and encode a single terminal in a path hierarchy, which is the PathRel. The PathRel projection can be, however, broken down into three main functional heads based on the points to which a Path Relator element relates a Figure: GoalRel, SourceRel and RouteRel. Furthermore, in the spirit of Pantcheva's (2011) typology of path, MSA has representatives of six types of Path Relators. Finally, combinations of PathRelP and PlaceRelP in Arabic are restricted to a few elements only.

Appendix 1: The prepositions in MSA[19]

True prepositions		**Semi-prepositions**
Separable	**Inseparable**	
fi 'in'	*bɨ-* 'at/in/by'	*ʔəmam* 'in front of'
ʕəla 'on'	*lɨ-* 'to/for'	*xəlf* / *wəraʔ* 'behind'
ʔɨla 'to'	*tə-* 'by' (for oath)	*fawq* 'above'

[19] The list of Ps given in the appendix are by no means exhaustive.

mɨn ‘from/of’	*wə-* ‘by’ (for oath)	*təħt* ‘below’
ʕən ‘away from’	*kə-* ‘like’	*qəbl* ‘before’
ħəta ‘until/up to’		*bəʕd* ‘after’
ʕɨnd ‘at/with’		*bein* ‘between/among’
məʕə ‘with’		*ħawlə* ‘around/about’
mʉnðu/mʉð ‘since/so far’		*ləda/lədʉn* ‘with’
ħaʃa ‘except’		*wəsətˁ* ‘middle’
ʕəda ‘except’		*daxɨl* ‘inside’
xəla ‘except’		*xarɨʤ* ‘outside’
		ʔəʕla ‘up’
		ʔəsfəl ‘down’
		qʉrb ‘near/beside’
		jəmin ‘right’
		jəsar ‘left’
		ʕəbrə ‘across’
		xɨlal ‘through’
		mʉqabɨl ‘opposite’
		dun/bɨdun ‘without’

References

Abdul Hameed, M. M. (1980). *sharih ibn aqeel Vol 3.* [Ibn Aqeel’s Explanation]. Cairo: Daru Al-Turath.

Abi Asbar, J. S. (1968). *Majmuʿat al-huruf al-arabiya wa dhurufiha* [The Group of Arabic Prepositions and Adverbs]. Beirut: Daar al-9ilm Lilmalaayiin.

Abu-Chacra, F. (2007). *Arabic: An Essential Grammar*. London: Routledge.

Al Shumasan, A. I. (1987). *ḥuruuf al-jər: dilalatuha wa ʿilaqatuha* [Prepositions: Their Notions and Relations. Jada: Al-Madani Press.

Asbury, A., Dotlačil, J., Gehrke, B. & Nouwen, R. (eds.) (2008). *Syntax and Semantics of Spatial P*. Amsterdam: John Benjamins Publishing Company.

Badawi, E., Carter, M. G. & Gully, A. (2004). *Modern Written Arabic: A Comprehensive Grammar*. London: Routledge.

Cinque, G. (1999). *Adverbs and Functional Heads: A Cross-linguistic Perspective.* New York: Oxford University Press.

Cinque, G. (ed.) (2002). *Functional Structure in DP and IP: The Cartography of Syntactic Structures Vol 1.* New York: Oxford University Press.

Cinque, G. & Rizzi, L. (2008). The cartography of syntactic structures. *Studies in Linguistics* 2, 42-58.

Cinque, G. & Rizzi, L. (eds.) (2010). *Mapping Spatial PPs: The cartography of syntactic structures Vol 6.* Oxford: Oxford University Press.

Dikken, den M. (2010). On the functional structure of locative and directional PPs. In Cinque & Rizzi (eds.), 74-126.

Gehrke, B. (2008). *Ps in Motion: On the Semantics and Syntax of P Elements and Motion Events.* Utrecht: LOT.

Hegedűs, V. (2006). Hungarian spatial PPs. In Svenonius, P. (ed.), *Nordlyd: Tromsø Working Papers in Linguistics: 33.2, Special Issue on Adpositions,* 220-233. Tromsø: Center for Advanced Study in Theoretical Linguistics.

Helmantel, M. (2002). *Interactions in the Dutch Adpositional Domain*. Utrecht: LOT.

Herweg, M. & Wunderlich, D. (1991). Lokale und direktionale. In Stechow, von A. & Wunderlich, D. (eds.), *Semantik*, 758-785. Berlin: Walter de Gruyter.

Jackendoff, R. (1973). The base rules for prepositional phrases. In Anderson, S. R. & Kiparsky, P. (eds.), *A Festschrift for Morris Halle,* 345-356. New York: Holt, Rinehart and Winston.

Jackendoff, R. (1983). *Semantics and Cognition.* MA: MIT Press.

Jackendoff, R. (1990). *Semantic Structures.* MA: MIT Press.

Koopman, H. (2010). Prepositions, postpositions, circumpositions and particles. In Cinque & Rizzi (eds.), 26-73.

Kracht, M. (2002). On the semantics of locatives. *Linguistics and Philosophy* 25, 157-232.

Krifka, M. (1998). The origins of telicity. In Rothstein, S. (ed.), *Events and Grammar*, 197-235. Dordrecht: Kluwer.

Nam, S. (1995). *The Semantics of Locative Prepositional Phrases in English.* Los Angeles: University of California.

Noonan, M. (2010). À to zu. In Cinque & Rizzi (eds.), 161-195.

Pantcheva, M. (2006). Persian preposition classes. In Svenonius & Pantcheva (eds.), 1-25.

Pantcheva, M. (2011). *Decomposing Path: The Nanosyntax of Directional Expressions.* Ph.D dissertation, University of Tromsø.

Piñón, C. J. (1993). Paths and their names. In Beals, K., Cooke, G., Kathman, D., Kita, S., McCullough, K. & Testen, D. (eds.), *Chicago Linguistics Society Vol* 29, 287-303. Chicago: Chicago Linguistics Society.

Rizzi, L. (2004). On the cartography of syntactic structures. In Rizzi, L. (ed.), *The Structure of CP and IP: The Cartography of Syntactic Structures Vol 2.* New York: Oxford University Press.

Riemsdijk, van H. (1990). Functional prepositions. In Pinkster, H. & Gene, I. (eds.), *Unity in Diversity*, 229-241. Dordrecht: Foris.

Riemsdijk, van H. & Huybregts, R. (2002). Location and locality. In Oostendorp, van M. & Anagnostopoulou, E. (eds.), *Progress in Grammar: Articles at the 20th Anniversary of the Comparison of Grammatical Models Group in Tilburg*, 1-23. Amsterdam: Meertens Instituut.

Romeu, J. (2014). *Cartografía mínima de las construcciones espaciales* [Spatial Constructions in a Minimal Cartography]. Ph.D dissertation, Universidad Complutense de Madrid.

Ryding, K. C. (2005). *A Reference Grammar of Modern Standard Arabic.* Cambridge: Cambridge University Press.

Ryding, K. C. (2014). *Arabic: A Linguistic Introduction.* Cambridge: Cambridge University Press.

Saeed, T. S. (in preparation). *Events and Space: Motion VPs and Spatial PPs.* Ph.D dissertation, Newcastle University.

Svenonius, P. (2006). The emergence of axial parts. In Svenonius & Pantcheva (eds.), 49-77.

Svenonius, P. (2008). Projection of P. In Asbury, Dotlačil, Gehrke & Nouwen (eds.), 63-84.

Svenonius, P. (2010). Spatial P in English. In Cinque & Rizzi (eds.), 127-160.

Svenonius, P. & Pantcheva, M. (eds.) (2006). *Nordlyd: Tromsø Working Papers in Linguistics: 33.1, Special Issue on Adpositions*. Tromsø: Center for Advanced Study in Theoretical Linguistics.

Talmy, L. (1975). Semantics and syntax of motion. In Kimball J. P. (ed.), *Syntax and Semantics Vol 4*, 181-238. New York: Academic Press.

Talmy, L. (1985). Lexicalisation patterns: semantic structures in lexical forms. In Shopen, T. (ed.), *Language Typology and Syntactic Description III: Grammatical Categories and the Lexicon*, 57-149. Cambridge: Cambridge University Press.

Terzi, A. (2010). Locative prepositions and place. In Cinque & Rizzi (eds.), 196-224.

Wunderlich, D. (1991). How do prepositional phrases fit into compositional syntax and semantics. *Linguistics* 29, 591-621.

Zwarts, J. (1997). Vectors as relative positions: A compositional semantics of modified PPs. *Journal of Semantics* 14, 57-86.

Zwarts, J. (2005). Prepositional aspect and the algebra of paths. *Linguistics and Philosophy* 28, 739-779.

Zwarts, J. & Winter, Y. (2000). Vector space semantics: A modeltheoretic analysis of locative prepositions. *Journal of Logic, Language and Information* 9, 169-211.

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