

Greek and Hebrew locative prepositional phrases: A unified Case-driven account

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Abstract

In this paper we investigate the occurrence of Greek and Hebrew locative expressions in two syntactic frames: (i) direct complementation, and, (ii) complementation mediated by a ‘light’ P(reposition). The main claim is that these two frames correspond to two Case mechanisms: PF Case licensing in the domain of a prosodic word, and syntactic Case checking via a light P, respectively. We attribute the particular implementation of each frame to the different syntactic status of locatives in each language; Hebrew locatives are argued to be P heads, while their Greek counterparts are phrasal modifiers. Consequently, direct complementation resulting in PF Case licensing is widely attested in Hebrew, because most Hebrew locatives are construct heads, forming a Construct State, namely, a single prosodic word, with their complements. Direct complementation is limited to clitics in Greek, because only they can be part of the prosodic word of the locative. Syntactic Case checking via a light P is widespread in Greek because Greek locatives are phrasal, therefore, unable to check Case of their DP complements in syntax. The same mechanism is limited in Hebrew to a particular variety of locatives, which are argued to be free P heads, lacking a Case feature.

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1. Introduction

In a variety of languages, locative phrases are considered prepositional phrases, (PPs), headed by a locative P(reposition). Under standard assumptions according to which Ps, on a par with Vs, are implicated in checking the Case features of their object, locatives are expected to take a DP as

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their complement. This is indeed the Case in several languages (e.g., Hebrew, English, Russian, etc.), but not in all. In Greek, for instance, the common (but not the only) complementation pattern of locatives is a PP headed by a light P. Moreover, even in languages such as Hebrew, in which locative Ps in general combine directly with a DP, there are locatives which behave on a par with their Greek counterparts, in the sense that their DP complement is introduced by a light P.

Focusing on Greek and Hebrew locative PPs, we will argue that the two syntactic frames in which locatives are encountered, namely PP-complementation vs. DP complementation, reflect two Case-strategies, syntactic Case-checking vs. PF Case-licensing, respectively. The manifestation of these strategies in each of the languages will be shown to follow from the syntactic status of locatives, as well as from the morpho-syntactic properties of the elements participating in the structure of locative PPs. We will argue that, despite the fact that Hebrew and Greek locatives are fundamentally different, and, therefore, the two syntactic frames in which they enter are not a consequence of the same phenomena, they can be given a uniform account, on the assumption that the driving force underlying the existence of these two frames is the Case requirements of the DP complement of locatives.

The paper is structured as follows: the first section presents the two syntactic frames employed by locative PPs in Greek and Hebrew. In section 2 we specify the issues to be accounted for, present the core of our analysis, which is based on the idea that Case can either be checked in syntax or licensed at PF (Neeleman and Reinhart, 1997), as well as the background assumptions concerning the syntactic structure of locative PPs and their status in Greek and Hebrew in particular. Section 3 argues that Hebrew locatives, by and large, are construct heads forming a construct state with their nominal complements, namely, a single prosodic word constituting a (genitive) Case-licensing domain at PF. Construct state formation is argued to be obviated by a particular subset of Hebrew locatives, giving rise to PP complementation. In section 4, Greek locatives are shown to be phrases, rather than (P)-heads, modifying the abstract noun *Place*, which is assumed to head the locative extended projection. We claim that the phrasal status of Greek locatives and their structural position entail their inability to check the Case of their complement in the syntax, and that the occurrence of a light P fulfills this function. We further argue that PF Case-licensing is a possibility in Greek when the locative is followed by a pronominal clitic, by virtue of the fact that, as we demonstrate, the clitic forms a single prosodic word with the locative. Section 5 concludes the paper.

2. The facts and the issues in Greek and Hebrew

As already mentioned, in both Hebrew and Greek, locative PPs may enter two syntactic frames, to which we refer here as *Frame A* and *Frame B*. Descriptively speaking, in *Frame A* locatives are followed by a ‘small’ P (referred to as light P in the paper) that introduces their complement. Because of the simultaneous presence of two prepositions, this frame is also known as complex preposition, a term we employ in this work, without ascribing to it theoretical status. In *Frame B* locatives are followed directly by their nominal (DP or clitic) complement. In what follows we review the above facts in detail for each language and for each syntactic frame.

2.1. *Frame A*

2.1.1. *Greek*

In *Frame A*, Greek locative prepositions are followed by the light Ps *se* or *apo*, which introduce a DP with accusative Case, (1). This frame is widespread in Greek, in the sense

that all locatives may participate in it. Note that *se* is always contracted on the definite determiner.

- (1) a. Petuse epano apo to Niko.
was-flying-3s on apo the Nick-acc
'It was flying over Nick.'
- b. Kathisa makria apo to Niko.
sat-1s far apo the Nick-acc
'I sat far from Nick.'
- c. Petakse konda sta pedia.
flew-3s near se-the children-acc
'It flew near the children.'
- d. Kathisa dipla sto Niko.
sat-1s beside se-the Nick-acc
'I sat beside Nick.'

2.1.2. Hebrew

In Hebrew, the locative P entering Frame A is followed by the light P *le*, followed by a DP (Hebrew, by and large, does not show morphological Case), (2a). This syntactic frame is limited to a small set of locative Ps in Hebrew (those prefixed by *mi-/me-*), hence the ungrammaticality of (2b).

- (2) a. hu af meal le-batim
he flew above le houses
'He flew above houses.'
- b. *hu nafal leyad/al le-batim
he fell near/on le houses
'He fell near/on houses.'

2.2. Frame B

2.2.1. Greek

In Frame B, the locative is followed directly by its complement, which carries genitive Case this time. Frame B is more restricted than Frame A in Greek, first, in the sense that the complement of the locative may surface as a clitic, but not as the corresponding full DP, (3a)–(3c). Moreover, for a small number of locatives Frame B is available only under particular circumstances, as we will see in more detail in section 5.3.

- (3) a. Kathisa makria tu/*tu Niku/*aftu.
sat-1s far he-cl-gen/the Nick-gen/he-pron-gen
'I sat far from him/Nick.'
- b. Petakse konda tus/*ton pedion.
flew-3s near they-cl-gen/the children-gen
'It flew near them/the children.'
- c. Kathisa dipla tu/*tu Niku.
sat-1s beside he-cl-gen/the Nick-gen
'I sat beside him/Nick.'

2.2.2. Hebrew

Almost all locative Ps, including those that participate in Frame A, can be followed directly by their complement in Hebrew, pronominal suffixes and DPs alike, (4):

- (4) a. hu af leyad/meal/lifney beyt-ha-sefer
 he flew near/above/in front home-the-book
 ‘He flew near/above/in front of the school.’
 b. hu af leyad-o/meal-av/lefan-av¹
 he flew near-him/above-him/in front-him
 ‘He flew near/above/in front of him.’

Summarizing the above facts, we observe that although both, DP complementation and (light) PP complementation, exist in both languages, there is a marked difference with respect to how readily each frame is available, and how exactly it is manifested. In the following section we will lay out the specific questions raised by the above facts as well as the main hypothesis, and the central assumptions that underly our proposal.

3. The proposal

Despite the fact that locatives in both Greek and Hebrew enter two similar syntactic frames, there are clear differences as to the availability and the implementation of each frame, as we have just pointed out. Our analysis aims at capturing these differences in a general fashion. Before proceeding to the central features of our proposal, however, let us first delimit what has to be addressed and has to be accounted for.

3.1. The issues

In the process of understanding the structure of the two syntactic frames in which locatives enter, we believe it is essential to answer the following interrelated questions:

- (i) Why is Frame A (PP-complementation) limited in Hebrew, while the opposite holds for Greek?
- (ii) Why can a clitic, but not a full DP, follow Greek locatives?
- (iii) What is the role of the light Ps that follow locatives in the two languages?

3.2. Motivation and main hypothesis

Intuitively speaking, the occurrence of light Ps within locative phrases in both languages has a Case-related flavor. The mere fact that almost all Greek locatives and a certain class of Hebrew ones can occur in both syntactic frames, one in which the light P is present and another in which it is not, suggests that the light P in itself has no semantic contribution. In fact, as we will see later, this intuition receives support in Terzi (2007), who points out that in the few instances in which the light P *apo* carries semantic content when following locatives, its presence is indeed obligatory. Provided

¹ Some Hebrew Ps (e.g., *leyad* ‘near’) combine with the pronominal suffix on a par with singular nouns (e.g., *yad-o* ‘hand-his’), whereas others (e.g., *meal* ‘above’) do so on a par with plural nouns (e.g., *yad-av* ‘hands-his’). To our best knowledge, the reason underlying this partition between Ps is not yet known.

the above line of reasoning is on the right track, namely, that the occurrence of light Ps serves the formal function of checking the Case feature of the nominal complements of locatives, the question that arises is how Case is checked when the light P is absent, namely in Frame B. Leaving this question open for the time being, let us note the following with respect to Case checking.

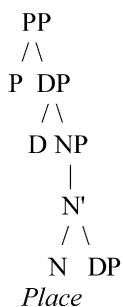
In recent years it has been proposed that Case domains can be defined either in the syntax – via *Agree* between the probing head and the active DP (Chomsky, 2000), or by the prosodic structure of the PF component – in the domain of a prosodic word, PWd (Neeleman and Reinhart, 1997; Siloni, 2002b).² The choice between the syntactic or the prosodic domain may be parametric, depending on the morphological inventory of the language.

Inspired by the above views, the main hypothesis of our proposal is that the two frames in which locatives participate correlate with these two Case domains and the related Case mechanisms. Specifically, we will argue that in Frame A (PP-complementation) the light P is a formal syntactic element that checks the Case of its nominal complement, whereas Frame B (DP-complementation) gives rise to Case-licensing at PF in both languages. The different distribution of the two frames in which locatives appear, as well as their particular implementation in each language will be attributed to the different syntactic status of Greek and Hebrew locatives, namely, XP (non-projecting in Minimalist terms) vs. X^0 (projecting), respectively.

3.3. The structure of locative PPs

Independently of the issues at hand, we follow Botwinik-Rotem (in press) and Terzi (in press, 2007), and assume that the locative relation, commonly ascribed directly to a locative P, is instantiated via the combination of a functional head P with a nominal projection headed by an empty N, *Place*, which possibly has an empty determiner (cf. Kayne, 2004 regarding *here* and *there* in English). Thus, the DP referred to as the complement of P is merged not with P, but rather with N-*Place*, as schematized in (5) below.³

(5) [PP P [DP D [NP *Place* DP]]]



² The phonological representation includes a prosodic structure consisting of prosodic categories such as syllable, foot, prosodic word, phonological phrase, intonational phrase, utterance. The mapping between syntactic structure and prosodic structure above the foot and below the intonational phrase refers to edges of syntactic constituents. Prosodic words are aligned with syntactic words and phonological phrases with maximal projections (Selkirk, 1995). Alignment can be either at the left or at the right edge of the relevant syntactic domain, depending on the language. In both Greek and Hebrew, it is at the right edge.

³ The proposed structure does not play a central role in accounting for the distribution of the two frames in Hebrew, but its relevance will become evident in section 4, where the Greek facts are discussed.

The existence of a nominal head in the structure of locatives is suggested by a number of facts attested in a variety of languages, although the details of the relevant accounts differ and are not always made precise.

In Greek, to which we will return extensively in the paper, some initial evidence to this effect is offered by the fact that the clitics following locatives carry genitive Case (6), and genitive is the Case associated exclusively with nominals (7):⁴

- (6) piso tu
 behind him-cl-gen
 ‘behind him’
- (7) a. To vivlio tu Yianni/tu
 the book the John-gen/he-cl-gen
 ‘John’s/his book’
 b. I katastrofi tu musiu
 the destruction the museum-gen
 ‘The destruction of the museum’

The evidence for the existence of a nominal head in the structure of Greek locatives, namely, the genitive Case of the clitics associated with them, may seem problematic in light of the view introduced in section 5.2 that the null *N-Place* is not able to assign genitive to its DP-complement. This discrepancy is arguably only apparent, however, if we assume that post-nominal genitive in standard Greek DPs is structural, hence checked by the relevant functional head (e.g., D or Num) associated with the appropriate φ -features. D of *N-Place* is not such a head, as it does not denote an individual and, similarly for Num (in the sense that neither one is associated with φ -features). Consequently, structural genitive is indeed unavailable in a DP enclosing *N-Place*. However, as already hinted, and will be argued for in subsequent sections, genitive can be licensed also at PF, in a particular prosodic domain, the PWD. Thus, the fact that clitics in the Greek locative PPs are genitive indeed supports the presence of the nominal head, with which this Case is exclusively associated, with the difference that the genitive of clitics is not checked structurally in syntax, but is licensed at PF.⁵

The idea of locatives entering some nominal structure emerges often in the literature, in various disguises. Pantcheva (in press), for instance, notices that some of the so-called class 2 locative prepositions in Persian can be preceded by a demonstrative (related exclusively to Ns), and even bear plural morphology (8):

⁴ In the sense that, apart from complements of locatives, morphological genitive only appears on DPs that are the complements of nouns. A legitimate question to raise at this point is how one can be sure that the genitive we see on complements of locatives is indeed genitive, given the fact that, in Modern Greek, genitive and dative have collapsed with the latter having assumed the morphology of the former. For an answer see Terzi (2005), who provides empirical evidence from Northern Greek dialects arguing that the Case of the clitics following locatives is genitive, rather than its homophonous dative.

⁵ It should be pointed out that Case licensing at PF, rather than in syntax, is argued in Neeleman and Reinhart (1997) to be the default option in the grammar, used whenever possible. For the rationale behind this claim, see Neeleman and Reinhart (1997).

- (8) in zir(-ha)
 this under (-pl.)
 ‘down here’ (distributive reading)

Moreover, in languages such as Chichewa, locative phrases are argued to be DPs, rather than PPs (Bresnan, 1994). In such languages the locative interpretation is achieved via a particular classifier, namely, a determiner-like element, presumably residing in the D enclosing N-Place in our terms.

Finally, Aboh (2006) argues that locative adpositions in some West African Kwa languages, like Gbe, are not Ns, yet, locative phrases are similar to possessive constructions (which are typically nominal). On the assumption that the locative expressions themselves (e.g., *near*, *above*) are not members of the category N, the above facts support the idea originating in Terzi (2007), that a locative phrase (PP or DP) has an independent nominal core, namely it is essentially an extended NP projection, headed by the empty noun *Place*.⁶ With the above in mind, let us now turn to a closer examination of the Hebrew and Greek locatives.

4. Hebrew

Since direct complementation, or else, absence of a light P, is the predominant pattern for Hebrew locative PPs, we begin with the analysis of this frame in Hebrew.

4.1. Frame B

Frame B, in which the locative is followed directly by its DP complement (repeated below as (9)), is in fact the only frame available for the vast majority of locatives in Hebrew.

- (9) a. hu af leyad/meal/lifney beyt-ha-sefer
 he flew near/above/in front home-the-book
 ‘He flew near/above/in front of the school.’
 b. hu af leyad-o/meal-av/lefan-av
 he flew near-him/above-him/in front-him
 ‘He flew near/above/in front of him.’

Following a suggestion of Siloni (2002a,b), we consider Frame B an instance of the Semitic Construct State (CS), which in Hebrew is not limited to the nominal domain.⁷ The characterizing property of constructs is that their head is a stressless weak form, phonologically dependent on the non-head member. Abstracting away from the general question pertaining to the lexical/functional classification of P (cf. Baker, 2003; Botwinik-Rotem, 2004, *in press*; Grimshaw, 2000; Jackendoff, 1977; van Riemsdijk, 1990, 1998), Hebrew prepositions are phonologically weak, in the sense that they do not bear main stress, unless focused (similarly to their English counterparts, Selkirk, 1995). Hence, Hebrew locatives are

⁶ Svenonius (*in press*) also provides extensive evidence that locative expressions in a variety of languages are not Ns, viewing them as a distinct syntactic category, however, which he terms *Place*.

⁷ The Construct State is well known in association with nominals (see Siloni, 2002b for a full list of references). However, Siloni (2002a) throws light on the crosscategorical nature of the phenomenon in Hebrew, arguing that any head that does not bear tense specification can be a construct head (i.e., N, A, P and participial V).

appropriate as construct heads, and some of them even occur with the typical construct ending *-ey* (e.g., *lifney*, ‘in front’, *meaxorey*, ‘behind’).⁸ Moreover, as it emerges from the discussion that follows, Hebrew locatives are indeed heads, by contrast to their Greek counterparts that we will investigate later in the paper.

Under common assumptions regarding prosodic domains, the head of the construct does not constitute a prosodic word in itself, as it lacks main stress. Rather, it is part of the subsequent word, forming a prosodic word (PWd) with the genitive member of the construct. Importantly, Siloni (2002b) argues that the CS defines the PWd as a PF (genitive) Case checking domain in Hebrew. In other words, the Case-feature of the genitive member of the construct is checked at PF by virtue of being part of the CS.⁹

The variety of Hebrew constructs, including the prepositional one, is exemplified in (10). Since prosodic alignment in Hebrew is at the right edge of the syntactic constituent, in our Case the N-head of the genitive DP (e.g., *mora* in (10a)), this noun is aligned with the right edge of the PWd. This is where the PWd begins and is indicated by a bold square bracket. It ends once a new syntactic constituent bearing main stress, and therefore parsed as a PWd, is encountered. Put differently, the prosodic parse “scans” the syntactic structure from right to left, appropriately marking the right edges of the relevant syntactic constituents. Since construct heads do not bear main stress, in all the examples in (10), the whole construct (in regular square brackets) is a single PWd, namely there is no PWd bracket between the genitive DP and the head of the construct (e.g., *beyt* in (10a)). Note that in (10c,d) there is an additional PWd outside the construct, starting with *yeladim* (‘children’):

- | | | | |
|------|----|--|------------------|
| (10) | a. | [_{DP} <i>beyt</i> <i>ha-mora</i>] PWd] | nominal CS |
| | | house the-teacher | |
| | | ‘the teacher’s house’ | |
| | b. | [_{PP} <i>lifney</i> <i>ha-shulxan</i>] PWd] | prepositional CS |
| | | in front the-table | |
| | | ‘in front of the table’ | |
| | c. | <i>yeladim</i> PWd [_{VP} <i>nosey</i> <i>dgalim</i>] PWd] | verbal CS |
| | | children carrying flags | |
| | | ‘children carrying flags’ | |
| | d. | <i>yeladim</i> PWd [_{AP} <i>kxuley</i> <i>einaim</i>] PWd] | adjectival CS |
| | | children blue eyes | |
| | | ‘children with blue eyes’ | |

It is worth noting that, unlike members of the other (lexical) categories, which can have either construct or free forms, giving rise to CS or Free State (FS), respectively, (11a), most prepositions are invariantly construct P-heads, (11b).¹⁰ Thus, when followed directly by a DP, as is the case in

⁸ This is true not only of locative prepositions; most Hebrew prepositions are construct heads. Like in the locative domain, some of them exhibit overt construct morphology such as the suffix *-ey* (e.g., *legabey* ‘concerning’) or vowel reduction (e.g., *b’ad* ‘for’ is the reduced form of *ba’ad*).

⁹ We should note here that, unlike Siloni (2002b), we employ the term Case licensing when referring to the process that takes place at PF, while we retain the term Case checking for the familiar process of Case licensing in the syntax.

¹⁰ In nominal constructs, the loss of stress may trigger further phonological changes. For instance, the CS masculine plural ending is *-ey*, while the free form ends with *-im* (*pkidey* vs. *pkidim*, ‘clerks’). CS masculine singular and feminine plural have no typical construct state endings, but might involve vowel reduction (Fem.Pl: *banot* (free) vs. *bnot* (construct), ‘girls’; Masc.Sg.: *sefer* ‘book’ remains the same in both forms). If any, Ps exhibit only the *-ey* ending (modulo the preposition *saviv* ‘around’, that exhibits vowel reduction, see section 4.2).

Frame B, they always give rise to a CS, defining a PWd, namely, a phonological domain in which genitive Case is licensed. This invariant nature of most Hebrew locatives as construct P-heads is what makes Frame B so widespread in the language.

- (11) a. pney ha-yalda/(ha-) panim shel ha-yalda
face (CS) the-girl/the-face (FS) of the-girl
b. lifney ha-shulxan/*lepanim (shel/le) ha-shulxan¹¹
in front (CS) the-table/in front (FS) (of/le) the-table

Finally, the fact that the Hebrew Frame B admits not only full DPs (e.g., *leyad yalda* ‘near a girl’), but also pronouns (e.g., *leyad-a* ‘near-her’) as complements of P is fully expected. Hebrew pronouns occur as free forms only in nominative and (arguably) accusative contexts. In the nominal and prepositional domains they are (genitive) clitics, referred to as pronominal suffixes. As many other suffixes in Hebrew, they attract main stress, bringing about the immediate “closure” of the CS (Borer, 1984:52), thus defining the PWd, where their Case is licensed at PF.¹²

Following Borer (1984), we will consider Hebrew pronominal clitics to be base-generated on the head itself (N or P) (rather than moving to this position), and bind an empty pronominal category in the appropriate position. The structure of Hebrew Frame B including a pronominal clitic is schematized in (12).

- (12) ... [P_{Loc} [P al-av_i [D_P D [NP *Place* [D_P pro_i]]]]]
on-him

4.2. Frame A

We consider Hebrew Frame A ((2), repeated below as (13)), in which the locative is followed by the light *P le* introducing its DP complement, not to be a CS, but rather similar to the Free State (FS) in the nominal domain, (14a). The FS, unlike the CS (14b), is not a single PWd, because the free head-noun (*bayit* ‘house’) has its own main stress, and therefore constitutes a PWd of its own (while the following DP is part of another PWd). Consequently, the genitive Case of the DP *ha-mora* ‘the teacher’ in (14a) below cannot be licensed at PF in a PWd, and is accommodated in the syntax via the preposition *shel* ‘of’.¹³

- (13) hu af meal le-batim
he flew above *le* houses
‘He flew above houses.’

¹¹ The *p-f* alternation is due to the Hebrew spirantization (not strictly obeyed in Modern Hebrew). Thus, /p/ is the underlying phoneme and [f] its allomorph.

¹² Siloni (2002a) suggests that, on a par with possessive clitics in the nominal domain, pronominal clitics in the prepositional domain are genitive (in parallel constructions of Standard Arabic genitive Case is morphologically marked). As already mentioned (see footnote 1), morphologically, they are identical to the possessive clitics of the nominal domain, which are undoubtedly considered to be genitive: e.g., *leyad-i* ‘near-me’, *sifri-i* ‘book-my’ (compare with the accusative suffix: *livot-eni* ‘to see-me’). (We thank an anonymous reviewer for pointing out this most revealing contrast.)

¹³ Whether the preposition *shel* ‘of’ is a structural Case-checker, or the marker of genitive Case is debatable (see Borer, 1984 and Siloni, 1997, 2002a, for different views).

- (14) a. bayit]_{Pwd} shel ha-mora]_{Pwd}
 house (FS) of the-teacher
 b. beyt ha-mora]_{Pwd}
 house (CS) the-teacher
 ‘house of the teacher’

It is well known that the CS does not allow any elements to intervene between the head of the construct and its genitive member (cf. [Siloni, 2002b](#) and references cited therein). Therefore, viewing Frame A, which includes the intervening element *le*, not as a CS, but rather as an instance of its free counterpart (the FS), is only natural. Moreover, consider the parallelism between the nominal free and construct states and the two prepositional frames (A and B), using the locative preposition (*mi*)*saviv* ‘around’ as an example. This particular preposition is instrumental to making the relevant point transparent, as it has distinct free and construct forms; *saviv* is the free form, whereas *sviv* is its construct counterpart.¹⁴

As shown in (15a), *saviv* is construed with *le*, but *sviv* is not, (15b). Given that *sviv* necessarily forms a CS with its complement, we take the ungrammaticality of (15b) to indicate that the occurrence of *le* disrupts the construct. In other words, the incompatibility of *le* with a construct P-head (15b) is on a par with the incompatibility of *shel* with a construct head in the nominal domain (15d), while the grammaticality of (15a), which includes *le*, parallels the FS with *shel* in the nominal domain (15c).

- | | | | |
|------|----|-----------------------------------|---------|
| (15) | a. | hu tiyel saviv *(le-)batim | Frame A |
| | | he walked around <i>le</i> houses | |
| | b. | hu tiyel sviv (*le-)batim | Frame B |
| | | he walked around <i>le</i> houses | |
| | | ‘He walked around houses.’ | |
| | c. | sfarim *(shel) yeladim | FS |
| | | books(FS) of children | |
| | d. | sifrey (*shel) yeladim | CS |
| | | books(CS) of children | |
| | | ‘books of children’ | |

Based on the above, we consider locative P-heads participating in Frame A to be on a par with free Ns, namely, free P-heads. The (genitive) Case of the DP following these heads cannot be licensed at PF, as free heads, by definition, do not form a CS. Moreover, it is widely assumed that these free heads do not carry Case-features, and therefore cannot check the Case of their DP complement by themselves in the syntax ([Borer, 1984](#); [Siloni, 1997](#)). Consequently, a syntactic element other than the free N/P-head is required to perform this role: this other element is the light preposition *shel* in the nominal domain and *le* in the domain of locatives.¹⁵ Note that the Hebrew dative *le* is, arguably, not an independent P-head (for arguments, see [Landau, 1994](#);

¹⁴ The prefix *mi-* is optional with both forms.

¹⁵ The assumption that Hebrew free Ns are not associated with the structural Case feature [gen] is not controversial (see, for instance, [Siloni, 1997](#)). If the parallelism between the prepositional frames and nominal free and construct states is on the right track, extending this assumption to the prepositional domain, specifically to those locatives that occur in Frame A, is only natural.

Botwinik-Rotem, 2004, and references therein).¹⁶ Hence, we consider the structure of Hebrew Frame A to be as in (16), where the complement of *Place* is a dative DP, rather than a PP.

- (16) ... [P_{PLoc} [P *meal/mitaxat* [DP D [NP [N *Place* [DP *le-ec*]]]]]]
 above/under *le tree*

4.2.1. Deriving the set of Hebrew locatives entering Frame A

The existence of two Case mechanisms in the nominal domain (i.e., in the PWD at PF, or via *shel* in the syntax) is related to the fact that nouns have construct and free forms. Prepositions, however, were noted to be predominantly construct heads (modulo (*mi*))*saviv* ‘around’ and *mixuc* ‘outside’), whose combination with the following DP gives rise to a CS (Frame B). Hence, in principle, an alternative (dative) Case-realization via *le* (Frame A) is surprising.

Indeed, only a small subset of locatives are able to occur in Frame A, namely, those prefixed by *mi-* (or *me-*, when preceding a vowel) (*mitaxat* ‘under’, *meal* ‘above’, *misaviv* ‘around’, *mixuc* ‘outside’).¹⁷

¹⁶ The most solid arguments for the view that *le* is not an independent P-head are:

(a) modified conjunction (introduced in Landau 1994), namely a conjunction modified by a single AP. Such conjunction is possible for conjoined DPs in Hebrew (ia) but, crucially, not for conjoined PPs (ib). As shown in (ic), a conjunction of DPs introduced by the dative *le* can be modified by a single AP, on a par with the conjunction of DPs.

(b) Coordination of two DPs introduced by a single P is, in general, possible in Hebrew (iia). However, coordination of two dative arguments requires *le* on each of the conjuncts (unless they are indefinite) (iib) (see also (40) ahead). Based on this, Botwinik-Rotem (2004) argues that Hebrew dative *le* is a lexical prefix of D.

- (i) a. ha-more pagash et [[DP ha-yeled] ve-[DP ha-yalda] ha-xadashim]
 the-teacher met acc. the-boy and-the-girl the-new.pl.
 ‘The teacher met the new boy and girl.’
 b. ?*dan diber [[PP im ha-yeled] ve-[PP im ha-yalda] ha-xadashim]
 Dan spoke with the-boy and-with the-girls the-new.pl.
 c. dan natan sukaryot la-yeled ve-la-yalda ha-xadashim
 Dan gave candy *le*-the-boy and-*le*-the-girl the-new.pl.
 ‘Dan gave candy to the new boy and girl.’
 (ii) a. dan diber im ha-yeled ve-ha-yalda
 Dan spoke with the-boy and-the-girl
 ‘Dan spoke with the boy and the girl.’
 b. dan natan sukaryot la-yeled ve-(*ha)-yalda
 Dan gave candy *le*-the-boy and-the-girl
 ‘Dan gave candy to the boy and the girl.’

¹⁷ The occurrence of *mi-* is optional for *mitaxat* ‘under’, as far as the meaning of this locative is concerned. However, its presence/absence has a major effect on the syntactic frame in which this locatives occurs (see the discussion in the text, in particular around example (20)). On the other hand, the addition of *me-* to *al* (‘on’), resulting in *meal* ‘above’, affects both the meaning and the syntactic status of the locative. The presence of *mi* in *mixuc* ‘outside’ is obligatory; *xuc* ‘exterior’ is not a locative preposition in Hebrew, but rather a regular noun. (Additional examples of such locatives include *me’ever* ‘across’, *miyamin* ‘to the right’, *miba’ad* ‘through’, as pointed out to us by a reviewer. It should be pointed out, though, that *miba’ad* is a path preposition, and therefore may exhibit some properties different from the locatives discussed in the paper.) Furthermore, for *mitaxat* ‘under’ and *meal* ‘above’ the occurrence of *le* is highly preferred when the following DP is indefinite (and short), inducing a specificity effect, but rather optional when the DP is definite and/or long. For *misaviv* ‘around’ and *mixuc* ‘outside’, the occurrence of *le* is obligatory, namely these are exclusively Frame A locatives (*misaviv/mixuc* *(*le*) *batim gvohim ve atikim*, ‘around/outside houses tall and old’). See also the discussion that follows in the main text. (For a detailed study of the so-called *mi*-locatives, see Botwinik-Rotem, in preparation).

- (17) a. hu af *meal/mitaxat* le-ananim
 he flew above/under *le* clouds
 ‘He flew above clouds.’
 b. hu nafal *leyad/al* (*le-)batim
 he fell near/on *le* houses
 ‘He fell near/on houses.’

Abstracting away from the question of whether *mi-* originates lower than the locative and adjoins to it via head-movement, or whether it is a phonological prefix of the locative, originating in the lexicon (like the Hebrew definiteness marker *ha-*), the consequence is that locatives prefixed with *mi-* are complex heads. As such, they are phonologically stronger than those that are not, and therefore heavy enough to constitute a Pwd, on a par with the DP that follows them, (18).¹⁸

- (18) *mitaxat*]Pwa le-ec]Pwa
 under *le* tree

Note that, judging by the ungrammaticality of (19), complexity is necessary but not sufficient to “free” the P; a complex P that is clearly marked as a construct head (by the suffix *-ey*) cannot form a FS:¹⁹

- (19) hu yashav *meaxorey* (*le-)bayit
 he sat behind *le* house
 ‘He sat behind a house.’

Analyzing the locatives prefixed by *mi-* as free heads has an important consequence; it derives the fact, previously unaccounted for, that Hebrew locatives occurring without an overt complement are only those prefixed by *mi-*, (20):

¹⁸ Since construct heads have to be phonologically weak, complex heads in the nominal domain do not form CSs either (neither do adjectives formed by an adjectival suffix, Siloni, 2002b). In other words, whereas both CS and FS are possible with simple nouns like *sefer* ‘book’, (i), a complex noun like *sefer-kis* ‘pocket-book’ can occur only in the FS (ii):

- (i) a. *sefer shel xalomot* (FS)
 book of dreams
 b. *sefer xalomot* (CS)
 book dreams
 ‘a book of dreams’
 c. *sefer-kis shel xalomot* (FS)
 [a] book-pocket of dreams
 d. **sefer-kis (ha-) xalomot* (CS)
 book-pocket (the-)dreams
 ‘a pocket-book of dreams’

¹⁹ Unlike the other locatives prefixed with *mi-* (e.g., *mitaxat* ‘under’, *meal* ‘above’), *meaxorey* ‘behind’ does not have an unprefix version. It is therefore reasonable to assume that it is indivisible, namely, not a complex head but rather a single lexicalized head (Idan Landau, personal communication) (but see Botwinik-Rotem, in preparation for a more detailed analysis).

- (20) hu sam et ha-tikim *misaviv/mitaxat/meal*//*sviv/*taxat/*al/*leyad^{20,21}
 he put Acc the-bags around/under/above// around/under/on/near

Recall that nominal construct heads are phonologically dependent on the non-head member of the construct, and therefore cannot occur with a phonetically null complement (e.g., in the nominal domain: **sifrey* ‘books-CS’). Likewise, most Hebrew prepositions cannot occur without an overt complement either. In the analysis developed here, the ability of the above complex locatives to occur without a phonetically realized complement follows by virtue of their free status.

4.2.2. Frame A and pronouns

As already mentioned, Hebrew pronouns are clitics in the relevant domains. In the nominal domain, two options are manifested:

- (21) a. in the CS the pronoun is realized as a nominal suffix (*sifr-o* ‘book-his’,
yaldat-o ‘girl-his’);
 b. in the FS the pronoun is cliticized on the preposition *shel* (*sefer shel-o*
 ‘book of-his’, *yalda shel-o* ‘girl of-his’).

If locative Ps participating in Frame A are free heads, we expect the pronoun to cliticize on *le*, (on a par with (21b)). This is indeed the Case for *misaviv* ‘around’ and *mixuc* ‘outside’, (22a), but not for *mitaxat/meal* ‘under’/‘above’, (22b). The latter combine with the pronoun as if they were construct heads (on a par with (21a)), (22c):

- (22) a. *misaviv* l-o/ *mixuc* l-o
 around *le* him/outside *le*-him
 b. **mitaxat* l-o/ **meal* l-o
 under *le* him/above *le*-him
 c. *mitaxt-av/meal-av*
 under-him/above-him

It seems to be the Case, then, that the status of *mitaxat* and *meal* as free heads is not as fully determined in Modern Hebrew as that of *misaviv* and *mixuc*, i.e., the latter are exclusively Frame A locatives, but the former are not. As suggested by Tali Siloni (p.c.), we may be witnessing a transitional stage, in which *mitaxat* and *meal* are losing their construct head status and are on their way to be analyzed as free heads. Being at a transitional stage, they exhibit both free and

²⁰ The complex locative *mixuc* ‘outside’ is exceptional in this respect; when used without an overt complement, it is replaced by *baxuc* ‘outside’. A somewhat similar pair, though without *mi-*, is *bifnim* ‘inside’, which is obligatorily intransitive, and its obligatorily transitive counterpart is *betox* ‘inside’.

²¹ Interestingly, *saviv* ‘around’-FS, unlike *misaviv* ‘*mi*-around’, is quite infelicitous without an overt complement (i). Botwinik-Rotem (in preparation) clarifies the status of the prefix *mi* in Hebrew *mi*-locatives, suggesting that *mi* is a D-morpheme, which realizes the functional feature [loc] associated with D of NP-Place. As a result, syntactic realization of the DP complement of the null noun Place is not obligatory (for more details, see Botwinik-Rotem, in preparation).

(i) hu pizer et ha-praxim *misaviv*/?*saviv*
 he spread acc the-flowers *mi*-around-FS/around-FS
 ‘He spread the flowers around.’

construct properties. The former are witnessed by the fact that the addition of *le*, indicating the free state, is always grammatical. The latter is manifested by their ability to still occur in Frame B forming a CS and defining a PwD as the Case domain for pronominal suffixes as well as for a particular variety of full DPs (see also footnote 17).²²

5. Greek

Unlike in Hebrew, in which the standard case for locative PPs is direct complementation, namely Frame B, recall that things are the other way around in Greek; all locatives enter Frame A, involving (light) PP-complementation, while Frame B is restricted; it is used only when the complement of the locative is a pronominal clitic. It appears that the restrictiveness of Frame B provides the most important clues as to the structure of locative PPs and the properties of locatives in Greek, which are quite different from their Hebrew counterparts as we will see. But before we turn to the specifics of Frame B in Greek, let us take a closer look at some general aspects of the structure of Greek locative PPs.

5.1. The structure of Greek locative PPs

We have suggested that we consider the locative relation to be instantiated in an extended nominal projection, headed by the phonetically null N *Place*, as schematized once more in (23):

(23) [PP P [DP D [NP *Place* DP]]]

Since Hebrew locatives are (construct) heads, as was argued for in the previous section, it is reasonable to assume that they are the heads which occupy P in (23). It appears to be the case, however, that locatives are not necessarily heads crosslinguistically. Based on previous work by Terzi (in press, 2007), we assume that Greek locatives, unlike their Hebrew counterparts, are phrasal constituents, on a par with AP modifiers, merged in a specifier (or adjoined) position. This is probably not the specifier of the PP, as there are instances of locative PPs in Greek in which the light P *apo* precedes the locative, (24), presumably occupying the P position in (23). (24) suggests therefore that the (phrasal) locative (*epano* in (24)) occupies a specifier position below P.

(24) apo epano tu
 apo on he-cl-gen
 ‘above him’

Accordingly, in Terzi (in press, 2007) the locative phrase (e.g., *epano* ‘on’) is argued to be the modifier of *Place*, located in the specifier of a functional projection (XP), whose exact nature is yet to be determined, but is, in any case, above the NP of *Place* (on a par with the

²² In response to a reviewer’s question as to why clitics are excluded from Frame B, recall that cliticization on the locative necessarily results in the CS (see section 4.1). Now, by and large, prepositions, unlike nouns, do not have free and construct forms productively. Rather, most of them are specified as construct heads and some, as argued here, are (exclusively) free. Consequently, a clitic is compatible with the former, but not with the latter.

of *Place*, but the ungrammaticality of (27) alone is not sufficient to argue against the existence of such an element.²⁵

We believe that the above contrast between Greek and Hebrew is related to the phrasal vs. head status of the locatives in a manner reminiscent of proposals made with respect to the incorporation of the abstract dative TO in English (den Dikken, 1995 and Kayne, 2000 following Freeze, 1992). We assume that the abstract noun *Place* is formally licensed through incorporation into a c-commanding head (i.e., X, D, P). If so, it may be the Case that when the incorporating head is realized by a locative, as in Hebrew (27), *Place* must remain silent (see also footnote 24). By contrast, when the incorporating head is (phonetically) empty, as in Greek, by virtue of the fact that the locative is not a head but a phrase in spec-XP, phonetic realization of *Place* is possible.

Another piece of evidence for the phrasal status of Greek locatives can be drawn from their similarity to AP modifiers (Terzi, in press, 2007). In the regular nominal domain (that is, when an overt noun is present in the structure), there are two positions in which clitics can be encountered in the presence of an AP: either after the AP or after the noun (28a) (see a more detailed discussion ahead). Focusing on the former position, note that while both, locatives and AP modifiers, may be followed by the possessor in the form of a clitic, neither can be followed by the possessor in the form of a full DP (28b,c).²⁶

- (28) a. To kenurio (tu) aftokinito (tu)
 the new his-cl-gen car his-cl-gen
 b. To kenurio tu/*tu Niku aftokinito
 the new his-cl-gen/the Nick-gen car
 ‘His/Nick’s new car’
 c. Epano tu/*tu Nikou *Place*
 on he-cl-gen/the Nick-gen
 ‘On him/Nick’

With this much clarified, we now turn to direct complementation, namely Frame B in Greek. We will show that this frame in Greek, just like its Hebrew counterpart, instantiates PF Case-licensing in the domain of a PWd.

5.2. Frame B

As we have already mentioned, the complement of the locative surfaces as a clitic that carries genitive Case in Frame B, while the corresponding full DP (or pronoun) is illicit, regardless of the Case it carries (the relevant examples are repeated in (29)).

²⁵ In the same vein, it is demonstrated in Kayne (2005), that while an overt *-aine* is present in French, (ia), only the unpronounced counterpart of it, AINE, is encountered in English, (ib):

- (i) a. des centaines d’articles
 of-the hundred-*aine*-s of articles
 b. hundred + AINE + -s of articles

²⁶ In this respect, it is worth noting that a full DP was possible in earlier stages of Greek in both the postadjectival position and following locatives, namely, both starred options of (28b,c) were grammatical. Furthermore, both structures ceased to exist at similar stages in the history of the language, that is, between the 12th and 15th centuries (see Alexiadou, 2005; Manolessou, 2000 and Theophanopoulou-Kontou, 2000 for nominals and locatives, respectively with respect to this change).

- (29) a. Kathisa makria tu/*tu Niku/*aftu/*to Niko/*afton
 sat-1s far he-cl-gen/the Nick-gen/he-pron-gen/the Nick-acc/he-pron-acc
 ‘I sat far from him.’
- b. Petakse konda tus/*ton pedion/*etc.
 flew-3s near they-cl-gen/the children-gen
 ‘He/she flew near them.’
- c. Kathisa dipla tu/*tou Niku/*etc.
 sat-1s beside he-cl-gen/the Nick-gen
 ‘I sat beside him.’

At this stage, we can already explain why a full DP is excluded from Frame B in Greek. Recall that Greek locatives are not (P-) heads. Rather, they are phrasal modifiers in a specifier position. Thus, although they include a head, their head c-commands nothing outside its projection, hence is inappropriate as a syntactic probe checking the Case of the relevant (active) DP via *Agree*. Furthermore, under common assumptions, Greek does not have a CS, the Hebrew PF option for Case licensing of DPs.

The obvious question that arises at this point is why the unpronounced *Place* does not check the genitive Case of the complement DP (or of the corresponding clitic) in the syntax. As we have mentioned in passing, we will consider genitive Case to be a structural Case, checked by D (or by Num, as proposed in Alexiadou, 2001), associated with the appropriate φ -features. The latter, we believe, are not part of the featural make up of these functional heads projected by the null *N-Place*.²⁷

Nevertheless, a clitic is possible as the complement of locatives, as we have seen, and it will be demonstrated in what follows why this is so. To anticipate the main idea, we hold that the Case of clitics can be licensed at PF by virtue of the fact that the clitic is part of the same phonological word as the locative.

5.2.1. The position of clitics

Let us begin by making more precise the position of clitics in the domain of locatives. As mentioned in the previous section, there are two positions available for possessive clitics in the extended projection of a regular DP including an AP modifier—the postnominal and the prenominal (i.e., postadjectival) one (see (28) earlier). It should be noted that the postnominal position is the default position, in the sense that it exists in any DP. By contrast, the prenominal position is available only upon the occurrence of an adjectival modifier, namely when an XP above the NP is realized.

We hold that the same two positions are available for possessive clitics in the structure of locatives: namely, the one following the (empty) noun and the one following its modifier, in our case, the locative. The postlocative position of the clitic can be derived via movement and adjunction to the functional head *X*, from which the clitic cliticizes on the locative modifier (e.g., *epano* ‘on’), as has been argued to be the Case with postadjectival possessive clitics in

²⁷ The idea that genitive is a structural Case is not novel (see Alexiadou, 2001 and Siloni, 1997 who consider Num and *Agr_{gen}*, respectively to check genitive Case). Unlike in the verbal domain however, where fine-grained distinctions have been proposed recently for nonstructural (i.e., lexical and inherent—the latter associated with specific theta-roles) and structural Case (Woolford, 2006), no such detailed distinctions have been elaborated for the nominal domain. In this spirit, and given that genitive is not necessarily associated with some specific theta-role (e.g., ‘a glass of water’), it can reasonably be considered structural.

(like in (31a)). By contrast, (32b), which includes a full pronoun embedded in a PP following the locative (i.e., an instance of Frame A, to be discussed in section 5.3) is fine; the pronoun can be interpreted as inanimate ('it', rather than 'she'), on a par with (31b).²⁹

- (32) a. *I Eleni perimene brosta apo tin eklisia_i ke i Maria mesa tis_i
 the E. was-waiting in-front *apo* the church and the Mary inside she-cl-gen
 b. I Eleni perimene brosta apo tin eklisia_i ke i Maria mesa se afti_i
 the E. was-waiting in front of the church and the M. inside *se* it-pron.-acc
 'Eleni was waiting in front of the church and Mary inside it.'

Since animacy of the genitive clitic is associated with its prenominal position, rather than with some other factor, the fact that animacy is forced only in (32a) indicates that the clitic following the locative cliticizes on it from some pre-*Place* position. This conclusion is consistent with the structure in (30) (or the proposed alternative which does not involve movement).³⁰

5.2.2. PF Case-licensing: the formation of the PWD in Greek

Having established the structure in (30) for Frame B in Greek, we are in a position to explain why only clitics are licensed in this frame.

When the complement of the locative is a clitic occupying the position after the locative, the two of them (i.e., the locative and the following clitic) are part of the same prosodic word (PWD), therefore, they form a prosodic domain in which the genitive Case of the clitic can be licensed at PF.

Needless to say, this is not the result of CS formation. Rather, we consider genitive clitics to be morpho-syntactic clitics that form a PWD with the locative by virtue of the fact that they are enclitic. A similar idea is present in Selkirk 1995 for object clitic pronouns in a variety of languages, among which Arabic, and (optionally) English. However, there are also concrete reasons to believe that clitics following locatives form one prosodic word with them in Greek. In particular, there are at least two phonological processes which take place within the domain of a PWD in the language: Voicing and Stress Shift. We introduce them in turn below and illustrate how they apply to locatives and the clitics that follow them.³¹

²⁹ One may wonder how the inanimacy of the full pronoun in (32b) is reconciled with Cardinaletti and Starke (1999a) who hold that strong pronouns are generally human. We conjecture that inanimacy is possible in (32b) because what we are observing in these examples are in fact demonstratives, given that personal pronouns are homophonous with demonstratives in Greek. Recall that Cardinaletti and Starke (1999a, 1999b) also hold that those instances in which strong pronouns seem to escape the human restriction, are precisely instances in which they are demonstratives.

³⁰ We should mention at this point that although the contrast in (32) holds for all speakers, there are also speakers for whom (ib) is a possible answer to (ia), hence, the animacy restrictions do not hold for the clitics that follow locatives:

(i) a. Ides to periodiko? b. Kathome epano tu.
 saw-2s the magazine sitting-1s on it-cl-gen
 'Did you see the magazine?' 'I'm sitting on it.'

On the present analysis this would mean that for these speakers, phonological cliticization to the locative is possible not only from the post-locative position, but from the post-nominal one as well. Notice that the latter process is not illicit since the phonological adjacency that is necessary for cliticization is not disrupted by phonetically empty elements, such as *Place* in this case (Selkirk, 1986; Nespor and Vogel, 1986).

³¹ These processes are discussed in much detail by Revithiadou and Spyropoulos (2006), but with reference to the sentential domain primarily, in which the majority of clitics are preverbal, i.e., they are proclitic.

5.2.2.1. *Voicing*. Clitics undergo voicing of their last /s/, which becomes [z], when attaching to nasals, laterals or voiced obstruents, hence the contrast between (33a) and (33b):

- (33) a. mas maloni. [maz maloni]
 we-cl-acc scold-3s
 ‘She scolds us.’
 b. mas theli. [mas θeli]
 we-cl-acc want-3s
 ‘She wants us.’

Note that /s/-voicing applies obligatorily within the domain of a PWd, while it is optional across words. The fact that voicing is obligatory in (33a) demonstrates that the clitic and the following verb constitute one PWd.

Similarly, when followed by a clitic starting with a consonant such as /m/, the /s/ of the word preceding the clitic is also obligatorily voiced:

- (34) a. O papus mas efige. [O papuz mas efige]
 the grandfather we-cl-gen left-3s
 ‘Our grandfather left.’
 b. O papus mas efere dora. [O papus mas efere dora]
 the grandfather we-cl-dat brought-3s gifts
 ‘The grandfather brought us gifts.’

Notice that the clitic /mas/ is identical in its accusative, (33), genitive and dative forms, (34). In (34a) it is encountered as a genitive/possessive clitic, associated with the previous noun, and forming a PWd with it, as the /s/-voicing rule demonstrates. In (34b) /mas/ is the dative object of the verb ‘bring’, and we observe that although it is preceded by the very same noun, ‘grandfather’, no /s/-voicing takes place, indicating that this time the clitic does not constitute a PWd with the preceding noun.

Now, consider the application of the above rule in the domain of locatives.

The locative under consideration, i.e., *bros*, is an alternative instantiation of *brosta* ‘in front (of)’. The locative ends in /s/, thus, constitutes the right input for the voicing process we described.³² In (35a) we observe voicing of final /s/ when *bros* is followed by a clitic such as *mu*.

- (35) Perpatuse bros mu. [broz mu]
 was-walking-3s in-front me-cl-gen
 ‘She was walking in front of me.’

The fact that /bros/ surfaces as [broz] when followed by a clitic whose first consonant is voiced indicates that the locative and the following clitic are part of the same prosodic word.

³² The vast majority of Greek locatives, unfortunately, do not provide the appropriate input for this rule, as well as for the Stress Shift rule to be discussed immediately afterwards. Crucially, however, the ones we were able to find show clearly that both phonological rules are applicable to them.

Let us now proceed to the rule of Stress Shift and its application to locatives and the associated clitic.

5.2.2.2. *Stress shift.* When clitics follow a word stressed on the antepenultimate (third syllable from the end), stress shift (actually secondary stress assignment) takes place. We should point out that Greek words are stressed only up to the antepenultimate.

Therefore, the fact that stress shifts to a subsequent syllable when an (en)clitic is added indicates that a new word is formed and a new stress is assigned in order for the three syllable window to be satisfied. The following example illustrates the above, with the noun *ikogenia* ‘family’. In (36a) we see that *ikogenia* is stressed on the antepenultimate and in (36b) that there is also a secondary stress on the penultimate, a result of the new word that has been formed with the clitic, which cannot bear stress on a syllable before the antepenultimate. Relevant examples in the verbal domain involve imperatives and gerunds, since clitics follow the verb in these environments.

- (36) a. I ikogenia tis Elenis /i ikogénia tis elenis/
 the family the Eleni-gen
 ‘Eleni’s family’
 b. I ikogenia tis /i ikogéniá tis/
 the family she-cl-gen
 ‘Her family’

Again, we were able to find only one locative stressed on the antepenultimate, which, however, demonstrated undoubtedly that the process is fully applicable in this domain as well. The locative is *apenandi* ‘across’ stressed on the antepenultimate, that is, [apénandi].

- (37) a. I Maria kathotan apenandi (apo tin Eleni). /apénandi (apo tin eleni)/
 the Mary was-sitting-3s across apo the Eleni
 ‘Mary was sitting across Eleni.’
 b. I Maria kathotan apenandi tis. /apénandí tis/
 the Mary was-sitting-3s across she-cl-gen
 ‘Mary was sitting across from her.’

As seen above, while *apenandi* is stressed on the antepenultimate when on its own or when followed by a PP, (37a), it assumes secondary stress when followed by a clitic, (37b). Secondary stress constitutes a strategy to accommodate the requirement that a word be stressed only up to the antepenultimate in Greek, as we mentioned earlier. Abstracting away from the details of the phonological analysis, the point of relevance for the discussion at hand is that the addition of the clitic affects the stress pattern of the hosting element (*ikogenia*, *apenandi*). On the assumption that the prosodic domain relevant for stress assignment is the PWD, this indicates that the clitic is part of the PWD of the host.

To summarize, in this section we employed novel empirical evidence to support the claim that Greek locatives constitute one PWD with the clitics that follow them, a claim that is crucial for understanding the incompatibility of Frame B with full DPs. We hold that what makes clitics legitimate complements of locatives is their ability to form a prosodic word with the preceding locative, as a consequence of which their genitive Case is licensed at PF, just like the genitive DP

hence, when present, they are purely functional elements. Here we will call attention to a set of facts which justify this idea, by demonstrating that *se* does not carry semantic content when following locatives, while *apo* carries semantic content only in very few instances (and precisely in these instances its presence is obligatory).

Terzi (2007) observes that the meaning of locative PPs in Frame A does not differ depending on whether they are construed with *se* or with *apo*. This is clearly demonstrated in (39) above, where *dipla se* and *dipla apo* both mean ‘beside’, and holds for all other locatives which may be followed by either *se* or *apo*. There are two exceptions to this pattern, however. While *epano se* means ‘on’, *epano apo* means ‘above’, and while *mesa se* means ‘inside’, *mesa apo* means ‘from inside’. It is claimed in Terzi (2007) that in these two instances *apo* does carry semantic content. More precisely, it is specified for the feature [distant] in the former Case and for [direction/source] in the latter. An immediate prediction of this claim is that in just these two instances the presence of *apo* is obligatory, which amounts to saying that the corresponding Frame B, as we have described it, is not available. The prediction is indeed borne out as the data below demonstrate:

- (41) a. To puli petuse 20 metra epano apo ton Petro.
the bird was-flying 20 meters on apo the Peter
‘The bird was flying 20 meters above Peter.’
b. *To puli petuse 20 metra epano tu.
the bird was-flying 20 meters on he-cl-gen
‘The bird was flying 20 meters above him.’
- (42) a. To moro vgike mesa apo ti Maria grigora.
the baby came-out inside apo the Mary quickly
‘The baby came out of Mary quickly.’
b. *To moro vgike mesa tis grigora.
the baby came-out inside she-cl-gen quickly
‘The baby came out of her quickly.’

Notice that Frame B becomes available again, if *apo* precedes the locative (an optional alternative for all locatives construed with *apo*), in which case it is indispensable.

- (43) a. To puli petuse 20 metra *(apo) epano tu.
the bird was-flying 20 meters apo on he-gen-cl
‘The bird was flying 20 meters above him.’
b. To moro vgike *(apo) mesa tis grigora.
the baby came-out apo inside she-cl-gen quickly
‘The baby came out of her quickly.’

Interestingly, Frame B is available for both *epano se* and *mesa se*, indicating that *se* is semantically dispensable even when following the above two locatives (cf. with (41b) and (42b)).³⁵

³⁵ Terzi (2007) draws a parallelism between *apo* above and the preposition *to* of those English ditransitives which do not have a double object alternative, namely, instances such as *Mary pulled the trunk to Sue* (vs. **Mary pulled Sue the trunk*) and *Mary pushed the boulder to John* (vs. **Mary pushed John the boulder*). Pesetsky’s (1995) account of the above ungrammaticality is very similar to that of (41b) and (42b), in the sense that he attributes it to the specialized semantics of *to*, which, in precisely these contexts, is required in order to assign a th-role to the goal DP.

- (44) a. To puli kathotan epano tu.
 the bird was-sitting-3s on he-cl-gen
 ‘The bird was sitting on him.’
- b. To moro itan akomi mesa tis.
 the baby was-3s still inside she-cl-gen
 ‘The baby was still inside her.’

As already mentioned, the same is true for all other instances of *se* and *apo*, indicating that both, *se* and *apo*, are semantically empty in all other environments as well.

In conclusion, this section provided evidence that the light Ps *se* and *apo* are indeed light in most instances, that is, they do not carry semantic content. This evidence is in agreement with our claim that when *se* and *apo* follow locatives they are functional elements, and as such they are involved in checking the Case features of their DP complements.

6. Summary and conclusions

This paper constitutes a comparative study of Hebrew and Greek locative Prepositions, motivated initially by the observation that locatives in both languages share the property of entering two similar syntactic structures; one in which the locative is followed by a PP headed by a light P (*Frame A*), and another in which it is followed directly by a DP or a clitic (*Frame B*). Close inspection of the two structures in each of the languages revealed that, although neither their availability nor their implementation are identical, and they derive from different interacting factors, they correspond to the same Case strategies.

We have argued that in both languages *Frame B* is employed for genitive Case licensing at PF, as in this environment the locative and the following DP or clitic are mapped onto a single prosodic word. In Hebrew this is the result of construct state formation, while in Greek it occurs upon cliticization.

Frame A, involving Case checking via a light P, is attested in both languages whenever PF Case licensing is not possible. In Hebrew this happens when construct state formation is blocked, because the locative is a complex, phonologically heavy element, and therefore a free, rather than a construct, head lacking a genitive Case feature. As such, it is unable to check the Case feature of the following DP in the syntax. In Greek a comparable situation arises when the element that follows the locative is a full DP - the latter cannot possibly cliticize and form a prosodic word with the preceding locative. Moreover, since the Greek locative is not a head in the (extended) locative PP, but rather occupies a specifier position, it is not an appropriate Case checker in the syntax either.

All in all, we have demonstrated that both, the existence of the two prepositional structures, common to both languages, as well as their different distribution in each language, follow naturally in the proposed analysis; whilst the existence of the two structures derives from the claim that Case licensing can be performed either in syntax or at PF, their different distribution is due to the different syntactic status of locatives in the two languages (head vs. phrase), and the phonological parsing of the locative PPs. We expect the differences and similarities we point out in the context of these two languages to emerge crosslinguistically, with similar consequences for the syntactic structures in which locatives may be encountered.

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References

- Aboh, E.O., 2006. Possession and predication in complex spatial phrases. In: Talk Presented at the *Syntax and Semantics of Spatial P* Conference, OTS, Utrecht University.
- Alexiadou, A., 2001. Functional Structure in Nominals. John Benjamins, Amsterdam.
- Alexiadou, A., 2005. A possessive adjective in the Greek DP. In: Stavrou, M., Terzi, A. (Eds.), *Advances in Greek Generative Syntax*. John Benjamins, Amsterdam, pp. 127–151.
- Alexiadou, A., Stavrou, M., 2000. Adjective-clitic combinations in the Greek DP. In: Gerlach, B., Grijzenhout, J. (Eds.), *Clitics in Phonology, Morphology and Syntax*. John Benjamins, Amsterdam, pp. 63–84.
- Anagnostopoulou, E., 2005. Cross-linguistic and cross-categorical variation of datives. In: Stavrou, M., Terzi, A. (Eds.), *Advances in Greek Generative Syntax*. John Benjamins, Amsterdam, pp. 61–126.
- Baker, M., 2003. *Lexical Categories: Verbs, Nouns, and Adjectives*. Cambridge University Press, Cambridge.
- Borer, H., 1984. *Parametric Syntax*. Foris, Dordrecht.
- Botwinik-Rotem, I., 2004. The Category P: Features, Projections, Interpretation. Ph.D. Dissertation, Tel Aviv University.
- Botwinik-Rotem, I. Why are they different? An exploration of Hebrew locative PPs. In: Asbury, A., Gehrke, B. (Eds.), *The Syntax and Semantics of Spatial P*. John Benjamins, Amsterdam, in press.
- Botwinik-Rotem, I. A closer look at the Hebrew Construct and Free locative PPs: The analysis of *mi*-locatives. Ms. Tel Aviv University, in preparation.
- Bresnan, J., 1994. Locative inversion and the architecture of Universal Grammar. *Language* 70, 72–131.
- Cardinaletti, A., Starke, M., 1999a. The typology of structural deficiency. A case-study of the three classes of pronouns. In: van Riemsdijk, H. (Ed.), *Clitics in the Languages of Europe*. Mouton de Gruyter, Berlin, pp. 145–233.
- Cardinaletti, A., Starke, M., 1999b. Responses and demonstratives. In: van Riemsdijk, H. (Ed.), *Clitics in the Languages of Europe*. Mouton de Gruyter, Berlin, pp. 273–290.
- Chomsky, N., 2000. Minimalist inquiries: the framework. In: Martin, R., Michaels, D., Uriagereka, J. (Eds.), *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*. MIT Press, Cambridge, MA, pp. 89–155.
- den Dikken, M., 1995. Particles. In: *On the Syntax of Verb-Particle, Triadic, and Causative Constructions*, Oxford University Press, Oxford.
- Freeze, R., 1992. Existentials and other locatives. *Language* 68, 553–595.
- Grimshaw, J., 2000. Extended projection and locality. In: Coopmans, P., Everaert, M., Grimshaw, J. (Eds.), *Lexical Specification and Insertion*. John Benjamins, Amsterdam, pp. 115–133.
- Jackendoff, R., 1977. *X'-Syntax: A Study of Phrase Structure*. MIT Press, Cambridge, MA.
- Kayne, R.S., 2000. *Parameters and Universals*. Oxford University Press, Oxford.
- Kayne, R.S., 2004. Here and there. In: Leclère, C., Laporte, E., Piot, M., Silberstein, M. (Eds.), *Syntax, Lexis and Lexicon-Grammar. Papers in Honour of Maurice Gross*. John Benjamins, Amsterdam, pp. 253–273.
- Kayne, R.S., 2005. Some notes on comparative syntax with special reference to English and French. In: Cinque, G., Kayne, R. (Eds.), *The Oxford Handbook of Comparative Syntax*. Oxford University Press, Oxford, pp. 3–69.
- Landau, I., 1994. *Dative Shift and Extended VP-Shell*. M.A. Thesis, Tel Aviv University.
- Manolessou, I., 2000. *Greek Noun Phrase Structure: A Study in Syntactic Evolution*. Ph.D. Dissertation, University of Cambridge.
- Neeleman, A., Reinhart, T., 1997. Scrambling and the PF interface. In: Gueder, W., Butt, M. (Eds.), *Projecting from the Lexicon*. CSLI, Stanford.
- Nespor, M., Vogel, I., 1986. *Prosodic Phonology*. Foris, Dordrecht.
- Panagiotidis, Ph., 2000. Demonstratives, determiners and operators: the case of Greek. *Lingua* 110, 717–742.
- Pantcheva, M. Categorical status of Persian Class 2 prepositions. In: Asbury, A., Gehrke, B. (Eds.), *The Syntax and Semantics of Spatial P*. John Benjamins, Amsterdam, in press.

- Pesetsky, D., 1995. *Zero Syntax*. MIT Press, Cambridge, MA.
- Revithiadou, A., Spyropoulos, V., 2006. A Typology of Greek Clitics with Special Reference to their Diachronic Development. University of the Aegean. Ms, <http://ling.auf.net/lingBuzz/000496>.
- Selkirk, E., 1986. On derived domains in sentence phonology. *Phonology* 3, 371–405.
- Selkirk, E., 1995. The prosodic structure of function words. In: Beckman, J., Walsh Dickey, L., Urbanczyk, S. (Eds.), *Papers in Optimality Theory*. University of Massachusetts Occasional Papers 18, GLSA, Amherst, MA, pp. 439–469.
- Siloni, T., 1997. *Noun Phrases and Nominalizations: The Syntax of DPs*. Kluwer, Dordrecht.
- Siloni, T., 2002a. Adjectival complexes and inalienable constructions. In: Ouhalla, J., Shlonsky, U. (Eds.), *Themes and Issues in the Syntax of Arabic and Hebrew*. Kluwer, Dordrecht.
- Siloni, T., 2002b. Construct states at the PF-interface. In: Pica, P., Rooryck, J. (Eds.), *The Year Book of Language Variations* 1. pp. 229–266.
- Stavrou, M., 1996. Adjectives in Modern Greek: an instance of predication or an old issue revisited. *Journal of Linguistics* 32, 79–112.
- Svenonius, P., 2006. Adpositions, particles, and the arguments they introduce. In: Reuland, E., Bhattacharya, T., Spathas, G. (Eds.) *John Benjamins*, Amsterdam, in press.
- Terzi, A., 2005. Locative prepositions as possessums. In: Mattheoudakis, M., Psaltou-Joycey, A. (Eds.), *Selected Papers from the 16th International Symposium on Theoretical and Applied Linguistics*. University of Thessaloniki, pp. 133–144.
- Terzi, A. Locative prepositions and *Place*. In Cinque, G., Rizzi, L. (Eds.), *The Cartography of PPs*. Oxford University Press, Oxford, in press.
- Terzi, A., 2007. Locative prepositions, predicate inversion and full interpretation. In: Agathopoulou, E., Dimitrakopoulou, M., Papadopoulou, D. (Eds.), *Selected Papers from the 17th International Symposium on Theoretical and Applied Linguistics*. University of Thessaloniki, pp. 210–219.
- Theophanopoulou-Kontou, D., 2000. Topika eprimata ke 'ptosi' stin Elinikhi: Diaxroniki prosegisi (Locative Adverbs and Case in Greek: a diachronic approach). *Glossologia* 11/12, 1–40.
- van Riemsdijk, H.C., 1990. Functional prepositions. In: Pinkster, H., Genee, I. (Eds.), *Unity in Diversity: Papers Presented to Simon C. Dick on his 50th Birthday*. Foris, Dordrecht, pp. 229–241.
- van Riemsdijk, H.C., 1998. Categorical feature magnetism: the endocentricity and distribution of projections. *Journal of Comparative Germanic Linguistics* 2, 1–48.
- Woolford, E., 2006. Lexical case, inherent case and argument structure. *Linguistic Inquiry* 37, 111–130.