<div align="center">**Mapping Spatial PPs**: **an introduction**</div>

In both the generative and nongenerative literature, recent years have seen an impressive growth in the number of studies on prepositional phrases that express spatial relations. 1 The present volume contributes to that discussion by focusing on one particular aspect of their syntax that has remained relatively neglected: the fine grained articulation of their internal structure. As we shall see, the analyses presented here, in spite of their being based on rather different data and considerations, reach strikingly convergent conclusions.

In this introduction I discuss some of the main threads of these analyses and one general implication that seems to me particularly signifi cant: that phrases composed of spatial prepositions, adverbs, particles, and DPs do not instantiate different structures but merely spell out different portions of one and the same articulated confi guration (see in particular Svenonius's contribution and, for earlier insights in this direction, Kayne 2004).

1. Two types of prepositions

Among prepositions expressing spatial relations (and among prepositions in general), it is customary to distinguish between functional and lexical ones (a question to which we return). See, for example, Rizzi (1985 , 157n4), Rauh (1993 , 1995), Zwarts (1997), Koopman (2000 , reprinted in this volume), Tseng (2000 , chapter 1), Zwart (2005) , and Den Dikken (this volume), for recent discussion. The former are generally taken to comprise basic (i.e., stative and directional) 'simple prepositions' such as 'at', 'to', 'from', and the latter 'complex prepositions' like 'in front of', 'under', 'behind', 'next to', 'inside', and so on. 2

In Persian, too, simple (stative and directional) prepositions differ from complex prepositions. The former must occur with a complement ((5)) and cannot take the Ezafe linker ((6)) (see Pantcheva 2006 , 2008, for these and further differences):

(5) a. *tup oftad æz (Pantcheva 2006, 10)
ball fell from
b. tup oftad zir(*-e)
ball fell under-ezafe
'The ball fell down'

(6) a. *æz-e miz (Pantcheva 2006, 8)
from-ezafe table
b. zir(-e) miz
under-ezafe table
'under the table'

2. Complex prepositions

In this connection, some of the contributions to this volume converge in the postulation of a finer structure in which the complex preposition is actually a (phrasal) modifier of an unpronounced head noun PLACE (cf. Kayne 2004, 2007), selected by a (possibly covert) stative preposition, and where the complement of the complex preposition is in a possessor relation to that unpronounced head (see in particular the evidence from Modern Greek discussed in Terzi's contribution and that from Germanic discussed in Noonan's contribution). 5

Abstracting from certain differences, the structure that emerges from these proposals for a phrase like *under the table* is the one illustrated in (7):

(7) [PPstat (at) [D P place [XP under [X [PP P [NPplace the table [PLACE]]]]]]]

This proposal may actually shed light on another difference between the two types of prepositions, one that has to do with the binding theory. Complex (but not simple [i.e., stative and directional]) prepositions may constitute an independent binding domain (*Max i saw a ghost next to/over him i /himself i* vs. *John i spoke to/about himself i /*him i ;* cf. Reinhart and Reuland 1993 , 664, 686). If complex prepositions are modifiers of a (Place) DP, their behavior can be assimilated to that of ordinary DPs (*Lucie i saw a picture of her i /herself i* [Reinhart and Reuland 1993, 661]). 6
Complex prepositions like 'in front of', 'under', 'above', 'behind', and so on correspond to Jackendoff's (1996) and Svenonius's (2006 , 2007, 2008, this volume) 'axial parts', 7 which define a place by projecting vectors onto one of the possible axes (front/back, up/down, etc.) that depart from the object that provides the reference point (the 'ground'; here [the surface of] 'the table'): 8

(8) [PPStat (at) [D P place [A X P a r t P u n d e r [PP P [NP place the table [PLACE]]]]]]

Of course, how this putative underlying structure actually surfaces in a language depends on independent word order and other parameters specifi c to that language, which may cause it to differ from the way the same structure surfaces in another language. In the spirit of Zhang (2002), Kayne (2004), and Zwart (2005), it is tempting to derive the way (8) is realized in different languages by different types of leftward movements and by the pronunciation/nonpronunciation of some of its components.
For example, a conceivable analysis of the Gungbe case in (9) (the one sketched in Aboh 2004, 122, though not the one eventually adopted by Aboh in this volume, but see his note 4) is that NP Place raises above AxPartP, with case assigned to the DP *xwé l _ ´* 'house the' by the simple stative preposition ___ *ó* 'at' or by a verb in its absence (see Aboh's observation at p. 229 that adjacency between the preceding preposition or verb and the DP is required). 9

(9) Yé gbá c _ ´ fù l _ ´ ___ **ó** xwé l _ ´ **kpá** (= (16)b of Aboh this volume)
3pl build shop Det **at** house Det **beside**
'They built the shop beside the house'

The Zina Kotoko (Chadic) case in (10) could instead be analyzed as involving no movement, with a null P assigning case to the prepositional object 'table' (the difference with Gungbe arguably depending on the difference between the two languages in the ordering of the possessor). 10

(10) Kìt à bí dé **a mwá** táb` ə l (Holmberg 2002, 163)
books Det **at under** table
'The books are under the table'

Their Italian (and English) equivalents plausibly have an unpronounced stative preposition selecting DP Place (*I libri sono A sotto il tavolo* PLACE */the books are AT under the table* PLACE). See Holmberg (2002 , 168n5), Kayne (2004, section 4.2.2) on English and the fact that in Italian the preposition can actually be pronounced if a measure phrase is present: *Si trova (a) due metri sotto il livello del mare* 'It is found (at) two meters under sea level.' Italian (and English) may also have, as noted, an unpronounced preposition assigning case to the object *il tavolo/the table.* 11
The same presumably extends to directional prepositions (*I put it* TO *under* P *the bed).* See Svenonius (this volume, section 2.1), who notes that *to* is in fact marginally possible in English in front of complex prepositions: 12

(11) The boat drifted (?to) below the bridge

Another common order is 'DP(+case) under/above/and so on at'. This is the order typically found in OV languages (e.g., Ainu and Japanese; see (12)a and b) 13 and also in sundry VO languages (see the case of the Austronesian SVO language Taba in (12)c), with raising of the DP (+ PLACE) around the axial preposition, followed by further raising plus pied-piping around the stative preposition:

(12) a. cikue ka ta hon an (Ainu [Tamura 2000, 27])
desk on-top-of at book to-be
'there is a book on the table'
b. teeberu-no ué ni (Japanese [Zhang 2002, 55])
table-GEN surface at
'on the table'
c. tabako adia kurusi ni soda li (Taba [Bowden 1997, 260])
cigarettes there chair POSS face LOC
'The cigarettes are there, on the front of the chair'

Other OV languages displaying the same word order except for the use of cases instead of adpositions are Arrernte (Pama-Nyungan [Wilkins 2006 , 33]), Tamil (Dravidian [Pederson 2006 , 428]), and Manipuri (Tibeto-Burman [Singh 2000, 87]):

(13) a. typaperapere-Ø chair-nge kwene-le (Arrernte)
The ball-NOM chair-ABL under-LOC
'The ball is under the chair'
b. kutirai marattukku pinnaale irukku (Tamil)
horse tree-DAT behind-LOC Cop-PRES-3sn
'The horse is behind the tree'
c. m ə hak ka-gi m ə pan-d ə lep-pi (Manipuri)
he room-GEN outside-LOC stand-ASP
'He is standing outside the room'

3. Stative location and direction
So far we have limited our attention to stative location (except for noting, in the last section, that directional prepositions, like stative prepositions, may also fail to be pronounced in certain languages). The recent literature generally assumes a specific hierarchical structure for stative and directional Ps, with stative PPs embedded under directional PPs: [DirP P [StatP P]], though stative Ps are often taken to also comprise axial part adpositions (see Jackendoff 1990; Van Riemsdijk 1990; Koopman 2000 , this volume; Ayano 2001 , 2005; Helmantel 2002 ; Van Riemsdijk and Huijbregts 2001, 2007; Kracht 2002 , 2008; Den Dikken 2003, this volume; Gehrke 2006).
In view of the systematic differences noted earlier between simple prepositions of stative location and direction (which behave like heads, are case assigners, require a complement, do not constitute independent binding domains, and resist pied-piping in many languages and perhaps also direct modifi cation 14) and complex or 'axial part prepositions' (which have the opposite properties), it is reasonable to assume that the latter are not candidates for the head position of PP Stat but, following Terzi and others mentioned earlier, are modifi ers of a DP Place projection (headed by PLACE, or 'place') selected by an overt or a covert stative P, whose projection is in turn selected, where a sentence like (*They extracted it) from under the table:* 15

(14) [PPdir from [P P stat AT [D P place [AXPartP under X o [PP P [NPplace the table [PLACE]]]]]]]

Some evidence for the relative position of stative and directional prepositions comes from those languages where the simple prepositions of stative location ('at') and direction (goal 'to' or source 'from') co-occur in directional contexts. See (15) through (19), which represent the expected word order possibilities of the three elements P Dir P Stat NP (Cinque 2009, 167): 16

(15) P Dir P Stat NP (Romanian [Zegrean 2007, 40, 79]) 17
Ion vine **de la** magazin (cf. Ion este **la** magazin, literally, 'Ion is at store')
Ion is coming **from at** store
'Ion is coming from the store'

(16) NP-P Stat -P Dir (Ute (Uto-Aztecan [Givón 1980, 66]) 18
Ta'wá-ci kani- **vee-tuk'** pa ĝ áy'wa-y
man house- **at-to** walk-PROG
'The man is walking toward the house'

(17) NP-P Dir -P Stat (Iatmul [Papuan] [Staalsen 1965, 21])
gay- **at-ba** (cf. *gay-ba* , literally, 'house-at')
house- **to-at**
'to the house'

(18) P Dir NP P Stat (Taba [Austronesian] [Bowden n.d.])
Yak kgoras kapaya ni kowo **ap** po bbuk **li.**
yak k=goras kapaya ni kowo ap-po bbuk li
1sg 1sg=shave papaya 3sg.POSS seed **ALL** -down book **LOC**
'I'm scraping the papaya seeds onto the book.'

(19) P Stat NP P Dir (Zina Kotoko [Chadic] [Tourneux 2003, 294])
dˋ ə rúrù **' à** jì k à skú **kí**
3m go.PROG **LOC** inside market **toward**
'he is going toward the market'

Putting together these observations one arrives at a structure like **[P Dir [P Stat [P AxPart [P [DP]]]]** , which is the structure also arrived at by Kracht (2008), who in fact suggests that "each of these projections can independently be motivated" semantically (2).

4. Additional projections
As Svenonius (2008, 66) demonstrates, AxPartP can in fact be further qualified by adding, in the following order, a degree phrase (e.g., 'two inches') (cf. also Koopman this volume, p. 36, and Den Dikken this volume, p. 79) and a 'mode of direction' phrase (e.g., 'diagonally', 'in a straight line') for the vectors projected along a certain axis from the ground (*[from] two inches diagonally under the table)* , thus suggesting a richer structure like the one in (20): 19

(20)[PPdir from [PPstat AT [DPplace [DegP two inches [ModeDirP diagonally [AxPartP under X° [PP P [NPplace the table [PLACE]]]]]]]]]

As a matter of fact, more projections need to be postulated between PP dir/stat and AxPartP. One of these, discussed also in Svenonius (this volume, section 2.5) encodes (optional) deictic information (whether the PLACE/place is near the speaker or not). As he notes, Tsez (North Caucasian) provides interesting morphological evidence for such a projection and also for its location between AxPartP and the projections hosting stative and directional Ps. As Comrie and Polinsky (1998 ,

section 3.2) observe, the deictic morpheme *ā z* , expressing distality (distance from the speaker), is sandwiched between the morphemes that express axial parts (which are closer to the N) and those that express stative location/direction:

(21) besuro- _ - *ā* z-ay (Svenonius this volume, p. 139)
fish - under -DIST- *from*
'from there under the fish'

Assuming the Tsez suffixes to be a perfect mirror image of the corresponding syntactic heads, we have evidence for the hierarchy in (22): 20

(22) [PPdir/stat from/at . . .[DeicticP there . . .[AxPartP under [NPplace the table [PLACE]]]]]

The relative order of PP Dir / Stat , DeicticP, and AxPartP appears confirmed by the relatively rigid order of the deictic locative adverbs with regard to the PP Dir PP Stat and AxPartP in English and Italian (see (23)), which also give evidence that DeicticP follows DegP and ModeDirP (cf. (24)): 21

(23) a. from two inches diagonally there under the table
b. a due metri in linea retta qui sotto il livello del mare
at two meters in a straight line here below sea level

(24) [PPdir from [PPstat AT [DPplace [DegP two inches [ModeDirP diagonally [DecticP here [AxPartP under X o [PP P [NPplace the table [PLACE]]]]]]]]]]

Three additional projections appear to be needed to host particles that indicate how the ground (plus axial part) is located with respect to (a) an absolute (geographical) viewpoint ('north/south', 'seaward/inland', etc.) and to (b) two relative viewpoints, a 'vertical' one ('up/down') and an interior/exterior one ('in/out') (the viewpoint can, but need not be, the speaker's): 22

(25) a. from two miles **north up** there beyond the border
b. I like it **down in** here

In many languages *up/down* , in addition to indicating that the ground is located higher up or lower down than some viewpoint (either the speaker's, the addressee's, or a third party's) can also represent the absolute viewpoint. For example, in both Italian and N e l e mwa (Austronesian [Bril 2004]) *up/down* can refer to cardinal points (in Italian 'up' = north, 'down' = south; in N e l e mwa 'up' = south and east, 'down' = north and west). 23 All this points to a structure like that in (26):

(26) [PPdir from [PPstat AT [DPplace [DegP two miles [ModeDirP diagonally [AbsViewP north [RelViewP up [RelViewP in [DecticP here [AxPartP under X o [PP P [NPplace the mountain [PLACE]]]]]]]]]]]]]

5. The fine structure of spatial PPs and the role of pronunciation
As noted at the outset, it is tempting to view the different combinations of spatial prepositions, particles, adverbs, and the DP that constitute the ground as spelling out the different parts of one and the same articulated structure (at least the portion starting from [PPstat, if not [PPdir, which is plausibly activated only when direction is involved). See, for example, (27)): 24

(27) [PPdir [PPstat [DPplace [DegP [ModeDirP [AbsViewP [RelViewP [RelViewP [DecticP [AxPartP X° [PP P [NPplace DP [PLACE]]]]]]]]]]]]]]
from AT there

down in here
here under the table
AT two inches above the ground
TO AT in a straight line behind the border
AT next to the house
TO AT south 25

6. Decomposing direction: Source, goal, path
In determining how much structure a complex PP has and how much of it is spelled out in specific cases, one should of course be careful not to confl ate in a single structure portions that belong to different spatial constituents.
So far, I have simplified the picture by presenting directional PPs where in fact one should distinguish between PP source ([PPsource from [PPstat AT . . .), PP goal ([PPgoal to [PPstat AT . . .) and PP path ([PPpath across [PPstat ? . . .), as these can co-occur in one and the same sentence:

(28) Every morning John used to go [to town] [from his village] [across the lake]

Even if their order is apparently not rigid (plausibly due to movements related to information structure), a number of studies have managed to determine their relative height. Both Nam (2004 a, 2004b) and Schweikert (2005 , chapter 3) conclude, on the basis of different sorts of evidence, that PP source is higher than PP goal , which in turn is higher than PP path:

(29) PP source PP goal PP path V

This is the typical preverbal order found in OV languages. In VO languages, where these PPs typically appear postverbally, the order is (in the unmarked case) the mirror image, due to successive roll-ups; cf. Cinque (2006, chapter 6). 26
Bearing this in mind, sequences such as *he jumped **down from under the canopy*** should presumably not lead one to postulate a distinct RelViewP above PP source but to recognize the simultaneous presence of a PP goal *(down)* and a PP source *(from under the canopy).*

7. The lexical/functional divide
I mentioned at the outset the widespread idea that (spatial) Ps come in two varieties, a functional and a lexical one (roughly corresponding to the distinction between simple [locative and directional] Ps and complex Ps), but no real consensus exists on the matter. While Riemsdjik (1990), Rauh (1993 , 1995), and Zwarts (1995), among others, espouse this position, others have taken a different stand: Jackendoff (1973 , 1977), Déchaine (2005), and Den Dikken (this volume) treat Ps on a par with traditional lexical categories like Ns, Vs, and As, whereas Grimshaw (1991) considers them as essentially functional, part of the extended projection of N.
Lack of semantic content cannot, it seems, be a necessary condition for functional status (pace Zwart 2005), at least if one considers tense and aspect morphemes, demonstratives, and quantifi ers to be functional elements (Cinque 1999; Kayne 2005b). More revealing diagnostics are perhaps membership in a closed (vs. open) class of elements and impairment in agrammatic aphasia, which is traditionally believed to selectively affect grammatical, or functional, elements.
Concerning impairment in agrammatic aphasia, an in-depth study of the behavior of prepositions discussing previous works, presents interesting new data on the issue, and concludes that there exists "a great deal of evidence from aphasia that (all) prepositions pattern with f[unctional]-heads, not lexical categories, when language is focally damaged" (Froud 2001 , 12). With regard to the closed vs. open class diagnostic, simple Ps clearly constitute a very small, closed class that ranges

from four ('at', 'to', 'from', 'across') to a few more, if orthogonal parameters like 'precise vs. vague location' are represented ('to' vs. 'toward', 'from a precise point' vs. 'from the general area of', etc.; see Van Riemsdijk and Huijbregts 2007, n. 10, and Tortora's article mentioned in note 4 this chapter). As for the class of complex Ps, which characterize the particular spatial relation between the 'fi gure' and the 'ground' (the marble is 'in front of'/'behind'/'under'/'on'/'in', etc., the box), even if they constitute a larger set, they, too, seem to constitute a closed class (Svenonius 2007, 64f). In fact, analyses of complex Ps in a number of languages explicitly claim that they constitute a closed class (see, for example, Ameka 2003 , 55, on Ewe). 27

8. The contributions

Koopman 's contribution, which, after circulating in unpublished form for some years, was published in Koopman (2000) , is reprinted here because it constitutes the first elaborate cartographic analysis of the fi ne structure of PPs based on an in-depth study of Dutch and provides a background for many of the contributions to this volume.

In addition to postulating a PlaceP hosting stative prepositions inside a PathP hosting directional prepositions, her proposal offers evidence for a number of functional projections between the two and above PathP to make room for the movement of *er* pronouns, degree phrases, and other modifi ers. Her analysis in terms of leftward movements and pied-piping of the inner constituents of the extended projection of PPs is the fi rst attempt to account for the complex internal syntax of Dutch and German PPs, languages that feature prepositions, postpositions, and circumpositions.

Den Dikken 's contribution directly builds on Koopman's. On the basis of a detailed empirical investigation of the syntax of adpositional phrases in Dutch, Den Dikken refi nes in various ways the structure and derivation of the lexical and extended functional projections of stative and directional Ps and draws a parallel with the lexical and functional structure of clauses and noun phrases. Among other things, his chapter lays out the base structure and syntactic derivation of locative (stative) and directional pre-, post-, and circumpositional phrases, discusses the restrictions on movement within and out of the (extended) projections of PLoc and PDir, sheds new light on the relationship between P and case, and analyzes the distribution of modifi ers in adpositional phrases.

Den Dikken also argues that functional categories in the extended prepositional domain are selectively present; in other words, that functional structure is called upon selectively and is not always present.

Svenonius 's contribution brings evidence from English for an extended projection of PPs that looks very much like Koopman's and Den Dikken's structural hierarchy for the Dutch PP in the richness of the structure postulated. In addition to stative and directional Ps he argues for the presence of degree and measure phrases (i.e., deictic particles that introduce viewpoints) and are ordered below degree and measure phrases. Particularly interesting are his discussions of vector spaces and axial parts and their syntactic representation in the extended projection of the PP, the nonpronunciation of some of these categories in certain contexts, and the complication caused by the fact that some of these categories can be inserted in different positions of the extended projection of the PP.

Noonan 's contribution also argues for a richly articulated structure in which a nominal head (Place) (cf. also Terzi's contribution to this volume) is embedded within an extended functional structure, which is itself embedded under an additional functional projection in the presence of directional prepositions. The author compares German (addressing the syntax and morphology of 'doubling' cases such as *Er sitzt **auf** dem Tisch dr **auf*** 'he sits on the table thereon'), English, and French, discussing in particular the position of the prepositions *zu, to* , and *à* within the proposed hierarchy. Prominent in her discussion are also parameters such as the pronunciation/ nonpronunciation of material merged in specifi er or head position in the hierarchy and the movement of subconstituents of the hierarchy.

Converging with Noonan's, **Terzi** 's contribution builds, on evidence from Greek, a convincing argument for the presence of a silent noun PLACE, which the complex locative preposition modifi

es (much like an adjective) and which is responsible for the nominal fl avor of complex prepositions. This silent noun PLACE is the head of a DP complement selected by a functional P LOC. Her proposal, which corroborates Kayne's (2004) postulation of a silent noun PLACE with locative adverbials like *here* and *there* in English (see also Kayne 2007), has subsequently found interesting confi rmation in Botwinik-Rotem's (2008) and Pantcheva's (2008) analyses of Hebrew and Persian complex locatives.

Aboh 's contribution starts with a comparison of spatial expressions in West African languages and notes that, while Kwa languages have the ground DP between a directional/stative P and an (axial) part P (lit. **to/at** box **inside**), Chadic languages have the order directional/stative/ P > (axial) part P > ground DP (lit., **to/at inside** box). This order difference is insightfully related to the independent difference between Kwa and Chadic languages in the order of the possessum and the possessor by assuming the ground DP to be the possessor of the (axial) part P (a conclusion that converges with that reached by Terzi on the basis of Greek). He also argues that the kinds of displacements attested in the nominal and clausal domain (like predicate inversion) are also found in the prepositional domain, thus giving substance to the idea that the prepositional domain is parallel to the nominal and clausal domains (much as in Den Dikken's contribution to this volume).

Abraham 's contribution, which relates to and complements Noonan's in many respects, is above all devoted to microvariation in the use of morphological case and the linear order of PPs in non-standard varieties of German, where morphological case plays an important, distinguishing role between semantic stativity and directionality of otherwise homonymic PPs. The gist of the chapter is that both prepositions and case need to be divided according to lexical (spatial) type and grammatical type. The former selects verbal predicates as a probe outside of vP, whereas the grammatical type is merged low and is V selected. This reverses the traditional idea that only verbs are valence probing.

Notes

1. See, for example, Šarič and Reindl (2001), Ayano (2001), Cuyckens, de Mulder, and Mortelmans (2005), Levinson and Wilkins (2006), Saint-Dizier (2006), Svenonius and Pantcheva (2006), Bašić et al. (2007), Ameka and Levinson (2007), Kurzon and Adler (2008), Asbury et al. (2008), Cuyckens et al. (forthcoming), and many of the contributions in Bloom et al. (1996), Senft (1997), Haumann and Schierholz (1997), Bennardo (2002), Feigenbaum and Kurzon (2002), Cuyckens and Radden (2002), Shay and Seibert (2003), van der Zee and Slack (2003), Hickmann and Robert (2006), and Djenar (2007).

2. In the description of certain languages the latter are also called 'nominal prepositions', 'spatial nominals' (see Ameka 2003,47), 'locative nouns', or 'relator/relational nouns', for reasons that will be clearer later.

3. Ameka (2003, section 3.1) reports the existence of a similar pattern in Hausa (Chadic). Also see the case of Tidore (Papuan) in van Staden (2007, section 5). Although stranding is possible in English with both types of prepositions and in Gbe only with the fi rst type (stative and directional Ps) (see Ameka 2003 , section 4.1 ; Aboh this volume, section 2), both English and Gbe distinguish between the two types of prepositions. See Svenonius's and Aboh's contributions to this volume.

4. The difference between the presence of *a* and its absence when both options are available is related in Tortora (2008) to the cross-linguistically frequent opposition between reference to a vague (or 'extended') place vs. reference to a precise (or 'nonextended') place. For the relevance of

such a distinction for spatial deictic adverbs in Italian and Bantu, see Cinque (1971) and Denny (1978), respectively.

5. Muriungi (2006 , 26, 45) explicitly argues that 'complex prepositions' in Kîîtharaka are phrasal. Also see Abraham's (this volume, section 1.2) arguments against categorizing them as (intransitive) prepositions. In certain languages, the head noun PLACE is actually pronounced. See (i) from Ainu (a language isolate of Japan), (ii) from Tairora (Papuan), and (iii) from the Tucanoan language Barasano:

(i) cise or ta ahun (Tamura 2000, 27)

house place at enter

'he entered the house'

(ii) a. naabu-qi-ra bai-ro (Vincent 1973, 540)

house-in-place is-he

'He is in the house (in the house place)'

b. bi-ra-qi-ra-ini bi-ro (Vincent 1973, 540)

there-place-in-place-to go-he

'He went to in there (to the 'there in' place)'

(iii) s ɨ   be-ri-hata-ro hubea-h ɨ y ā -a-ha ti (Jones and Jones 1991, 110)

green-PTCPL-box-S inside-place be-PRES-3 3INAN

'It is inside the green box'

Bresnan (1994), Kayne (2004, 258n10), Rizzi and Shlonsky (2006, section 5) also suggest that the 'subject' PP of cases such as *Under the stars is a nice place to sleep* is part of a DP with a silent head PLACE. This case may, however, represent a different structure if, as Luigi Rizzi (personal communication) has observed, even "simple" prepositions can occur in this construction (*A casa non è il posto migliore per fumare* 'At home is not the best place to smoke'). Here the silent PLACE head must be identifi ed by a DP predicate that necessarily contains an overt instance of the noun 'place' ([PLACE (*at home)*] *is not the best **place** to smoke/*is always pleasant)* (cf. also Collins 2007 , 28n24). The way in which the axes (front/back, left/right, etc.) are pragmatically determined depends, as often noted (Miller and Johnson-Laird 1976 , Levinson 1996 , Jackendoff 1996, section 1.8), on the particular *frame of reference* adopted, which may in part be culture specific. In Muna (Austronesian [van den Berg 1997, 211; Palmer 2002 , 110n6]), nails, peanuts, leaves, and eggs have an "intrinsic" front and back, whereas in other languages only animals and a limited number of inanimate objects have one. In addition to this "intrinsic" frame of reference, other common frames of reference are the "relative" one (with regard to an observer) and the "absolute" one (geographical [north/south, east/west] or other). See in particular Levinson (1996), where it is also pointed out that the frames of reference are independent from the possible presence of a deictic center (*the dog was in front of the tree* whether with regard to Bill or me). See further discussion later.

6. For an interesting recent analysis that addresses some complications, see Rooryck and Vanden Wyngaerd (2007) and the discussion in Svenonius (2008, section 6.2)

7. Svenonius makes a further difference between "axial parts" (*front* of *in front of)* and "places" (*above* / *behind*, etc.), but I ignore this difference here.

8. The structure in (8) is actually only a fragment of the overall structure (see later refi nements and references). To be part, as modifi ers, of a DP headed by PLACE/'place' is plausibly what has induced many authors to characterize them as nouns. As modifi ers of a noun they may themselves be nominal but need not be nouns. For arguments that (the analogues of) 'front', 'top', and so on in Amharic, Zina Kotoko, and Gungbe are not ordinary nouns when they are part of a 'complex preposition' despite their homophony with nouns, see Tremblay and Kabbaj (1990 , section 2.1), Holmberg (2002 , section 2), and Aboh (this volume, section 2.2.4). For an argument to the same effect based on cross-linguistic evidence, see Svenonius (2006).

9. That the "simple" preposition in (9) is a high stative preposition rather than a lower functional preposition pied-piped by NP Place in its movement to the left of AxPartP is suggested

by the fact that the other high directional prepositions ('to' and 'from') are also found in that position. Other languages with the same word order as Gungbe (in addition to other Gbe languages, to Amharic, Supyire, Songhay, and Likpe [Ameka 2003 , 2007]) are Tidore (Papuan [van Staden 2007]), Chinese, and Saramaccan (Zhang 2002, 53).

If the phrase fi nal complex prepositions 'under', 'beside', and so on of Gungbe and other such languages are not P heads but phrasal modifi ers of a silent head PLACE, then their exceptionality with regard to Greenberg's observation that postpositional languages are not verb initial disappears (cf. Kayne 2005b, 51).

10. See Aboh (this volume, section 3.1). In Zina Kotoko the order is possessum > possessor, while for Gungbe, Aboh analyzes cases like (9) as refl ecting the order possessor > possessum (see his sections 2.2.1 and 3.1). Also see Zwart (2005): "Many languages express spatio-temporal relations in a possessive construction where the relational concept is expressed by a (grammaticalized) noun, such that for example *in the house* is rendered as *(the) inside (of) the house.* The relational noun may either precede or follow its complement, depending on the organization of possessive constructions" (692). Beyond Chadic (Holmberg 2002 , Pawlak 2003 , 246), the order seen in (10) is apparently also found in Nilo-Saharan (see Ameka 2003 , 42, on Maa), Mayan (see Brown 2006 , 243, on Tzeltal; Bohnemeyer and Stolz 2006 , 286, on Yukatek Maya), and Austronesian (see Topping 1973 , 116–19, on Chamorro; Zhang 2002, 54, on Indonesian; Boutin 2004 , 6, on Bonggi).

11. Cf. Kayne (2004, section 4.4). On the "light" preposition following complex prepositions in Greek and Hebrew see Terzi (2008 and this volume), Botwinik-Rotem (2008), and Botwinik-Rotem and Terzi (2008).

12. Also see Kayne (2004, section 4.2.2) and Collins (2007), who argues that nonpronunciation of the preposition is contingent on movement of overt material to its Spec.An interesting argument for the presence of a covert directional preposition TO in English (when none is overt) is discussed in Stringer (2006 , 64). He notes that if "as an empty category, it must be locally licensed by strict adjacency to the verb," it is understandable that, under clefting, the directional interpretation of *Zidane ran on the pitch* is lost (cf. *It was on the pitch that Zidane ran).*

In general, across languages, only the unmarked stative and directional Ps 'at' and 'to', not the marked source directional preposition 'from', can fail to be pronounced (*He put it TO under the bed* vs. *He lifted it * (from) under the bed)* (cf. Caponigro and Pearl 2008 , 383f), though some languages also pronounce the goal directional preposition 'to'. See the case of Tokelauan (Austronesian) in (i) and that of Palula (Indo-Aryan) in (ii):

(i) hau **ki loto** fale (Sharples 1976, 71)
come(sing.) **to inside** house
'Come inside'

(ii) [_ ukur-á **šíi** _ **i the**] g hin-í g íia hín-a (Liljegren 2008, 173)
hut-OBL **inside to** take-CONV go.PFV.PL be.PRS-MASC.PL
'They took him inside the hut'

Later I provide some evidence that suggests that directional prepositions actually co-occur with stative, axial, and functional case-assigning prepositions (*He put it* TO AT *under* P *the bed / He lifted it from* AT *under* P *the bed).*

13. Also see the case of Palula in note 12 and that of Trumai (isolate, Brazil [Guirardello-Damian 2007]).

14. In *right from there, right* possibly modifi es a nonpronounced *away.* See the contrast between *Chico raced right away from Mrs. Claypool* and * *Chico raced away right from Mrs. Claypool* , noted in Hendrick (1976 , 99). Similar considerations seem to hold for directional *to: Zeppo went (right) up (* right) to the attic* (Rooryck 1996 , 230).

15. For simplicity, I abstract here and later on from complexities of the derivation. If the

functional P licensing *the table* in (14) is actually merged above it after this has raised higher (or even outside of PP Dir), attracting [from AT under] to its left (cf. Kayne 2002 , 2004), the structure would be somewhat different (but in ways that do not affect the points I am making here).

16. Unattested, apparently, is P Stat P Dir NP (with free morphemes). If English *into* is P Stat -P Dir -N (but see Noonan this volume), the reversal of the (bound) morphemes might be due to incorporation.

17. The presence in goal direction contexts of a single preposition (*Ion merge la magazin, Ion va a l negozio* 'Ion is going to [the] store'), identical to the stative preposition (*Ion este la magazin, Ion è a l negozio* 'Ion is at [the] store'), can be taken to mean that the goal direction preposition is unpronounced (cf. Svenonius's idea mentioned in the main text preceding note 12, as well as Collins 2007). As we see in (15) through (19) or in (i)–(iii) in this note from three Austronesian languages, the goal direction preposition is often found to obligatorily co-occur with the stative preposition.

(i) baroesa l o n=jak u=bak=rumoh=gopnyan (Acehnese [Durie 1985, 172])
the other day I=go to=at=house=he
'The other day I went to his house'
(ii) Sia m-i-uhad [-in-- ə m-uhad] ti-di Kudat (Bonggi [Boutin 2004, 13])
3s.NOM ACY-REALIS-move from-at Kudat
' **She** moved from Kudat.'
(iii) mai he motu ko Tonga (Niuean [Massam 2006, 8])
from Loc island Pred Tonga
'from Tonga'

18. Both Givón (1980 , 45) and Oberly (2004, section 5.6) analyze -*vee* and -*tuk'* as postpositions.
Yanesha' (Arawakan [Adelaar 2004 , 428]) and Shuar (Jivaroan [Adelaar 2004 , 440]) have N-LOC-ABL and N-LOC-ALL; various Australian languages have N-LOC-ABL (Blake 1977 , 55; Kracht 2002 , 183). Jero (Tibeto-Burman [Opgenort 2005, 92]) has N-LOCSOURCE. In Korean, as Son (2006 , 195n21) points out, when the object DP is animate, the stative morphemes (-*eykey* and -*hanthey) must* co-occur in directed motion contexts with the directional adposition-(*u)lo* (see *John-eykey-lo* [lit., 'John-at-to (toward John)']).

19. Also see Brugè and Su n er (2009) for the corresponding complex temporal prepositions 'before' and 'after'. Apparently inconsistent with the hierarchy in (20) is a case like *two inches from the table.* The inconsistency, however, may be only apparent. *From* appears to be ambiguous between a directional preposition (merged under P Dir) and a vague axial part (projecting
vectors in some unspecifi ed direction from the ground and as such merged under AxPartP). Evidence for this is the fact that the two instances of *from* may actually co-occur (sandwiching the measure phrase: *The cable will be laid down from two inches from the table to the window)* and the fact that the *from* that appears after the measure phrase cannot co-occur with an axial part (* *It is two inches from under the table*).

20. Thinking of Kayne (2004), DeicticP could in fact be more complex, with another instance of PLACE and an unpronounced demonstrative: . . . [DeicticP [[there PLACE] i THAT t i] . . .
Overt evidence for such silent pieces are possibly the example (ii)b of note 5 in this chapter, from Tairora, and the following Korean example (i), cited in Svenonius (this volume), where a (distal) demonstrative preceding the axial part is interpreted as 'there':
(i) Ku sangca-nun oscang ce mit-ey twu-ess-ta
the box-TOP chest DIST bottom-LOC place-PAST-DECL
'I put the box over there under the chest'
In Grebo (Kru, Niger-Congo), if no postposition is present, the use of deictic *ke* 'there' is

obligatory (de Melo 2005, 42f):

(i) Ne yi-da no ne ke London vs. (ii) Ne yi-da no ne (ke) kae y _

I see-PAST him AFFIRM there London I see-PAST him AFFIRM (there) house

in-front-of

'I saw him in London' 'I saw him in front of the house'

21. Svenonius (2007) notes that the deictic adverb can follow but not precede ModeDirP
and observes (this volume, section 2.4), following Kayne (2005a, 75) that the possibility for it
to follow an axial part 'preposition' (*under here)* is due to the raising of the axial preposition
(plus the empty ground DP) across the deictic adverb (with the effect that the meaning is "here,
under something" rather than "under this place").

22. Certain dialects of the Valtellina (northern Italy) also allow for the co-occurrence of
the same two relative viewpoints seen in (25)b ('up/down' and 'in/out') in an order (with the
deictic particle) that appears to be the mirror image of the English order. See *lafösù* , literally,
'there out up' [Prandi 2007 , section 3]). The fact that *lafösù* is spelled as a single word may
suggest a derivation from an (English) order (*sù fö la)* through successive incorporations (of *la*
to *fö* and of *lafö to sù).* Italian *laggiù fuori (dietro il fi enile)* , literally, 'there+down out (behind
the barn)', may instead be thought of as deriving from the same (English) order through
incorporation

of *l à* to *giù* crossing over *fuori.*

Dialects of the Valtellina also show that indication of the 'up/down' (relative) viewpoint
is obligatory in all directional contexts: *Sum 'nd à c' *(s')a sür à na* 'I have gone *(up) to Surana'.

Similar facts are found in Ladin, Sursilvan, Monnese, and other dialects of the Alps, with
interesting extensions of the 'in/out' relative point of view. See Pescarini (2004).

To judge from Abraham (this volume), Noonan (this volume) and Van Riemsdijk (2007),
German "doubling or echo PPs" seem to confl ate the relative viewpoint projections and the
deictic projection (toward/away from the speaker):

(i) Die Schnecke kroch auf das Dach hinauf/hinab/hinüber (Van Riemsdijk 2007, 267)

The snail crept on the roof up/down/across (away from the speaker)

'The snail crept up/down/across the roof'

23. In N e l e mwa, *up/down* can also have a different topographic reference ('up,' meaning
'inland'; 'down,' meaning 'seaward'). Also see the case of Tzeltal (Mayan), where the opposition
'uphill'/'downhill' provides an absolute system of coordinates (Brown and Levinson
1993).

24. In (27) we abstracted from the projection dominating PP dir , which introduces modifi
ers such as *right (away)* (see note 14) and from the projections hosting the movement of particles
in certain languages (see Koopman's and Den Dikken's contributions to this volume).

A question that we did not address is what combinations of elements are possible in each language.
For relevant preliminary observations on English and German, see Kayne (2005a, 68) and the
contributions by Svenonius and Noonan in this volume. The variation appears extensive.

The kinds of extractions that such structure allows in each language (e.g., standard preposition
stranding) are another potential source of variation that remains to be investigated.

Some observations appear in Hornstein and Weinberg (1981 , 60n9), Kayne (2005a, 68) and in
the contributions by Noonan and Den Dikken in this volume.

25. As usual in analyses that strive to map out in detail the extended projection of a certain
head, the question arises as to whether the entire structure is always projected, even when
only part of it fi nds overt expression. Given the evidence from semantic interpretation seen
earlier for the presence of certain unpronounced heads (and phrases) of the extended projection
of spatial Ps, it is tempting to assume that the entire sequence of functional projections is
indeed present, with default or unspecifi ed values when unpronounced. For further general
discussion of this controversial question, see Cinque (1999, chapter 6).

26. Also see the order Source prefi x > Goal prefi x in Chickasaw, cited by Nam (2004 a, section 2.2), after Munro (2000).

27. One can perhaps express an infi nite number of confi gurations (e.g., 'at the upper left corner of the table', 'on the tip of the mountain', 'in the fi rst part of the train'), but these are run-of-the-mill P+DP constructions, not complex prepositions. Interestingly, Froud's patient consistently made a distinction between phrases such as 'in front of the house' (impaired) and 'in the front of the house' (unimpaired) (see Froud 2001 , appendix A). Also see Lonzi, Luzzatti, and Vitolo (2006 , section 5).

References

Aboh, Enoch O. 2004. *The Morphosyntax of Complement-head Sequences: Clause Structure and Word Order Patterns in Kwa.* New York: Oxford University Press.

Adelaar, Willem F. H. 2004. *The Languages of the Andes.* In collaboration with Pieter C. Muysken. New York: Cambridge University Press.

Ameka, Felix K. 2003. Prepositions and Postpositions in Ewe (Gbe): Empirical and Theoretical Considerations. In P. Sauzet and A. Zribi-Hertz, eds., *Typologie des langues d'Afrique et universaux de la grammaire* , 41–67. Paris: L'Harmattan.

——— . 2007. The Coding of Topological Relations in Verbs: The Case of Likpe (S _ kp _ lé). In F. K. Ameka and S. C. Levinson, eds., *The Typology and Semantics of Locative Predicates: Posturals, Positionals, and Other Beasts* , 1065–1103. Berlin: de Gruyter (special issue of *Linguistics* 45[5/6]).

——— , and Stephen C. Levinson, eds. 2007. *The Typology and Semantics of Locative Predicates: Posturals, Positionals, and Other Beasts.* Berlin: de Gruyter (special issue of *Linguistics* 45[5/6]).

Asbury, Anna, Jakub Dotlač il, Berit Gehrke, and Rick Nouwen, eds. 2008. *Syntax and Semantics of Spatial P.* Amsterdam: Benjamins.

Ayano, Seiki. 2001. The Layered Internal Structure and the External Syntax of PP. PhD diss., University of Durham.

——— . 2005. The Layered Internal Structure of Spatial PPs. In H. Cuyckens, W. De Mulder, and T. Mortelmans, eds., *Adpositions of Movement* , 3–27. Amsterdam: Benjamins (*Belgian Journal of Linguistics* 18 [2004]).

Baši ć , Monika, Marina Pantcheva, Minjeong Son, and Peter Svenonius, eds. 2007. *Space, Motion, and Result: Nordlyd. Tromsø Working Papers in Language and Linguistics* 34(2). Tromsø: University of Tromsø. http://www.ub.uit.no/baser/nordlyd/viewissue. php?id=12 .

Bennardo, Giovanni. 2002. *Representing Space in Oceania: Culture in Language and Mind.* Canberra: Australian National University.

Blake, Barry J. 1977. *Case Marking in Australian Languages.* Canberra: Australian Institute of Aboriginal Studies.

Bloom, Paul, Mary A. Peterson, Lynn Nadel, and Merrill F. Garrett, eds. 1996. *Language and Space.* Cambridge, Mass.: MIT Press.

Bohnemeyer, Jürgen, and Christel Stolz. 2006. Spatial Reference in Yukatek Maya: A Survey. In S. C. Levinson and D. Wilkins, eds., *Grammars of Space* , 273–310. New York: Cambridge University Press.

Botwinik-Rotem, Irena. 2008. Why Are They Different? An Exploration of Hebrew Locative PPs. In A. Asbury, J. Dotla č il, B. Gehrke, and R. Nouwen, eds., *Syntax and Semantics of Spatial P* , 331–64. Amsterdam: Benjamins.

——— , and Arhonto Terzi. 2008. The Structure of Greek and Hebrew Prepositional Phrases: A Unifi ed, Case-driven Account. *Lingua* 118: 399–424.

Boutin, Michael E. 2004. Locative Predicates in Bonggi. Ms., Summer Institute of Linguistics, Malaysia. http://linguistics.buffalo.edu/people/faculty/vanvalin/rrg/

vanvalin_papers/Locative.PDF .

Bowden, John. 1997. The Meanings of Directionals in Taba. In G. Senft, ed., *Referring to Space: Studies in Austronesian and Papuan Languages* , 251–68. New York: Oxford University Press.

——— . n.d. Taba as a Split-O Language: Applicatives in a Split-S System. *Research School of Pacifi c and Asian Studies Working Papers in Linguistics.* http://rspas.anu.edu.au/ linguistics/projects/WP/Bowden2.html .

Bresnan, Joan. 1994. Locative Inversion and the Architecture of Universal Grammar. *Language* 70: 1–131.

Bril, Isabelle. 2004. Deixis in N e l e mwa. In G. Senft, ed., *Deixis and Demonstratives in Oceanic Languages* , 99–127. Canberra: Australian National University.

Brown, Penelope. 2006. A Sketch of the Grammar of Space in Tzeltal. In S. C. Levinson and D. Wilkins, eds., *Grammars of Space* , 230–72. New York: Cambridge University Press.

——— , and Stephen C. Levinson. 1993. "Uphill" and "Downhill" in Tzeltal. *Journal of Linguistic Anthropology* 3: 46–74.

Brugè, Laura, and Avelina Suñ er. 2009. Building Up Complex Temporal Constructions. Ms., Universit a Ca' Foscari, Venezia, and Universidad de Girona.

Caponigro, Ivano, and Lisa Pearl. 2008. Silent Prepositions: Evidence from Free Relatives. In A. Asbury, J. Dotla č il, B. Gehrke and R. Nouwen, eds., *Syntax and Semantics of Spatial P* , 365–85. Amsterdam: Benjamins.

Cinque, Guglielmo. 1971. Analisi semantica della deissi in italiano. Tesi di laurea, Universit a di Padova.

——— . 1999. *Adverbs and Functional Heads: A Cross-linguistic Perspective.* New York: Oxford University Press.

——— . 2006. Complement and Adverbial PPs: Implications for Clause Structure. In G. Cinque, *Restructuring and Functional Heads: The Cartography of Syntactic Structures* , vol. 4, 145–66. New York: Oxford University Press.

——— . 2009. The Fundamental Left-right Asymmetry of Natural Languages. In S. Scalise, E. Magni, and A. Bisetto, eds., *Universals of Language Today* , 165–84. Berlin: Springer.

Collins, Chris. 2007. Home Sweet Home. *NYU Working Papers in Linguistics* 1: 1–34.

Comrie, Bernard, and Maria Polinsky 1998. The Great Daghestanian Case Hoax. In A. Siewierska and J. J. Song, eds., *Case, Typology, and Grammar: In Honor of Barry Blake* , 95–114. Amsterdam: Benjamins.

Cuyckens, Hubert, Walter De Mulder, Michèle Goyens, and Tanja Mortelmans, eds. Forthcoming. *Variation and Change in Adpositions of Movement.* Amsterdam: Benjamins.

——— , Walter De Mulder, and Tanja Mortelmans, eds. 2005. *Adpositions of Movement.* Amsterdam: Benjamins (*Belgian Journal of Linguistics* 18 [2004]).

——— , and Günter Radden. 2002. *Perspectives on Prepositions.* Tübingen: Niemeyer.

De Melo, Wolfgang David Cirilo. 2005. Adpositions in General Grammar and in Kru Languages. MA thesis, School of Oriental and African Studies, London. http://www. hrelp.org/publications/dissertations/wdemelo_ma.pdf .

Déchaine, Rose-Marie. 2005. Grammar at the Borderline: A Case Study of P as a Lexical Category. In John Alderete et al., eds., *Proceedings of the 24th West Coast Conference on Formal Linguistics* , 1–18. Somerville, Mass.: Cascadilla. http://www.lingref.com/ cpp/wccfl /24/paper1202.pdf .

Dikken, Marcel den. 2003. On the Syntax of Locative and Directional Adpositional Phrases. Ms., CUNY. http://web.gc.cuny.edu/dept/lingu/dendikken/docs/syntax_of_pp.pdf .

Denny, J. Peter. 1978. Locating the Universals in Lexical Systems for Spatial Deixis. In D. Farkas, W. M. Jacobsen, and K. W. Todrys, eds., *Papers from the Parasession on the*

Lexicon , 71–84. Chicago: Chicago Linguistic Society.

Djenar, Dwi Noverini. 2007. *Semantic, Pragmatic, and Discourse Perspectives of Preposition Use: A Study of Indonesian Locatives.* Canberra: Australian National University.

Durie, Mark. 1985. *A Grammar of Acehnese on the Basis of a Dialect of North Aceh.* Dordrecht: Foris.

Feigenbaum, Susanne, and Dennis Kurzon, eds. 2002. *Prepositions in Their Syntactic, Semantic, and Pragmatic Context.* Amsterdam: Benjamins.

Fong, Vivienne. 1997. The Order of Things: What Directional Locatives Denote. PhD diss., Stanford University. http://www.stanford.edu/~vivienne/research/fong_dissertation.pdf .

Froud, Karen. 2001. Prepositions and the Lexical/functional Divide: Aphasic Evidence. *Lingua* 111: 1–28.

Gehrke, Berit. 2006. "On Directional Readings of Locative Prepositions." *Proceedings of ConSOLE XIV* , 99-120. http://www.hum2.leidenuniv.nl/pdf/lucl/sole/console14/console14-gehrke.pdf .

Givón, Talmy. 1980. *Ute Reference Grammar.* Ignacio, Colo.: Ute Press, Southern Ute Tribe.

Guirardello-Damian, Raquel. 2007. Locative Construction and Positionals in Trumai. In F. K. Ameka and S. C. Levinson, eds., *The Typology and Semantics of Locative Predicates: Posturals, Positionals, and Other Beasts* , 917–53. Berlin: de Gruyter (special issue of *Linguistics* 45[5/6]).

Haumann, Dagmar, and Stefan J. Schierholz, eds. 1997. *Lexikalische und grammatische Eigenschaften präpositionaler Elemente.* Tübingen: Niemeyer.

Helmantel, Marjon. 2002. Interactions in the Dutch Adpositional Domain. PhD diss., LOT Dissertation Series 66, Utrecht. http://www.lotpublications.nl/publish/articles/000249/bookpart.pdf

Hendrick, Randall. 1976. Prepositions and the X' Theory. In J. E. Emonds, ed., *UCLA Papers in Syntax* , vol. 7, 95–144. Los Angeles: UCLA Department of Linguistics.

Hickmann, Maya, and Stéphane Robert, eds. 2006. *Space in Languages: Linguistic Systems and Cognitive Categories.* Amsterdam: Benjamins.

Holmberg, Anders. 2002. Prepositions and PPs in Zina Kotoko. In B. K. Schmidt, D. Odden, and A. Holmberg, eds., *Some Aspects of the Grammar of Zina Kotoko* , 162–74. Munich: Lincom Europa.

Hornstein, Norbert, and Amy Weinberg. 1981. Case Theory and Preposition Stranding. *Linguistic Inquiry* 12: 55–91.

Jackendoff, Ray. 1973. The Base Rules for Prepositional Phrases. In S. Anderson and P. Kiparsky, eds., *A Festschrift for Morris Halle* , 345–66. New York: Holt, Rinehart, and Winston.

——— . 1977. *X-bar Syntax: A Study of Phrase Structure.* Cambridge, Mass.: MIT Press.

——— . 1990. *Semantic Structures.* Cambridge, Mass.: MIT Press.

——— . 1996. The Architecture of the Linguistic-spatial Interface. In P. Bloom, M. A. Peterson, L. Nadel, and M. F. Garrett, eds., *Language and Space* , 1–30. Cambridge, Mass.: MIT Press.

Jones, Wendell, and Paula Jones. 1991. *Barasano Syntax* (Studies in the Languages of Colombia 2). Dallas: Summer Institute of Linguistics and the University of Texas–Arlington.

Kayne, Richard S. 2002. On Some Prepositions That Look DP-internal: English *of* and French *de. Catalan Journal of Linguistics* 1: 71–115 (also in Kayne 2005a, 136–75).

——— . 2004. Here and There. In C. Leclère, E . Laporte, M. Piot, and M. Silberzstein, eds.,

Lexique, syntaxe, et lexique-grammaire (Syntax, Lexis, and Lexicon-Grammar): Papers in Honour of Maurice Gross, 275–85. Amsterdam: Benjamins (as lso in Kayne 2005a, 65–84).

———— . 2005a. *Movement and Silence.* New York: Oxford University Press.

———— . 2005b. Some Notes on Comparative Syntax, with Special Reference to English and French. In G. Cinque and R. S. Kayne, eds., *The Oxford Handbook of Comparative Syntax* , 3–69. New York: Oxford University Press.

———— . 2007. A Short Note on *Where* vs. *Place.* In R. Maschi, N. Penello, and P. Rizzolatti, eds., *Miscellanea di studi linguistici offerti a Laura Vanelli da amici e allievi padovani,* 245–57. Udine: Forum.

Koopman, Hilda. 2000. Prepositions, Postpositions, Circumpositions, and Particles: The Structure of Dutch PPs. In Hilda Koopman, *The Syntax of Specifi ers and Heads: Collected Essays of Hilda J. Koopman* , 204–260. London: Routledge.

Kracht, Marcus. 2002. On the Semantics of Locatives. *Linguistics and Philosophy* 25: 157–232.

———— . 2008. The Fine Structure of Spatial Expressions. In A. Asbury, J. Dotla č il, B. Gehrke, and R. Nouwen, eds., *Syntax and Semantics of Spatial P,* 35–62. Amsterdam: Benjamins. http://kracht.humnet.ucla.edu/marcus/html/fi nelokal.pdf .

Kurzon, Dennis, and Silvia Adler, eds. 2008. *Adpositions: Pragmatic, Semantic, and Syntactic Perspectives.* Amsterdam: Benjamins.

Levinson, Stephen C. 1996. Frames of Reference and Molyneux's Question: Crosslinguistic Evidence. In P. Bloom, M. A. Peterson, L. Nadel, and M. F. Garrett, eds., *Language and Space,* 109–69. Cambridge, Mass.: MIT Press.

————, and David Wilkins, eds. 2006. *Grammars of Space.* New York: Cambridge University Press.

Liljegren, Henrik. 2008. Towards a Grammatical Description of Palula: An Indo-Aryan Language of the Indu Kush. PhD diss., Stockholm University. http://www.diva-portal.org/su/abstract.xsql?dbid=7511 .

Lonzi, Lidia, Claudio Luzzatti, and Francesca Vitolo. 2006. Recoverability of Deletion in Agrammatic Production: The Omission of Prepositions. *Rivista di Linguistica* 18: 267–94.

Massam, Diane. 2006. Feature Packaging: Functional Categories in the Niuean Nominal Phrase. In *Tenth International Conference on Austronesian Linguistics,* January 17–20, 2006, Palawan, Philippines. Linguistic Society of the Philippines and SIL International. http://www.sil.org/asia/philippines/ical/papers/massam-niuean_NP.pdf .

Miller, George, and Philip N. Johnson-Laird. 1976. *Language and Perception.* Cambridge, Mass.: Harvard University Press.

Munro, Pamela. 2000. The Leaky Grammar of the Chickasaw Applicatives. In A. Okrent and J. P. Boyle, eds., *Proceedings from the Main Session of the 36th Meeting of the Chicago Linguistic Society,* 285–310. Chicago: Chicago Linguistic Society.

Muriungi, Peter. 2006. Categorizing Adpositions in Kîîtharaka. In P. Svenonius and M. Pantcheva, eds., *Adpositions.* Special issue of *Nordlyd: Tromsø Working Papers in Linguistics* 33(1): 26–48. http://www.ub.uit.no/munin/nordlyd/ .

Nam, Seungho. 2004a. Directional Locatives in Event Structure: Asymmetry between Goal and Source. http://ling.snu.ac.kr/nam/papers/Eoneohag43-Goal-Source.pdf

Nam, Seungho. 2004b. Goal and Source in Event Structure: Asymmetry in Their Syntax and Semantics. Paper presented at the Workshop on Event Structures in Linguistic Form and Interpretation, Leipzig, March 17–19, 2004.

Oberly, Stacey Inez. 2004. A Preliminary Analysis of Southern Ute with a Special Focus on Noun Phrases. In *Coyote Papers: Working Papers in Linguistics,* vol. 13 (special volume dedicated to the indigenous languages of the Americas, ed. Tania Granadillo, Meghan

O'Donnell, and Stacey I. Oberly). http://coyotepapers.sbs.arizona.edu/CPXIII/oberly.pdf .

Opgenort, Jean Robert. 2005. *A Grammar of Jero.* Leiden: Brill.

Palmer, Bill. 2002. Absolute Spatial Reference and the Grammaticalisation of Perceptually Salient Phenomena. In G. Bennardo, ed., *Representing Space in Oceania: Culture in Language and Mind,* 107–57. Canberra: Australian National University (Pacifi c Linguistics 523).

Pantcheva, Marina. 2006. Persian Preposition Classes. In P. Svenonius and M. Pantcheva, eds., *Adpositions.* Special issue of *Nordlyd: Tromsø Working Papers in Linguistics* 33(1): 1–25. http://www.ub.uit.no/munin/nordlyd/ .

——— . 2008. The Place of PLACE in Persian. In A. Asbury, J. Dotla č il, B. Gehrke, and R. Nouwen, eds., *Syntax and Semantics of Spatial P,* 305–30. Amsterdam: Benjamins.

Pawlak, Nina. 2003. Locative Prepositions in Chadic: Lexical or Grammatical Morphemes? In E. Shay and U. Seibert, eds., *Motion, Direction, and Location in Languages: In Honor of Zygmunt Frajzyngier,* 235–54. Amsterdam: Benjamins.

Pederson, Eric. 2006. Spatial Language in Tamil. In S. C. Levinson and D. Wilkins, eds., *Grammars of Space,* 400–36. New York: Cambridge University Press.

Pescarini, Diego. 2004. Fra morfologia linguistica e morfologia del territorio: Sistemi locativi a confronto. In G. Marcato, ed., *I dialetti e la montagna* , 179–186. Padua: Unipress.

Prandi, Michele. 2007. Un capitolo esclusivo della grammatica dei dialetti: La deissi ambientale. In G. Garzone and R. Salvi, eds., *Linguistica: Linguaggi specialistici. Didattica delle lingue. Studi in onore di Leo Schena,* 61–72. Rome: CISU.

Rauh, Gisa. 1993. On the Grammar of Lexical and Nonlexical Prepositions in English. In C. Zelinsky-Wibbelt, ed., *The Semantics of Prepositions: From Mental Processing to Natural Language Processing,* 99–150. Berlin: de Gruyter.

——— . 1995. Englische Präpositionen zwischen lexikalischen und funktionalen Kategorien. *Arbeiten des Sonderforschungdbereichs 282: Theorie des Lexicons,* n.71. Bergische Universität Wuppertal.

Reinhart, Tanya, and Eric Reuland. 1993. Refl exivity. *Linguistic Inquiry* 24: 657–720.

Riemsdijk, Henk C. van. 1978. *A Case Study in Syntactic Markedness: The Binding Nature of Prepositional Phrases.* Dordrecht: Foris.

——— . 1990. Functional Prepositions. In H. Pinkster and I. Genee, eds., *Unity in Diversity: Papers Presented to Simon Dik on His 50th Birthday,* 229–41. Dordrecht: Foris.

——— . 2007. Case in Spatial Adpositional Phrases: The Dative-accusative Alternation in German. In G. Alboiu, A. A. Avram, L. Avram, and D. Isac, eds., *Pitar Mo ş : A Building with a View. Papers in Honour of Alexandra Cornilescu,* 265–83. Bucharest: Editura Universit ă ţ ii din Bucure ş ti.

——— , and Riny Huijbregts. 2001. Location and Locality. In M. van Oostendorp and E. Anagnostopoulou, eds., *Progress in Grammar: Articles at the 20th Anniversary of the Comparison of Grammatical Models Group in Tilburg,* 1–23. Amsterdam: Meertens Instituut.

——— . 2007. Location and Locality. In S. Karimi, V. Samiian, and W. K. Wilkins, eds., *Phrasal and Clausal Architecture: Syntactic Derivation and Interpretation,* 339–64. Amsterdam: Benjamins.

Rizzi, Luigi. 1985. Two Notes on the Linguistic Interpretation of Broca's Aphasia. In M.-L. Kean, ed., *Agrammatism,* 153–64. New York: Academic Press.

——— . 1988. Il sintagma preposizionale. In L. Renzi, ed., *Grande grammatica italiana di consultazione,* 507–31. Bologna: Il Mulino.

——— , and Ur Shlonsky. 2006. Satisfying the Subject Criterion by a Nonsubject: English

Locative Inversion and Heavy NP Shift. In M. Frascarelli, ed., *Phases of Interpretation,* 341–61. Berlin: de Gruyter.

Rooryck, Johann. 1996. Prepositions and Minimalist Case Marking. In H. Thrainsson, S. Epstein, and S. Peter, eds. *Studies in Comparative Germanic Syntax,* vol. 2, 226–56. Dordrecht: Kluwer.

——— , and Guido Vanden Wyngaerd. 2007. The Syntax of Spatial Anaphora. In *Nordlyd: Tromsø Working Papers in Language and Linguistics* 34(2). M. Baši ć , M. Pantcheva, M. Son, and P. Svenonius, eds., *Space, Motion, and Result,* 33–85. Tromsø: University of Tromsø. http://www.ub.uit.no/baser/nordlyd/viewissue.php?id=12 or http://ling.auf. net/lingbuzz/000469 .

Saint-Dizier, Patrick, ed. 2006. *Syntax and Semantics of Prepositions.* Dordrecht: Springer.

Šari č , Ljiljana, and Donald F. Reindl, eds. 2001. *On Prepositions.* Oldenburg: University of Oldenburg.

Schweikert, Walter. 2005. *The Order of Prepositional Phrases in the Structure of the Clause.* Amsterdam: Benjamins.

Senft, Gunter, ed. 1997. *Referring to Space: Studies in Austronesian and Papuan Languages.* New York: Oxford University Press.

Sharples, Peter R. 1976. Tokelauan Syntax: Studies in the Sentence Structure of a Polynesian Language. PhD diss., Auckland University.

Shay, Erin, and Uwe Seibert, eds. 2003. *Motion, Direction, and Location in Languages: In Honor of Zygmunt Frajzyngier.* Amsterdam: Benjamins.

Singh, Ch. Yashawanta. 2000. *Manipuri Grammar.* New Delhi: Rajesh Publications.

Son, Minjeong. 2006. Directed Motion and Non-predicative Path P in Korean. In P. Svenonius and M. Pantcheva, eds., *Adpositions.* Special issue of *Nordlyd: Tromsø Working Papers in Linguistics* 33(2): 176–99. http://www.ub.uit.no/munin/nordlyd/ .

Staalsen, Philip. 1965. *Iatmul Grammar Sketch.* http://www.sil.org/pacifi c/png/pubs/0000541/Iatmul_Gram_Sketch.pdf .

Stringer, David. 2006. Typological Tendencies and Universal Grammar in the Acquisition of Adpositions. In Saint-Dizier, ed., *Syntax and Semantics of Prepositions,* 57–68. Dordrecht: Springer.

Svenonius, Peter. 2006. The Emergence of Axial Parts. In P. Svenonius and M. Pantcheva, eds., *Adpositions.* Special issue of *Nordlyd: Tromsø Working Papers in Linguistics* 33(1): 49–77. http://www.ub.uit.no/munin/nordlyd/ .

——— . 2007. Adpositions, Particles, and the Arguments They Introduce. In E. Reuland, T. Bhattacharya, and G. Spathas, eds., *Argument Structure,* 63–103. Amsterdam: Benjamins.

——— . 2008. Projections of P. In A. Asbury, J. Dotla č il, B. Gehrke, and R. Nouwen, eds., *Syntax and Semantics of Spatial P,* 63–84. Amsterdam: Benjamins. http://ling.auf.net/lingBuzz/ .

Svenonius, Peter, and Marina Pantcheva, eds. 2006. *Adpositions.* Special issue of *Nordlyd: Tromsø Working Papers in Linguistics* 33(1–2). http://www.ub.uit.no/munin/nordlyd/ .

Tamura, Suzuko. 2000. *The Ainu Language.* Tokyo: Sanseido.

Terzi, Arhonto. 2008. Locative Prepositions as Modifi ers of an Unpronounced Noun. In Charles B. Chang and Hannah J. Haynie, eds., *WCCFL 26: Proceedings of the 26th West Coast Conference on Formal Linguistics,* 471–79. Somerville, Mass.: Cascadilla.

Topping, Donald M. 1973. *Chamorro Reference Grammar.* With the assistance of Bernadita C. Dungca. Honolulu: University of Hawaii Press.

Tortora, Christina. 2008. Aspect inside Place PPs. In A. Asbury, J. Dotla č il, B. Gehrke, and R. Nouwen, eds., *Syntax and Semantics of Spatial P,* 273–301. Amsterdam: Benjamins. http://www.let.uu.nl/~Anna.Asbury/personal/Tortora.pdf .

Tourneux, Henry. 2003. L'encodage de la localization, de la direction, et du movement dans

les langues "kotoko" du cameroun. In E. Shay and U. Seibert, eds., *Motion, Direction, and Location in Languages: In Honor of Zygmunt Frajzyngier,* 287–97. Amsterdam: Benjamins.

Tremblay, Mireille, and Ouadia Kabbaj. 1990. The Internal Structure of PPs in Amharic: On Postpositions and Prepositional Case Affi xes. In J. Hutchison and V. Manfredi, eds., *Current Approaches to African Linguistics,* vol. 7, 167–78. Dordrecht: Foris.

Tseng, Jesse L. 2000. The Representation and Selection of Prepositions. PhD diss., University of Edinburgh.

Van den Berg, René. 1997. Spatial Deixis in Muna (Sulawesi). In G. Senft, ed., *Referring to Space: Studies in Austronesian and Papuan Languages,* 197–220. New York: Oxford University Press.

van der Zee, Emile, and Jon Slack, eds. 2003. *Representing Direction in Language and Space.* New York: Oxford University Press.

van Staden, Miriam. 2007. Grounding Objects in Space and Place: Locative Constructions in Tidore. In F. K. Ameka and S. C. Levinson, eds., *The Typology and Semantics of Locative Predicates: Posturals, Positionals, and Other Beasts,* 955–82. Berlin: de Gruyter (special issue of *Linguistics* 45[5/6]).

Vincent, Alex. 1973. Notes on Tairora Noun Morphology. In H. McKaughan, ed., *The Languages of the Eastern Family of the East New Guinea Highland Stock,* vol. 1, 530–46. Seattle: University of Washington Press.

Wilkins, David P. 2006. Toward an Arrernte Grammar of Space. In S. C. Levinson and D. Wilkins, eds., *Grammars of Space,* 24–62. New York: Cambridge University Press.

Zegrean, Iulia-Georgiana. 2007. Towards Source of Motion in Romanian. Master's thesis, University of Venice. http://lear.unive.it/handle/10278/1336 .

Zhang, Niina Ning. 2002. Movement within a Spatial Phrase. In H. Cuyckens and G. Radden, eds., *Perspectives on Prepositions,* 47–63. Tübingen: Niemeyer.

Zwart, Jan-Wouter. 2005. A Note on Functional Adpositions. In H. Broekhuis, N. Corver, R. Huybregts, U. Kleinhenz, and J. Koster, eds., *Organizing Grammar: Linguistic Studies in Honor of Henk van Riemsdijk,* 689–95. Berlin: de Gruyter. http://www.let. rug.nl/~zwart/pubs/pubframes.htm .

Zwarts, Joost. 1995. Lexical and Functional Direction. In M. den Dikken, K. Hengeveld, eds., *Linguistics in the Netherlands 1995,* 227–38. Amsterdam: Benjamins.

——— . 1997. Lexical and Functional Properties of Prepositions. In D. Haumann and S. J. Schierholz, eds., *Lexikalische und grammatische Eigenschaften präpositionaler Elemente,* 1–18. Tübingen: Niemeyer.