Mapping Spatial PPs: an introduction

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. 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 significant: 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 configuration (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.

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)
b. tup oftad zir(*-e)
   ‘The ball fell from’

(6) a. *æz-e miz (Pantcheva 2006, 8)
b. zir(-e) miz
   ‘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).

Abstracting from certain differences, the structure that emerges from these proposals for a phrase like under the table is the one illustrated in (7):
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) DP place A X Part P under 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 specific 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 fú 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) Kit à bi dé a mwá táb’ a 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. mə hak ka-gi mə pan-də 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 modification 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 modifiers 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

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])
Ion vine de la magazin (cf. Ion este la magazin, literally, ‘Ion is at store’)
‘Ion is coming from at store’

(16) NP-P Stat -P Dir (Ute (Uto-Aztecan [Givón 1980, 66])
Ta’wá-ci kani- veetuk’ pa ș 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])
d`ə rúrú ‘ à jì k à skú bí
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


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


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

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


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 conflate 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).

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 Riemsdijk (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 quantifiers 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 [functional]-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 ‘figure’ 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 fine 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 modifiers. Her analysis in terms of leftward movements and pied-piping of the inner constituents of the extended projection of PPs is the first 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 refines 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 modifiers 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 specifier 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 flavor of complex prepositions. This silent noun PLACE is the head of a DP complement selected by a functional PLOC. 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 confirmation 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 homonymous 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
I wish to thank Laura Brugè, Richard Kayne and Luigi Rizzi for very helpful comments on a previous draft of this introduction. The chapters gathered here were originally presented at a “Workshop on Prepositional Phrases” held at the University of Venice in November 4–5, 2005 within the framework of the cartography network funded by the Italian Ministry of Research, from 1997 to 2007. The paper by Koopman constitutes the republication of a classic study on the internal structure of Germanic spatial PPs, which some of the articles of this volume take as their point of departure.


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 first 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)
‘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 u be-ri-hata-ro hubea-h y a-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 identified 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 refinements and references). To be part, as modifiers, of a DP headed by PLACE/‘place’ is plausibly what has induced many authors to characterize them as nouns. As modifiers 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 final complex prepositions ‘under’, ‘beside’, and so on of Gungbe and other such languages are not P heads but phrasal modifiers 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 reflecting 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).


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) [ _ ukur-á šií _ i the ] g hin-i g jia hín-a (Liljegren 2008, 173) hut-OBL inside to take-CONV go.PFV.PL be.PRS-MASC.PL ‘They took him inside the hut’

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 modifies 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 e 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 Suner (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 unspecified 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).


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 fô la) through successive incorporations (of la
to fô and of lafô 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 conflate 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 Ne le 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 finds 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 unspecified values when unpronounced. For further general
discussion of this controversial question, see Cinque (1999, chapter 6).
Also see the order Source prefix > Goal prefix in Chickasaw, cited by Nam (2004a, section 2.2), after Munro (2000).

One can perhaps express an infinite number of configurations (e.g., ‘at the upper left corner of the table’, ‘on the tip of the mountain’, ‘in the first 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).

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