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Mapping Spatial PPs

The Cartography of Syntactic Structures, Volume 6

Edited by

Guglielmo Cinque

Luigi Rizzi

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Mapping Spatial PPs

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1

GUGLIELMO CINQUE

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.[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 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.[2]

Languages appear to make a systematic distinction between these two types of prepositions. For example, in Italian, purely stative (*a* 'at') and directional (*a* 'to' and *da* 'from') prepositions differ from prepositions such as *sopra* 'above', *sotto* 'under', *davanti a* 'in front of', *accanto a* 'next to', etc., in obligatorily taking a complement and in disallowing preposition stranding (Rizzi 1988). See the contrast between (1)a and b and that between (2)a and b:

(1) a. Vengo proprio adesso da *(Roma)
I have just come from (Rome)
b. L'hanno messo sopra (la sedia)
They put it on top (of the chair)

(2) a. *Quale paese viene da?
Which country is (s)he from?
b. A chi eri seduto sopra?
Who were you sitting on?

In Kîîtharaka (Bantu, Niger-Congo), purely stative and directional prepositions differ in exactly the same way from complex prepositions like 'in front of', 'next to', 'under', 'above', and so on. See (3) and (4) and the discussion in Muriungi (2006, section 3.2):[3]

(3) a. Maria a- mami *(î-kurungu-)ni (Muriungi 2006, 30)
1Maria sm1-sleep (5-cave-)loc
'Maria is sleeping in (the cave)'
b. Maria a-kari ru-ngu (rw-a ndagaca) (Muriungi 2006, 30)
1Maria sm1-sit 11-under (11-Ass 9bridge)
'Maria is sitting under (of the bridge)'

(4) a. *N-îî-kurungu Maria a-mami-ni (Muriungi 2006, 31)
Focus-5-cave 1Maria sm1-sleep-loc
'It is the cave that Maria is sleeping in'
b. I-ka-raî Maria a-burabur-ir-e nkona (Muriungi 2006, 33)
Focus-12-pan 1Maria sm1-wiped-perf-fv 9bottom
'It is (of) the pan that Maria wiped on the bottom'

Muriungi (2006, section 3.3) also shows that in Kîîtharaka the two types of prepositions differ in their ability to assign case directly. While the former can, the latter need a functional preposition to do so (cf. Aboh this volume, section 2, for a similar situation in Gungbe). The same may well be true of Italian, where most complex prepositions can (and in certain cases must) be followed by one of the 'functional' prepositions *a* ('at/to') and *di* ('of') *(dietro (al) l'albero*, literally, 'behind (to) the tree', *dietro ??(di/a) noi*, literally, 'behind (of/to) us', *accanto *(a) noi*, literally, 'beside to us'. See Rizzi (1988). Perhaps, then, one should posit an unpronounced preposition where none is overt, as in *dietro l'albero* 'behind the tree' (see in fact the possibility, noted earlier, of pronouncing *a* with *dietro* 'behind').[4]

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)$[_{DPplace}$ $[_{XP}$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)$[_{DPplace}$ $[_{AXPartP}$ under$[_{PP}P[_{NPplace}$ 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 lɔ´* 'house the' by the simple stative preposition *ɖó* '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 cɔ´ fù lɔ´ **ɖó** xwé lɔ´ **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) Kìtàbí dé **a mwá** táb`əl (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. məhak ka-gi məpan-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: [$_{\text{DirP}}$ P [$_{\text{StatP}}$ 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

applicable, by an overt or a covert directional P, as schematically shown in (14), for a sentence like (*They extracted it) from under the table:*[15]

(14) $[_{PPdir}$from$[_{PPstat}$AT $[_{DPplace}[_{AXPartP}$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'** paĝáy'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 rúrù **'à** jì kàskú **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 *āz*, 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-ƛ-*āz*-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 Nêlêmwa (Austronesian [Bril 2004]) *up/down* can refer to cardinal points (in Italian 'up' = north, 'down' = south; in Nêlêmwa '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°$[_{PP}$ 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 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 (2004a, 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 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 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 '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 modifies (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 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 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 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

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.

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 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 Kĩîtharaka 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) sʉbe-ri-hata-ro hubea-hʉ yā-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).

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) [ḍukur-á **šíiṭi the**] ghin-í gíia 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 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 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 lôn=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--əm-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-LOC-SOURCE. 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 Suñer (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*).

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 yɛ
	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 fienile)*, literally, 'there+down out (behind the barn)', may instead be thought of as deriving from the same (English) order through incorporation of *là* 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 'ndàc' *(s')a sürà̀na* '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 Nêlêmwa, *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 modifiers 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).

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

27. 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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2

HILDA KOOPMAN

Prepositions, Postpositions, Circumpositions, and Particles

The Structure of Dutch PPs

The substantial broadening of the empirical basis of syntactic theory in the eighties has resulted in a better understanding of the general architecture of syntactic structures and theory. Syntactic structures are large structures assembled out of small, simple building blocks with a unique structural design. With large structures and simple design, the hypothesis that structural variation between languages is minimal or nonexistent can be reasonably entertained. Linguistic variation can be seen as the result of exercising different movement options (e.g., which constituents move, how "big" these constituents are; see Kayne 1994; Koopman 1994, 1996; Sportiche 1995b; Chomsky 1995) within fixed and cross-linguistically invariant structural skeletons (Sportiche 1995b; Koopman 1996; Cinque 1999). Seriously testing this hypothesis, however, presupposes a good understanding of the invariant skeletal structure, which all too often is still lacking.

In this chapter I explore the architecture of PPs, a quite modest syntactic category, with as ultimate goal a better understanding of the structure of Ps universally. I do so not by analyzing patterns of cross-linguistic variation and drawing conclusions based on them but rather by providing a uniform analysis of the syntax of Ps in Dutch. As is well known from the extensive literature on this subject, starting with the seminal work of Van Riemsdijk (1978), the syntax of Ps in Dutch is extremely rich. It thus lends itself well to this enterprise. There are many different types of Ps (prepositions, postpositions, particles, and circumpositions, known as complex Ps). The distribution of modifiers and pronouns within the PP is intricate, providing a good analytical starting point for determining the internal structure of PPs. Different overt movement processes apply to Ps and PPs: movement out of PPs that results in P-stranding, head movement of Ps (incorporation), pied-piping of PPs, scrambling of PPs, and PP over V. Taken together, these should allow us to form a solid picture of

the syntactic structure of PPs and how that explains the various observed syntactic behaviors. The development of a unified analysis for Dutch Ps should further our understanding of the necessary properties of the basic invariant structure, which, by hypothesis, underlies the syntax of all human languages.

Expectations and theoretical assumptions

I first establish the structure of PPs by using as analytical tools those aspects of the theory that are relatively well understood, in particular the basic form of syntactic structures and movement theory. I depart from much of the current syntactic practice, which imposes additional methodological restrictions on possible analyses. In accordance with my recent research, (Koopman 1996; Koopman and Szabolcsi 1998), I avoid explanations that are based on economy and rely on purely mechanical solutions instead.

Since syntactic structures are binary branching (Kayne 1984), Ps minimally project a PP projection, with a possible Spec and a complement position. Usually PP is taken to be the maximal projection of P as well for the purpose of external syntax. However, just as work on the internal structure of clauses[1] and DPs[2] has established that the lexical projections of V and N are dominated by a number of functional categories, PPs might be expected also to be dominated by functional categories. This is directly confirmed by the existence of inflected Ps in many languages,[3] which demonstrates that the extended projection of PP can contain at least an Agr projection.

Different word orders are derived by the movement of various constituents from a common skeleton. Given this essential role, it is important to spell out the theory of movement adopted in this chapter, which assumes strict locality of movement and domain extension:

(1) a. XP movement proceeds through the local Spec[4]
b. Head movement is strictly local[5]
c. Head movement extends the domain of movement and turns the Spec position of the landing site into a locally accessible Spec[6]

1. Dutch PPs

1.1. The problem

Dutch superficially has prepositions, postpositions, circumpositions (which are made up of a preposition and a postposition or a postpositional element), and particles:

(2) a. *op* de tafel — *preposition*
on the table
b. de berg *op* — *postposition*
the mountain on
'onto/up the mountain'

c. *op* iemand *af* komen — *preposition and postposition*
on someone from come
'come toward someone'

d. Ik heb jou *op*gebeld — *particle*
I have you "upcalled"
'I called you up.'

Since these all look alike, the null hypothesis is that prepositions, postpositions, and particles belong to one and the same syntactic category P (Jackendoff 1973; Van Riemsdijk 1978; Emonds 1976, 1985). All Ps, including semantically empty ones,[7] therefore minimally project PP. This is what all Ps have in common. However, each of the strings in (2) behaves differently with respect to the internal syntax (i.e., the distribution of PP-internal material) and the external syntax (i.e., with respect to *pied-piping*, which is the movement of a PP containing a *wh*-phrase, *PP over V*,[8] which is the possibility for a PP to occur to the right of the verbal complex, *P-stranding*, and *P-incorporation*, which is the possibility for a P to occur within the verbal complex*)*.

Table 2.1 summarizes the complex distribution in anticipation of the following discussion. As this table shows, it is necessary to distinguish between nondirectional and directional PPs.

Pied-piping under *wh*-movement, or *scrambling*, is possible for (nonidiomatic) prepositional phrases but is basically excluded for postpositional and particle phrases. Pied-pipeable PrepPs can in principle also occur in the PP-over-V position, except for directional (prepositional) PPs. In addition, P-stranding reveals asymmetries: Dutch prepositions can be stranded in the right structural configuration, but only a class of morphologically distinguished elements, the so-called [+R]-pronouns, may escape from the projection of a preposition. Furthermore, DPs and PPs can escape the projection of postpositions and particles in the right configuration, and P-incorporation to V reveals an asymmetry as well. Given the right structural environment, Dutch postpositions and particles can incorporate to V, but prepositions cannot.

TABLE 2.1. The syntactic behavior of different PPs in Dutch

	−Directional	*+Directional*			*+/−Directional*
	PrepPP	*PrepPP*	*PostPP*	*CircumP*	*PartP*
Pied-piping	✓	(✓)[1]	*	*	*
PP over V	✓	*	*	*	*
P-stranding					
by R-pronoun	✓	✓	✓	✓	*
by DP	*	*	✓	*	✓
by PP	*	*	NA	✓	NA
P-incorporation					
P-incorporation	*	*	✓	✓	✓

1. To be revised to * in table 2.2.

The analytical problems that arise are complex, as table 2.1 shows. How should one account for the head-initial or head-final character of the respective projections (i.e., this is a problem of the internal structure), and how should one account for the distributional properties of the different parts of the PP (the complement of P, the P head, etc.) and for their external syntactic distribution (as being able to undergo syntactic movement or not)? I here develop a unified account for the different types of Ps, which I maintain project head-initial structures in accordance with Kayne (1994). In other words, the orientation of the basic building block is fixed. I also establish that prepositional PPs contain a functional category *Place*, as well as two other functional projections. Postpositional phrases combine a functional projection *Path* with some projection of Place. This purely syntactically motivated structure resembles Jackendoff's (1990) conceptual argument structures for PPs quite closely. Different word orders and surface syntactic constituency fall out from independently motivated movements operating within the extended projection of P. The external syntactic distribution follows from the size of the different PPs as measured in terms of how much functional structure is present within the PP. Thus PPs differ in the same way as clausal complements do, which can be CP, IP, or VP complements. I demonstrate that prepositional PPs are parallel to full CPs, directional Ps to IPs, and PartPs to bare VPs.

2. Nondirectional prepositional phrases

The analysis starts with locative nondirectional prepositional phrases: Of all PP projections, their properties are probably best understood.[9] The proposed structure is summarized in figure 2.6 (section 2.4). Section 3.1.3.1 discusses how this structure accounts for the external distribution of prepositional PPs.

2.1. R-pronouns

While DP objects follow prepositions, inanimate pronominal objects precede them. Inanimate pronouns belong to a particular morphological paradigm, which has earned them the name *r-pronouns*.[10] The general locative pronouns also belong to this paradigm.

(3) a.	**op de tafel**	op *het	op *er	
	on the table	on it	on there	
b.	*de tafel op	*het op	**er op**	
	the table on	it on	there on	
c.	**op Jan**	**op hem**	*Jan op	*hem op
	on John	on him	*John up	*him up

d. hij heeft **er** gewoond (locative pronoun)
he has there lived
'He has lived there.'

The following analytical questions arise:

(4) a. Where is *er?*
b. Why is this position restricted to r-pronouns?
c. What explains the homophony of the inanimate and locative pronoun?

2.1.1. R-pronouns are in Spec

R-pronouns show the typical behavior of elements occupying some Spec position. They are to the left of P (5), yet still within the PP, as pied-piping of PP in (6) shows.

(5) Ik heb dat boek *daarop* gelegd
I have that book there on put
'I have put that book on there.'

(6) de tafel, *waarop* ik het boek heb gelegd
the table, whereon I the book have put
'the table, on which I put the book'

They can undergo further movement, either to the position where other clitics occur (7a) or to Spec, CP (7b), thereby stranding P:

(7) a. Ik heb *er* dat boek *op* gelegd
I have there that book on put
'I have put that book on it.'
b. *Waar* heb jij dat boek *op* gelegd
Where have you that book on put
'What did you put that book on?'

R-pronouns should thus be analyzed as occurring in some Spec position, as argued in Van Riemsdijk (1978), from where they may further escape. This Spec position is restricted to r-pronouns and unable to host non-r DPs, as shown in (8).

(8) *deze tafel op (versus: **daarop**)
this table on

The ability to escape from PP correlates with the ability to reach a designated Spec position. Non-R DPs cannot strand P, in contrast to r-pronouns:

(9) **Welke tafel* heb je dat boekje *op* gelegd
Which table have you that book on put
'Which table did you put the book on?'

Van Riemsdijk (1978) explains this as a locality effect. A lexical DP cannot strand P because it cannot reach the escape hatch of the PP. This situation is comparable to the distribution of main verbs in English: Main Vs may not invert (e.g., occur in C) because of an intermediate landing site that is "hostile" to main Vs. I return to this issue in section 2.3.3, where I propose a different account.

So far, the data are compatible with a dual analysis of r-pronouns, either as occupying a Spec position or, as the spelling suggests, as being incorporated to some head. However, give the necessity of the Spec analysis and in the absence of arguments

for incorporation other than the spelling, I assume that the incorporation analysis is simply unavailable to the native speaker.

2.1.2. Which projection hosts r-pronouns?

There are three potential hosts for r-pronouns. First, they could be in the Spec of the projection containing the P. I reject this option since it can be shown that r-pronouns occur higher than this within the extended PP. Second, they could be in Spec, AgrP (i.e., the Case position, where lexical DPs within the PP are licensed). I reject this option as well because this position appears to be reserved for regular pronouns (which can be weak pronouns) (cf. 2.1.2.2). This leaves a third option: R-pronouns move to Spec of a designated projection, which is labeled Place.

2.1.2.1. R-PRONOUNS ARE HIGHER THAN SPEC, PP There is empirical evidence that r-pronouns occupy a position higher than Spec, PP. The location of the P can be further specified (Van Riemsdijk 1978):

(10) omdat ik ze *boven* in de la gelegd heb
because I them up in the drawer put have
'because I have put them up in the drawer'

In this configuration the r-pronoun must precede the place specification *(boven)* (Van Riemsdijk 1978):

(11) omdat ik ze *er boven (*er) in* heb gelegd
because I them there up in have put
'because I have put them up in there'

Since the r-pronoun cannot follow *boven*, it cannot be in the projection containing the P *in.* If r-pronouns are attracted to some higher Spec position, this distribution would fall out of the geometry of the tree. (11) thus provides straightforward evidence that *er* is in some projection on top of the projection containing the lexical P.[11]

2.1.2.2. R-PRONOUNS ARE NOT IN SPEC, AGRP R-pronouns correspond to DP objects of P, and Spec, AgrP is thus a reasonable candidate, pointing to a hierarchical structure AgrP > P. There is evidence based on Q float within PPs that (non-r) pronominal pronouns occupy this position (Koopman 1999). Since non-r-pronouns follow the P (P > Agr), but r-pronouns precede it (r-pronoun > P > Agr), the lattercannot be in Spec, AgrP.

Floated quantifiers provide important clues to the internal organization of phrases, as the influential work of Sportiche (1988) has established. A floated Q can be associated with the object of a P (it is important to read all of the following examples without stress on the pronoun and stress on the Q *allemaal;* lexical DPs can also strand Q but are omitted from consideration because of very interesting but ill-understood behavior):

(12) a. Hij heeft met jullie állemaal gepraat
he has with you all talked
b. Hij heeft tegen hun állemaal gestemd
He has against them all voted

The floated Q is within the PP, as the entire string may appear in the first position of a root clause, traditionally taken as tolerating only a single constituent:

(13) a. met jullie állemaal heeft hij gepraat
with you all has he talked
b. tegen hun állemaal heb ik gestemd
against them all have I voted

There are several possibilities for the internal constituent structure of the PP constituent *P pron Q*. The pronoun could be in Spec, QP/DP (14a), it could form a constituent with the P (14b), or it could be outside of the QP but lower than P (14c):

(14) a. [. .P [QP/DPpron$_i$ [Q [e]$_i$. .]]]
b. [. .[P pron] . . [Q . .]]
c. [PP. .[P [$_{XP}$ pron X [QP/DP . . Q . .]]]. .]

No known syntactic processes yield (14b)[12] which leaves us with (14a) versus (14c). The structure in (14a) predicts that the string *pron +accented Q* should have the same distribution as the QP. This prediction is not borne out, as one can conclude from root clauses. Root clauses tolerate a single constituent before the finite verb and allow a QP but not a *pronoun (+accented)* Q:[13]

(15) a. * zij állebei/zij állemaal *zijn* gekomen
they both/they all are come
b. * ons állebei/ons allemaal belt zij iedere dag op
us both us all calls she everyday up

The ungrammaticality of (15b) shows that the pronoun is *not* in Spec, QP but rather outside the QP. If pronouns must obligatorily rise to Agr, as argued in Koopman (1999), the asterisks in (15) follow from the absence of an Agr position in the pre C/finite verb position in root clauses. In other words, whenever a weak pronoun precedes a stressed, floated Q, the pronoun is in Spec, Agr, outside of the QP. Since a preposition precedes this sequence, the structure (14a) is eliminated and (14c) remains as the only viable option, with XP = AgrP. Since pronouns follow the lexical P, Agr must be lower than the projection where P surfaces. I assume P has risen to some head position higher than AgrP (which I call simply PP for convenience); hence, the structure in figure 2.1). (Positions that contain overt lexical items are boldfaced. I leave lexical DPs out of consideration: They could be in Spec, Agr or lower. Nothing hinges on this decision.).

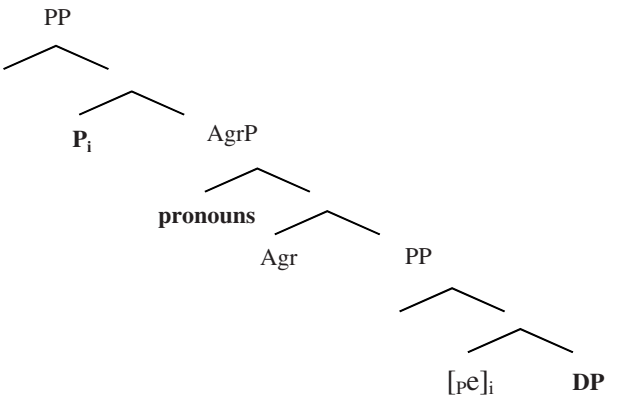

FIGURE 2.1

Given this structure, then, r-pronouns are not in Spec, Agr because they *precede* the overt P.

2.1.2.3. R-PRONOUNS AND PLACEP I have shown that r-pronouns are outside the projection containing the lexical P and eliminated Spec, PP and Agr as potential landing sites. I assume that r-pronouns agree with a locative head, call it *Place*, following Jackendoff. R-pronouns are morphologically distinct and can be assumed to have a strong Place feature (an r-feature) that forces overt movement to Spec, Place:[14]

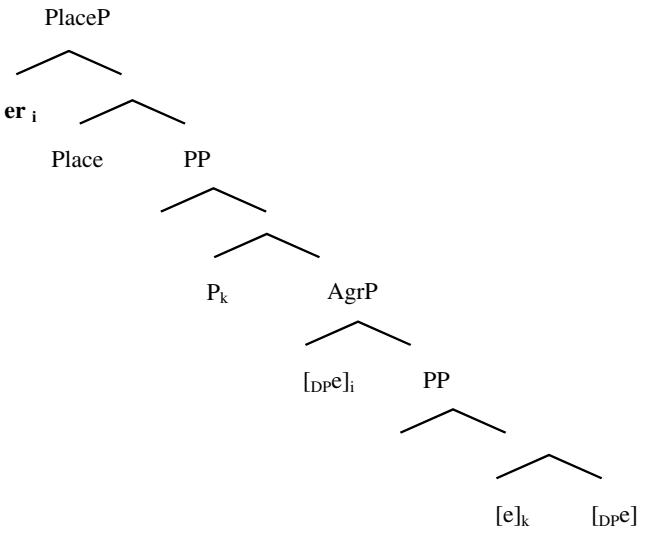

FIGURE 2.2

Non-r DPs do not encode Place morphologically, and this surely is one reason they may not appear in Spec, Place. Given overt movement to Place, Place must have a strong r-feature.

(16) Place has a strong (r-)feature

Hence, Place must attract r-marked material. But what happens when there is a DP complement? We can assume that Spec, PlaceP always needs to be filled: either r-pronouns appear there, or the the entire PP is forced to pied-pipe to Spec, Place.[15] Since the Place head itself is silent, the effect of this movement does not yield a different word order. This yields the following configurations for the Place head:

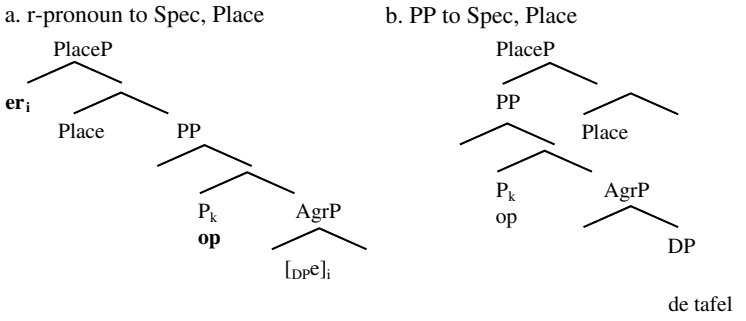

FIGURE 2.3

In other words, either the PP or the r-pronoun may satisfy the Place head. PP must move when it contains a regular DP because the regular DP does not have what it takes to satisfy the Place head.[16]

The differences in derived constituent structure between (19a) and (19b) are important because they give insight into what causes a basic P-stranding asymmetry in Dutch. P-stranding is possible with r-pronouns but not with lexical DPs. In (19a) the r-pronoun and the P are "split" in the sense that they occur in two different projections, Place and PP. The r-pronoun is in Spec, PlaceP, a canonical extraction configuration, and can indeed extract further, yielding P-stranding. In (19b), P and DP are not split but are contained together in Spec, Place. Extraction of PP (i.e., the string dominating P and DP) might be allowed, but extraction of DP out of Spec, PlaceP can be straightforwardly excluded as a left-branch violation.

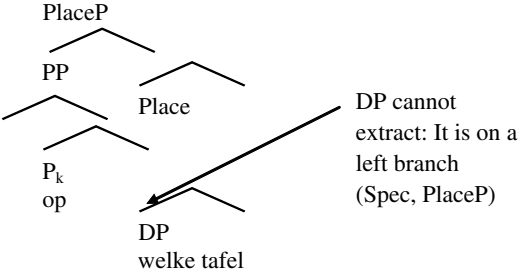

FIGURE 2.4

Thus, regular DPs may not strand P because the necessary separation from P cannot be created before the DP gets carried along and frozen on a left branch.[17] Pied-piping is forced.

Finally, this representation provides room to express the surely nonaccidental homophony of r-pronouns and locative pronouns. R-pronouns are in Spec, Place, where they are licensed. With P overt, prepositional *er* arises; with P covert, the locative pronoun appears:[18,19]

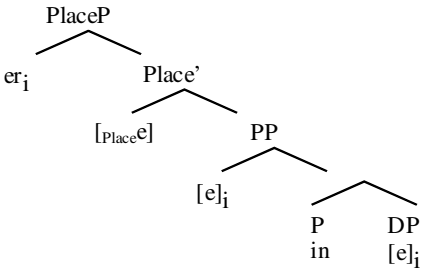

FIGURE 2.5

In sum, then:

(17) a. Only inaminate r- pronouns are morphologically specified for Place.
b. DPs do not encode Place, locative Ps do.
c. Place is strong (require an element marked for Place in its Spec).
d. either: r-pronouns are attracted to Spec, PlaceP, or:
(loc) PP is attracted to Spec, Place.
e. Locative pronouns and r-pronouns are homophonous because they occur in the same structural configuration.

2.2. Deg(place) and C(Place)

In addition to Place, the extended projection of a PP can contain at least one and probably two additional functional categories dominating PlaceP. This can be established on the basis of the distribution of r-pronouns and certain bare adverbial modifiers of (locative or temporal) P (*pal* 'right'; *vlak* 'just'). R-pronouns either precede or follow such bare adverbs modifiers (Van Riemsdijk 1978), with no meaning difference:

(18) a. vlak bij het huis
close near the house
b. *(er)* vlak *(er)* bij
there close there near

(19) a. pal achter het huis
right behind the house
b. *(er)* pal *(er)* achter
there right there behind

If modifiers always occupy the same structural position, there must be two Spec positions within the PP capable of hosting *er:* one preceding and one following *er*

(as Van Riemsdijk 1978 concludes). Since the modifier can precede *er*, it is higher than PlaceP. *Er* can also precede the modifier; hence, there must be an additional Spec preceding the modifier. Dominique Sportiche (personal communication) suggests that the bare overt modifier is actually in a head position, heading a projection comparable to Degree phrase, specifying the "degree" of the Place specification.[20] A zero modifier would give rise to an arbitrary PRO interpretation (*behind the house* [somewhere behind the house]), and *vlak achter het huis* would mean that 'the degree' or 'the distance' to '(the points) behind the house' is 'very small.' Den Dikken (1992, 106) also suggests that the bare adverb is in a higher head position and presents strong empirical support for the treatment of these bare adverbs as heads: Bare modifiers block P-incorporation (the examples in (20) are adapted from Dikken (1992, 106).[21]

(20) a. dat Jan de bal *pal/vlak over* heeft geschoten (no P-incorporation)
that Jan the ball right/right over has shot
'that Jan shot the ball right over'

b. dat Jan de bal (*?*pal/*vlak)* heeft **over** geschoten (P-incorporation)
that Jan the ball right/right has over shot
'that Jan shot the ball right over'

Bare adverb modifiers can occur with an intransitive P (20a), but they block P-incorporation, as (20b) shows. Also, (20b) follows if the bare modifier occupies a head position dominating Place, call it *Deg(place):* P-incorporation is blocked because the P is too low within the PP, and V is not the closest c-commanding head. These data thus argue in favor of treating bare adverbs as heads (Deg(place)).

Does *er* precede Deg(place) in Spec, Deg(place), or does it appear in a still higher Spec position? The distribution of *er* with phrasal modifiers, which I take as occurring in Spec, Deg(place), reveals the presence of yet another projection dominating the modifier. Instead of a bare adverb, as in (20), a phrasal XP modifier can modify Place:

(21) dat Jan de bal *twee meter* over het hek heeft geschoten
that Jan the ball two meter over the fence has shot
'that Jan shot the ball two meters over the fence'

Incorporation does not appear to be blocked in this case, as expected:

(22) dat Jan de bal *twee meter* heeft *over* geschoten (Den Dikken 1992)
that Jan the ball two meters has over shot
'that Jan shot the ball two meters over (some object)'

If both the XP modifier and the r-pronoun occupy Spec, Deg(place), measure phrases and r-pronouns should not be able to co-occur, contrary to fact:

(23) [*daar twee mete*r achter] begint het niemandsland (Van Riemsdijk 1978)
there two meters behind starts the no-man's land
'Two meters behind it, no-man's land starts.'

Example (23) therefore reveals the presence of structure dominating Deg(place). I call the head of this projection C(place) to express the parallelism with CPs and DPs and refer to its maximal projection as CP(place). I assume that the CP(place) level turns a PP into an "independently" licensed constituent, which enables it to undergo PP over V, scrambling, or pied-piping under *wh*-movement (see 2.3.2).

A final question concerns the position that P occupies in the overt syntax. Since P always follows *er* and the modifiers and precedes pronouns, it can at most be as high as Place or Spec, Place if PP contains a regular DP. A full-blown structure for prepositional phrases is presented in section 2.4.

2.3. External syntax of P and PrepPs

Different aspects of the external syntactic distribution of Ps and their constituents are discussed in sections 2.3.1 (P-incorporation), 2.3.2 (P-stranding), and 2.3.3 (pied-piping), respectively.

2.3.1. P-incorporation

As is well known, Dutch has overt P incorporation: The position occupied by P within the verbal complex is restricted to bare heads (P, N, and A). When P is within the verbal complex following the finite verb, P-incorporation has taken place (the incorporated P is boldfaced):[22]

(24) dat ik Jan Marie (*op*) *heb willen laten* (**op**) *bellen*
that I John Mary up have want let (up) call
'that I wanted to let Mary call up John'

When P incorporates, the incorporator, say V, governs the position from which P incorporates (i.e., V must be the closest c-commanding head of the position containing P). Thus, P may not incorporate if V fails to c-command PP or, more interestingly, if V c-commands the PP but the overt P is too low within the projection (i.e., V is not the closest c-commanding head of the position containing the overt P). This situation arises if there is additional structure between V and the position where P is spelled out.[23] The structure motivated so far immediately explains why lexical prepositions fail to incorporate even when V c-commands the extended projection of the PP and P-stranding is possible:

(25) a. dat zij *er* vroeger vaak *mee* heeft (***mee**) gespeeld
that she has there earlier often (with) has (with) played
'that she often played with it a long time ago'
b. dat zij *er* dit vaasje *op* heeft willen (***op**) zetten
that she there this vase up has want onput
'that she wanted to put this vase on it'

The overt P occurs below Deg(place) and C(place).Therefore, P cannot incorporate. In other words, P-incorporation can occur only if the following structural configuration holds:

(26) (i) P raises to C(place)
(ii) CP(place), DegP(place), or PlaceP are absent[24]

Since P does not rise higher than Place in Dutch, (26i) is never available in Dutch. Asymmetries with respect to P-incorporation must therefore fall out from (26ii).

2.3.2. Pied-piping

Prepositional phrases can undergo pied-piping under *wh*-movement and scrambling and appear to the right of the verbal complex (PP over V):

(27) a. *Met welke ouders* heb jij gesproken (*wh*-movement)
with which parents have you spoken
'Which parents did you talk to?'
b. Zij heeft *met Jan* maar heel eventjes gesproken (scrambling)
she has with John just a short while spoken
'She spoke with John for only a short while.'
c. omdat ik gesproken heb *met Jan* (PP over V)
because I spoken have with John
'because I spoke with John'

Syntactic mobility has traditionally been taken as evidence for the constituency of a moved string. Failure to undergo *wh*-movement or pied-piping does not show that a projection is *not* a syntactic constituent, however. The extended projection of a PP consists of several syntactic constituents, which are all maximal projections (XPs). Yet, none of the projections smaller than CP(place), like PlaceP or PP, can undergo any of the processes illustrated earlier. This is shown in the following examples (since C(PP) is empty, it cannot be tested if DegP(place) can be extracted):

(28) a. het niemandsland begint *twee meters daar achter*
the no man's land starts two meters there behind
'No man's land starts two meters behind it.'
b. CP(place) topicalization
twee meters daar achter begint het niemandsland
two meters there behind starts the no man's land
'No man's land starts two meters behind it'
c. PlaceP preposing
* *daar achter* begint het niemandsland *twee meters*
there behind starts the no man's land two meters

d. CP(place) preposing
boven in welke la heb jij de sokken gelegd
up in which drawer have you the socks put
'High inside which drawer did you put the socks?'
e. PP preposing
* *in welke la* heb jij de sokken *boven* gelegd
inside which drawer have you the socks high put?

A constituent may thus very well be a maximal projection but fail to undergo the particular external syntactic movement processes topicalization, *wh*-movement, or scrambling. What property enables a projection to count as a *wh*-phrase, focus, or topic. In (wh-)DP and APs, these properties are located at the left edge, in the C/D domain, suggesting that this is where these properties are generally represented. Let us therefore assume that the property that enables a constituent to undergo movement to the *wh*–landing site or to FP or TopP is located at the C (type) level of a particular category, maybe in a more articulated left periphery as in Rizzi (1997):

(29) The property of being a *wh*-phrase, a topic, or a focus is represented at the C level of a particular phrase.

Projections which lack the appropriate CP levels fail to undergo these external movements. This yields an immediate account for the well-known restriction that idiomatic PPs can neither be *wh*-moved, scrambled, or topicalized. Idiomatic PPs simply do not have what it takes (i.e. they are not "full" PPs, and lack the C level).

Idiomatic PPs may not occur in the PP-over-V position, either. This suggests that the PP-over-V position is one that can host only CP(place) (i.e., PPs topped off with a CP level). This will become relevant in the following discussion of directional PPs.

Given (29), external syntactic movement is a diagnostic criterion for the presence of CP(place):

(30) PP has a CP(place) level if it can move to Spec, CP, scramble, or occur in the PP-over-V position.

In other words, the structure of PPs varies among the same dimensions as clauses and DPs. The differences in mobility that various types of PPs exhibit follow from the amount of internal structure that is present.

2.3.3. P-stranding

R-pronouns can strand P because they are separated from the projection that contains the lexical P. However, DPs cannot strand P because they are contained within the PP in Spec, Place. They have pied-piped before getting a chance to separate from P. The asymmetry with respect to what elements can strand P falls out from the internal syntax of PPs.

It is of course well known that the constraint on internal structure is not a sufficient condition. The extended projection of the PP (CP(place) must be transparent (i.e., to use Chomsky's (1986) *Barriers* terminology, it must be "L marked" as well). This raises the question of how transparency is implemented. In the remainder of this section I lay out the structural conditions under which P-stranding is possible in in Dutch and suggest how transparency can be achieved in terms of head movement of the (silent) C level.

Stranded Ps must precede the verbal complex but do not need to be adjacent to it.:

(31) Hij is er toen *(mee)* naar de dokor *(mee)* gegaan.
he is there then (with) to the doctor (with) gone
'He then went to the doctor with it.'

Stranded Ps cannot occur in the PP-over-V position:

(32) a. Zij heeft vroeger vaak gespeeld *met Legos* (PP over V)
she has earlier often played with Legos
'Earlier she often played with Legos.'
b. *Zij heeft *er* vroeger vaak gespeeld *mee*
she has there earlier often played with

Stranded Ps cannot be "too high" in the clausal spine, where "too high" refers to any position to the left of negation (*niet, geen.* .) or focus particles like *maar:*

(33) a. Hij is er (**mee)* niet *(mee)* naar de doktor *(mee)* gegaan.
he is there (with) not (with) to the doctor (with) gone
'He didn't go to the doctor with it.'
b. Waar ben jij (**mee)* maar *(mee)* naar de doktor *(mee)* gegaan
Where are you (*with) but [foc prt] with to the doktor with gone
'What did you go to the doctor with?'

Furthermore, PPs that count as too high in this sense include adjunct Ps (temporal, causal, and reason Ps),[25] scrambled PPs (as in (37a)), as well as any other PP that has undergone A' movement.

(34) a. Ik zal hoogstwaarschijnlijk *daarna* weggaan
I will probably thereafter away go
'I will probably leave after that.'
b. *Ik zal *daar* hoogstwaarschijnlijk *na* weggaan
I will there probably after away go

(35) a. de reden *waarom* hij vertrokken is . . .
the reason why he left is
'the reason he left is . . . '

b. *de reden *waar* hij *om* vertrokken is
the reason where he for left is

(36) a. de manier *waarop* hij vertrokken is
the manner i whereup he left is
'the manner in which he has left'
b. * de manier *waar* hij *op* vertrokken is
the manner where he up left is

(37) a. Zij heeft vroeger *(met deze Legos)* vaak *(met deze Legos)* gespeeld
she has once (with these Legos) often (with these Legos) played
'She once played often with these Legos Legos often.'
b. Zij heeft *er* vroeger (**mee)* vaak *mee*
gespeeld
she has there earlier often with played
'She once played with it often.'

In sum, stranded Ps must end up between sentential negation 'niet'/focus 'maar' and the verbal complex.

What allows P-stranding (i.e., extraction of an r-pronoun out of PP(CP))? There are basically two types of proposals in the literature: Head movement of the lexical P voids the barrierhood of PPs (see Zwart 1997 for one proposal), or PPs are transparent for extraction when they are "L marked." Both Uriegereka (1988) and Koopman (1994) have related L-marking itself to incorporation. Head movement thus seems to be somehow involved in P-stranding. It can easily be shown that incorporation of the pronounced P is not involved in P-stranding: Stranded and incorporated Ps have different distributions. Stranded Ps cannot occur in the verbal complex (incorporated Ps can) but precede the entire verbal complex:

(38) de man waar Jan Piet gisteren *tegen* heeft (***tegen**) zien (***tegen**) *praten*
the man where John Piet yesterday against has seen talk
'the man whom John saw Peter talk with yesterday'

In addition, the stranded P may be preceded by DegP:

(39) omdat ik het *er* zojuist *vlak boven op* heb gelegd
because I it there just right high up have put
'because I just put it right on top of it'

As established in section 2.2, P is no higher than Place within the extended projection and therefore cannot have incorporated.[26]

Given the more articulated structure of PPs we can still maintain the involvement of head movement in P-stranding. PPs are topped off by a nonlexical C level: Incorporation of C would allow the escape of the r-pronoun from the PP projection. In fact, it would not only allow it but would also force it if incorporation of the C level "deactivates" the level that makes pied-piping of PP impossible. Future research

may determine why head movement of the C node must meet the structural condition of being lower than Neg/Focus but higher than the verbal complex.

2.4. Summary

This concludes the discussion of non directional localtive PPs. Sections 2.1 and 2.2 and motivated the structure in figure 2.6. Positions that may contain overt lexical material are in boldfaced type. PP shells or AgrP are included but will play no role in the remainder of this chapter. This structure is taken to hold for all prepositional PPs that are not directional and that allow for r-pronouns:

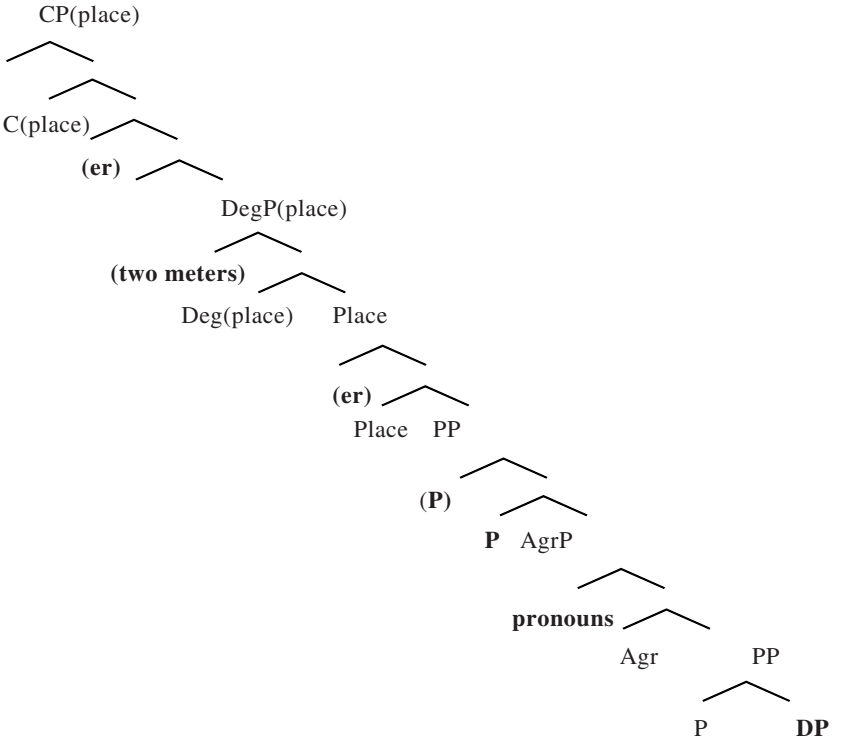

FIGURE 2.6

Table 2.2. details how this structure accounts for the properties of (nondirectional) prepositional phrases

3. Directional PPs

The syntax of directional PPs is complex and poorly understood, and many facts are unexplained.[27] Dutch has both prepositional and postpositional directional PPs. The latter consist of both circumpositional PPs and simple postpositional PPs.

TABLE 2.2. Summary of the account of the syntactic behavior of locative PPs

Pied-piping	✓	requires presence of CP(place) level and is fine only for those PPs with this level.
PP over V	✓	idem
P-stranding	✓	requires "incorporation" (or absence) of C(place) level.
by R-pronoun	✓	only r-pronouns can move high enough in the internal structure
by DP	*	PP must pied-pipe to PlaceP to check the Place feature. As a result DPs are stuck within a PP stuck on a left branch in Spec, PlaceP:
by PP	*	not discussed[a]
P-incorporation		
P-incorporation	*	P is dominated by at least one functional category: P is too low in the structure

a. I do not discuss properties of P taking PP complements, as in (i).
(i) deze koekjes zijn [voor [$_{PP}$bij de koffie]]
these cookies are for with the coffee
These Ps introduce a temporal or locative argument that behaves as an island (r-pronouns cannot escape). Further, PP complements cannot escape.

Postpositional PPs must receive a directional interpretation, while prepositional PPs can receive a directional interpretation:[28]

(40) a. Zij is meteen *in het water* gesprongen (unambiguously directional)
she is immediately in the water jumped
'She jumped into the water immediately.'
b. Zij is meteen *het water in* gesprongen (unambiguously directional)
she is immediately the water in jumped
'She jumped into the water immediately.'

The alternation between prepositional and postpositional PPs is not free but restricted to specific syntactic environments. Prepositional and postpositional directionals alternate only when they occur as complement of a (motion) verb and the selected auxiliary is *be* (40).[29] In other contexts, prepositional PPs are unambiguously locative. This is illustrated within DPs in (41):

(41) a. de weg *in het bos* (locative only)
the road in the forest
'the road in the forest'
b. de weg *het bos in* (directional only)
the road the forest in
'the road into the forest'

When the auxiliary *have* is selected, a prepositional PP can be interpreted only as locative, and, concomitantly, a postpositional phrase is disallowed:

(42) a. Zij heeft *in het water* (op en neer) gesprongen (locative reading only)
she has in the water up and down jumped
'She jumped up and down in the water.'

b. *Zij heeft *het water in* gesprongen
she has the water in jumped
'She jumped in the water.'

This suggests the following generalization:

(43) Prepositional directional PPs are allowed only when selected by motion verbs.

Since postpositional phrases are one particular type of directional PP, their syntax can be understood only within a general understanding of the distribution and properties of directional PPs as a whole. The following sections determine the properties of each type of directional PP, using as analytical tools the distribution of DPs, r-pronouns, modifiers, the incorporability of P, and the mobility in *wh*-movement. Prepositional directional phrases are examined in 3.1.1, circumpositional PPs in 3.1.2, and postpositional PPs in 3.1.3.

3.1. The structure of directional PPs

Directional PPs (e.g., *into, onto, toward)* are often complex and point to a complex underlying syntactic structure. Jackendoff (1990, 45) suggests the following conceptual structure for a sentence like *John ran into the room:*

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

As argued in 2.1.2.3, Place is syntactically represented as a functional head. Suppose that Jackendoff's Path is represented in a similar way, with Path selecting some PlaceP complement. This hypothesis is attractive because it entails that syntactic structure closely resembles the conceptual structure. If Path is head initial and selects some projection of Place (either CP(place) or some smaller complement, say PlaceP or PP), we are led to expect the syntactic structures in figure 2.7 (for convenience only head positions are indicated):
Prepositional directional phrases and circumpositional PPs

a.

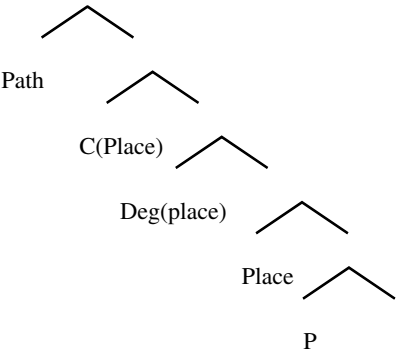

FIGURE 2.7a

b. Simple postpositional phrases

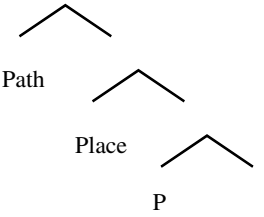

FIGURE 2.7b

c. Directional particles

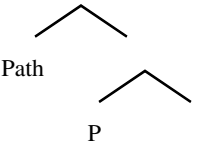

FIGURE 2.7c

As I will show, the basic properties of directional PPs can be derived from these three structures in quite a simple fashion.

3.1.1. Prepositional directional PPs

The structure in figure 2.7.a is a good candidate for directional prepositional phrases, with P remaining in Place within the CP(place).

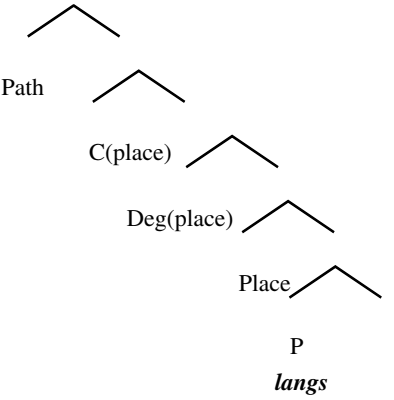

FIGURE 2.8

If P is not higher than Place, lexical items in higher head or Spec positions should co-occur with and precede P. This is correct:

(45) a. Ben jij *er* langs gelopen?
are you there along walked
'Did you walk along it?'

b. jij bent *vlak* langs de afgrond gelopen
you are right along the precipice walked
'You walked right along the precipice'

The projection that dominates P therefore contains at least a PlaceP (*er* occupies Spec, PlaceP) and a Deg(place), where bare adverbial modifiers like *vlak* occur.

The presence of a CP(place) level can be determined on the basis of the external syntax: CP(place) projections can be scrambled or *wh*-moved (2.3.2). Some CP level must be present because the preposition and its complement can undergo *wh*-movement:

(46) *Langs welke afgrond* ben jij gelopen?
along which precipice are you walked
'Along which precipice did you walk?'

There are two potential candidates for CP levels in figure 2.7a: either Path is dominated by some C like projection and the entire PathP has moved, or CP(place) has extracted out of the PathP. The former option can be ruled out: other PathPs selected by verbs of motion may never be *wh*-moved (3.1.3.1). This follows if PathP selected by motion verbs lacks the CP(Path) level necessary for mobility, i.e., selected PathP is like a selected complement of a raising predicate.

If PathP cannot have moved in (46), it must be that CP(place) escaped from PathP. Movement out of the PathP is allowed because of the accessible Spec, Path position, which is a licensing position for CP(place), as discussed in section 3.1.2.2. Prepositional directionals therefore contain a CP(place) projection:

(47) [[$_{path}$ e] [$_{CP(place)\ldots}$ P]]

The structure in (47) contains a silent Path head with a CP(place) complement.

This raises two further questions: What is the distribution of the silent Path head, and is there any need to determine its location with respect to CP(place) in the overt syntax? In other words, is the path head postpositional or prepositional?

3.1.1.1. THE DISTRIBUTION OF THE SILENT PATH HEAD Directional *pre*positional phrases co-occur only with motion verbs (47), and contain a silent Path node. This suggests that the silent Path node is in a movement relation with the motion verb. Let us assume (48) following Koopman (1994)

(48) Silent Path in a prepositional directional PP is a trace of Path incorporated into a verb of motion.

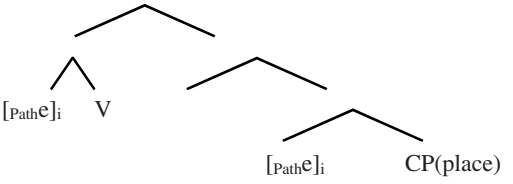

FIGURE 2.9

(48) immediately excludes directional prepositional phrases from DPs, as these do not contain a verb of motion.

(49) *. . [N [$_{PathP}$ [$_{Path}$e] [$_{CP(place)}$]]]

The reference to the category verb in (48) might not required, as the following representation is probably excluded on universal grounds:

(50) * [N[$_{Path}$e]$_i$ N] [$_{PathP}$[e]$_i$ [$_{CP(place)}$]]

In contrast to V, N never licenses incorporation of silent heads (it is never a licensing head) as argued in Koopman (1994). If N cannot host Path there is simply no way to satisfy (48)

Postpositional directional phrases are possible within DPs (41b). This means that the Path node statisfies (48) and must be independently licensed in this environment. The way it escapes (48) is by being pronounced, not silent. As shown in 3.1.3, P raises via Place to Path in this configuration (in addition, the complement moves to the left of Path):

(51) [[$_{PathP}$[$_{Path}$P]$_i$ [$_{PP}$ [Pe]$_i$]]]

Thus, either P raises to Path, or else silent Path raises to V. This could suggest that the Path head must be attached to an appropriate lexical host, where P and V are appropriate hosts, but N and A are not.[30] In other words, Path would act like a bound morpheme that attaches to either V or P (i.e., which selects for a [-N] category):

(52) Path is a bound morpheme that selects for a [-N] category.

(52) cannot be the whole story, however, since it predicts that P either incorporates to Path or that Path incorporates to V. We will see in section 3.1.3. that incorporation of Path into the motion V is still possible even if Path contains the pronounced P:P to Path must therefore be independent of the relation between Path and a selecting verb.

What can be concluded is the following:

(53) Silent Path cannot be licensed within the projection of the PathP.

Any Path that contains a pronounced P escapes the effects of (53).

3.1.1.2. THE ORDER OF PATH AND CP(PLACE) Since Path is silent, the relative ordering of CP(Place) and Path cannot be determined on the basis of these directional PPs alone. However, all other cases of directional phrases involve movement of a phrasal projection to Spec, Path (3.1.2 and 3.1.3), which results in Path being in *final* position. This suggests that Spec, Path always contains overt material and that

prepositional directionals are in fact hidden postpositional structures, with CP(Place) in Spec, Path:

(54) $[_{PathP}$ [CP(place)]$_i$ $[_{path}$e] $[_{CP(Place)}$e$_i$]]

3.1.2. Circumpositional PPs

Circumpositional PPs fit into the proposed structure for prepositional directionals but contain more lexical items and hence slightly more structure. Some circumpositional PPs involve a postposition that is homophonous with a preposition. These therefore contain an additional PP, where the P originates. Others contain a specific lexical postpositional element that I assume is a direct lexicalization of the Path node.[31] All have a regular preposition at the left edge:

(55) a.	'*door, op, aan'*	*onder* de brug ***door***	*tegen* het huis ***op***
		under the bridge through	against the house up
b.	'*heen, vandaan'*	*over* de stoel ***heen***	*(van)* onder het bed ***vandaan***
		over the chair *Part*	*(of) under the bed from*

The postposition associated with the Path reading or Path element acts as head of the entire projection. It can be incorporated into the verbal complex (cf. 3.1.2.1 for examples and discussion). Path thus combines with a PlaceP complement that precedes it. The PlaceP complement contains at least a DegP(place) complement, as shown by the possible presence of a degree modifier:

(56) Het vliegtuig is *vlak* onder de brug door gevlogen
The airplane is right under the bridge through flown
'the airplane flew right under the bridge'

This is consistent with a full CP(place) in a Spec position to the left of Path, say Spec, Path (or alternatively in any other projection higher than Path):[32]

(57) $[[_{CP(placeP)/DegP(place)}$. . .$][_{Path}$ P$_i$ $][_{PP}$ $[_P$e$]_i$ $[_{CP(place)}$ . . .]]]
onder de brug door

Thus, a second property of the Path projection emerges: Spec, Path attracts lexical material. Spec, Path is not insensitive to the category that ends up there: It must be some projection of Place. This can be demonstrated by the following ungrammatical string:

(58) * [[door $[_{CP(place)}$ onder de brug]] $[_{Path}$e] $[_{PP}$. . .]]

Underlying this string is a derivation in which *door*, instead of moving to Path, has pied-piped to Spec, Path in an effort to satisfy the properties of Path. Nothing so far excludes this derivation, as the movement of the PP containing *door* is strictly local.

What seems intuitively wrong here is that the moved constituent is of the Path category and not of the Place category. Although Path contains the Place projection, this projection is too far embedded under the pied-piped constituent. In all good cases, Spec, Path contains a projection of the PlaceP, so we can conclude the following:

(59) Spec of Path attracts a projection of Place.

This is the basic price to pay for a head-initial Path projection.

3.1.2.1. PATH CONTAINS P The postposition in circumpositional PP is in Path, as shown by its incorporability into V.[33]

(60) a. dat zij gisteren *onder* de brug is ***door*** gelopen
that she yesterday under the bridge is through walked
'that she walked under the bridge'
b. dat zij snel *achter* het konijn zijn ***aan*** gelopen
that they quickly behind the rabbit be at walk
'that they chased the rabbit'
c. dat de plant *tegen* het huis is **op** gegroeid
that the plant against the house is up grown
'that the plant grew up the side of the house'
d. dat zij de fiets weer *tegen* de muur heeft **aan** gezet
that she the bike again against the wall has at put
'that she put the bike against the wall again'
e. dat de kinderen stilletjes onder het balkon zijn **langs** gelopen
that the children quietly under the balcony are along walked
'that the children walked quietly along under the balcony'

(61) a. dat zij de jas *over* de stoel hebben **heen** gelegd
that they the coat over the chair Part have put
'that they laid the coat over the chair'
b. dat dit book *(van) onder* het bed is (?***vandaan**) gekomen[34]
that this book (of) under the bed is from come.
'that this book came from under the bed'

The postposition is therefore in the head position of this constituent, and there are no intervening projections between Path and V. These examples also show that the incorporability of Path into V is independent of the whether Path is silent or pronounced. Path can be incorporated into V even if Path contains the postposition as shown by its ability to occur in DPs:

(62) a. dat fietspad onder de brug door
that bike path under the bridge through
that bike path under the bridge
b. de reis door Europa heen
the trip through Europe Part

3.1.2.2. THE COMPLEMENT OF PATH IS CP(PLACE) OR DEGP(PLACE) Path takes a PlaceP complement, which can be at least as big as DegP(place) in the case of circumpositional PPs:

(63) Het vliegtuig is *vlak* onder de brug door gevlogen
the airplane is right under the bridge through flown
'The airplane flew right under the bridge.'

The moved constituent could be either Deg(place) or CP(place). The external syntax can differentiate between these two options. If it was a CP(place), further movement should be possible; if not, further movement should be blocked. The following examples are acceptable to me and some other Dutch speakers. This shows that *wh*-movement is possible, consistent with a CP(place) analysis.

(64) a. *Onder welke brug* is het vliegtuig *door* gevlogen?
Under which bridge is the airplane through flown
'Under which bridge did the airplane fly?'
b. *Achter welk konijn* zijn zij snel *aan* gerend
Behind which rabbit are they fast on run
'After which rabbit did they run fast?'
c. *Tegen welke muur* heb jij je fiets *aan* gezet
Against which wall have you your bike on put
'Which wall did you put your bike against?'
d. *Over welke stoel* heb je je jas *heen* gelegd?
Over which chair have you your coat *Part*put
'Over which chair did you put your coat?'

Not all speakers accept such sentences, however. Similar examples are given as ungrammatical in Koster (1987, 177). This suggests that these speakers analyze the constituent in Spec, Path as smaller than CP(place), that is, as Deg(placeP). This is not at all implausible since there are other cases of Path selecting a complement smaller than CP(place) in the language as well, as we will see in section 3.1.3.[35]

In sum, the overt syntax of directional PPs is driven by properties of the Path projection. Path attracts a projection of Place to its Spec; a silent Path head must attach to a [–N] category, causing it to either incorporate to V or attract P to it.

3.1.2.3. EXTERNAL SYNTAX OF CIRCUMPOSITIONAL PPS Pied-piping of the entire directional PP under *wh*-movement is impossible, indicating that CP(Path) is absent:[36]

(65) a. **Onder welke brug door* is het vliegtuig gevlogen?
Under which bridge through is the airplane flown
'Under which bridge did the airplane fly?'

b. **Achter welk konijn aan* zijn zij snel gerend
Behind which rabbit on are they fast run
'After which rabbit did they run fast?'
c. **Tegen welke muur aan* heb jij je fiets gezet
Against which wall to have you your bike on put
'Which wall did you put your bike against?'
d. **Over welke stoel heen* heb je je jas gelegd?
Over which chair Part have you your coat put
'Over which chair did you put your coat?'

This goes well with the fact that the head of the circumpositional PP can be incorporated, showing that it is in Path, and that no other head positions intervene between it and the V. Thus, PathPs lack the C level that would enable them to undergo pied-piping (cf. 3.1.3.1).

Scrambling of the entire PathP is impossible as well, pointing to the same conclusion:

(66) a. *Ik heb toen *tegen de muur aan* maar mijn fiets [e] gezet
I have then against the wall to FocP your bike put
b. *Ik heb toen mijn fiets *tegen de muur aan* maar [e] gezet
I have then my bike against the wall to FocP put

In sum, circumpositional PPs lack a CP(Path) level.

3.1.3. Simplex postpositional phrases

The structures so far restrict the possible analyses for simple postpositional phrases.

Let me start with what we can decuce from the fact that Postpositions can optionally incorporate:

(67) a. omdat zij de boom *(in)* is **in** geklommen
because she the tree (in) is in climbed
'because she climbed up in the tree'
b. omdat zij het bos *(door)* is **door** gelopen
because she the forest (through) is (through) walked
'because she walked through the forest'
c. omdat jij de kamer *(uit)* bent **uit** gelopen
because you the room (out) are (out) walked
'because you walked out of the room'

Since the place P occurs in Path in (67), it must have been able to escape from the projection of PlaceP. We know from prepositional phrases that P can move no higher than Place within CP(place). It follows that the complement of Path can be no bigger than PlaceP, respecting locality of head movement, and cannot containing any of the higher projections:

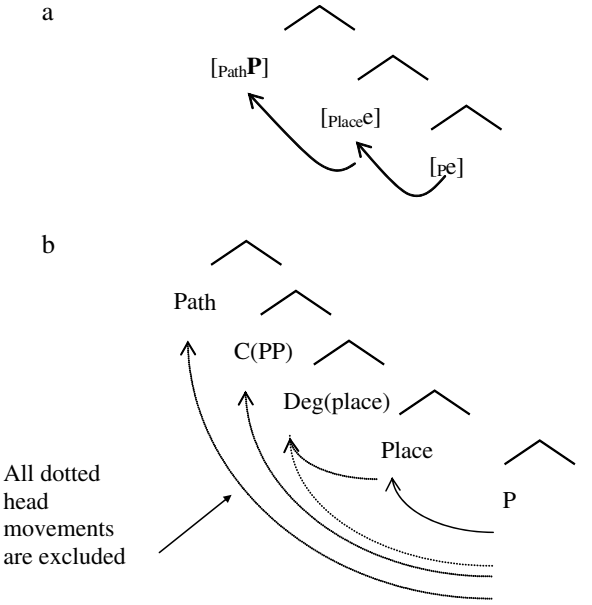

FIGURE 2.10

These structures find additional empirical support.

R-pronouns can be licensed (68b), revealing the presence of PlaceP:

(68) a. omdat zij de boom *in* is geklommen
because she the tree in is climbed
'because she climbed up in the tree'
b. omdat zij *er* (in) is (in) geklommen[37,38]
because she there (in) is (in) climbed
'because she climbed up in it'

Postpositional phrases cannot contain overt realizations of Deg(place).[39] This follows simply from the locality of head movement, which forces projections higher than Place to be absent:

(69) a. *Overt Place can precede a directional prepositional phrase.*
omdat zij *boven* in de boom is geklommen
because she up in the tree is climbed
'because she climbed up high in the tree'
b. *Postpositional phrases cannot contain overt Place.*
omdat zij (**boven)* de boom (**boven)* in is geklommen
because she (up) the tree (up) in is climbed
'because she climbed up high in the tree'

(70) a. *Overt Deg (place) can precede a directional prepositional phrase.*
omdat zij *(vlak)* langs de afgrond is gelopen
because she right along the precipice is walked
'because she walked right along the precipice'

b. *Postpositional phrases cannot contain overt Place.*
omdat zij de afgrond (*?*vlak)* langs is gelopen
'because she the precipice right along is walked'
c. omdat zij (**vlak)* de afgrond langs is gelopen
because she right the precipice along is walked

Phrasal degree modifiers, however, can precede the postpositional object, and are compatible with P incorporation:

(71) dat Jan drie meter de boom (in) is (in) geklommen
that John three meters the tree (in) is (in) climbed

Crucially, the phrasal modifier modifies *Path*, not Place; that is, it is in Spec, Deg(Path), which is higher than Path. Since it is phrasal, it does not block further head movement of the P that has reached Path.

Postpositional directionals can appear within DPs, showing again that the Path node is licensed within the PathP:

(72) de weg [het bos in]
the road the forest in
'the road into the forest'

Thus, P must have raised to Path to provide a lexical host for Path. This is of course consistent with the fact that simple postpositions can incorporate.

Postpositional phrases thus represent the following skeleton:

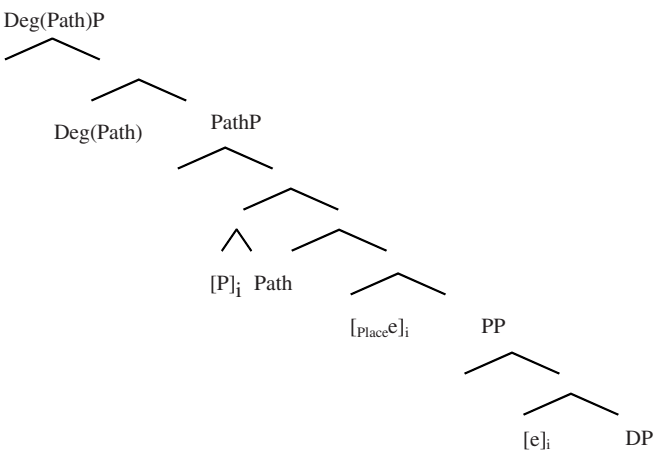

FIGURE 2.11

We next consider Spec, Path, which, as I have argued, attracts a PlaceP constituent (58). Postpositional order arises when some phrasal constituent containing the DP

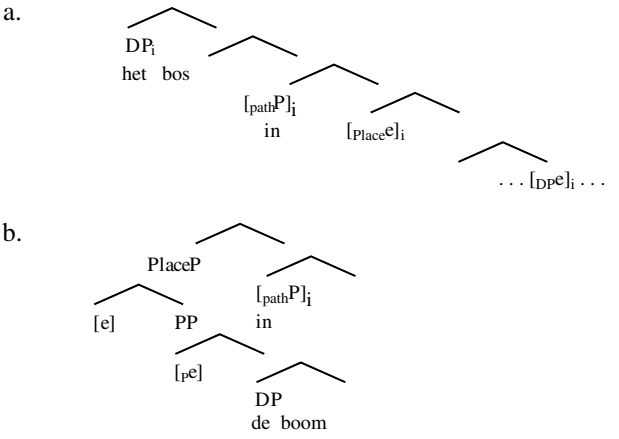

FIGURE 2.12

shows up in Spec, PathP. The category in Spec, PathP could in principle be a DP, a structure close to the traditional postpositional phrase, or a "remnant" PlaceP, or PP: It turns out to be quite difficult to distinguish empirically between these two possibilities.

In Koopman (1993) I argued in favor of figure 2.12a. a) mainly on theoretical grounds. In particular, I argued that figure 2.12b, with remnant PlaceP or PP in Spec, Path, was excluded by the ECP, which subsumes the Proper Binding Condition. Since these projections contained a trace in the head position, the ECP kept them in the c-command domain of Path in the overt syntax. This conclusion, however, no longer seems tenable. There are clear attestedcases of head movement with this exact configuration (see for example Nkemnji 1995).[40]

How then can we distinguish between these two possibilities? The representation in figure 2.12b is attractive since it allows one to maintain, in its simplest and most general form, that Path demands a PlaceP constituent in its Spec. This would make the alternative structure simply unavailable.

What would we need to say if figure 2.12a were correct? First, it would require a complication of the statement of what can satisfy Spec, Path. Not only PlaceP but a DP "contained" in PlaceP would do as well. Furthermore, we must find a way to block the derivation in figure 2.12b. On general grounds, then, figure 2.12b seems the simplest and hence the preferred analysis.

One might explore blocking figure 2.12b and saving figure 2.12a by finding a reason that the former though the simpler analysis, would not lead to convergence. One option is to tie this to the licensing of DP. If DP fails to satisfy the Case filter in this configuration, perhaps (a) could be forced. Thus, the DP in (a) would satisfy the Case filter in PathP, not in PlaceP, and Case is unavailable within the PlaceP in figure 2.12b. This is a priori an attractive move, given the existence of numerous languages in which directional Ps license their own Case different from locative Ps. In German, for example, directional Ps license accusative Case, and locative Ps dative. This co-occurrence restriction could be structurally captured by moving the DP to a case position in the PathP. I look at this property later.

The analysis just outlined predicts that Case is satisfied external to the PlaceP but internal to the PathP. There is evidence that suggests that this is incorrect for Dutch. Case of a DP within PathP is almost always determined within the PlaceP. If it is not, it is determined outside PathP.

Pronominal DPs within postpositional phrases can show up either as r-pronouns or, in restricted cases, as accusative pronouns. The distribution is difficult to establish: "[T]here are unfortunately, many stylistic, dialectal, and other factors that influence the judgments on the choice of r-pronouns or non-r-pronouns in such examples. For some reason, relative clauses show the ambivalent behavior most clearly" (Van Riemsdijk 1978, 98–99). It seems clear, however, that r-pronouns have the widest distribution and that accusative pronouns are quite restricted. R-pronouns are always licensed PlaceP internally, which we take as evidence that case is determined within the PlaceP Accusative pronouns are always found outside the PlaceP and PathP, suggesting their Case is determined Path-externally.

Given this background, consider the fact that accusative pronouns are possible in clauses but excluded from parallel DPs:

(73) a. hij is de boom/hem/er in geklommen
he is the tree/him/there in climbed
b. de klim de boom in
the climb the tree in
'the climb into the tree'
c. *de klim hem in
the climb him into
d. (?)de klim er in
the climb therein

(73c) shows quite straightforwardly that the accusative case does not depend on properties of the Path projection but on properties outside the PathP. If this is correct, the DP (the tree) in (73b) should not get its case within PathP, either. Rather its case should be determined within PlaceP, as the occurrence of r-pronoun (73d) confirms:[41]

(74) a. Accusative case is not assigned within PathP.
b. The case of DPs in the DP P order is determined within PlaceP.

Case then does not provide any support for figure 2.12a. I therefore assume figure 2.12b must be available as an analysis for postpositional phrases.

There are of course further important questions relating to accusative Case. What is clear, minimally, is that there must be a way in which DPs can escape from the PathP so that, in clauses, they can have (Path external) accusative in particular circumstances. I leave open the problem of how these derivations proceed but suggest that, at some stage in the derivation, Spec, PathP contains a remnant PP. Directly related to the previous point is the fact that further DP movement is possible in postpositional structures, resulting in P-stranding. As (75b) shows, DP extraction is independent of P incorporation:

(75) a. *welk bos* is hij *in*gelopen?
which forest is he into walked
'Into which forest did he walk?'
b. omdat hij *zo'n donker bos* niet (*in*) durft (**in**) te lopen
because he such a dark forest not in dares in to walk
'because he doesn't dare walk into such a dark forest'

I leave unsolved the problem of how exactly the DP is able to escape from the postpositional constituent, though I assume that it must involve remnant PlaceP movement to Spec, Path.

3.1.3.1. EXTERNAL SYNTAX OF POSTPOSITIONAL PPS PathPs may or may not be further dominated by a CP(Path) level (i.e., they can parallel fully articulated or reduced clauses). Postpositional PPs with a CP(Path) level should show the diagnostic properties associated with this level (i.e., they should be able to scramble or pied-pipe under *wh*-movement or occur in the PP-over-V position). Postpositional PPs selected by verbs fail to pied-pipe under *wh*-movement, scramble, or undergo PP over V and thus behave as though they lack a CP(Path) level (just like circumpositional PPs):

(76) a. **Welk bos in* ben jij gelopen (pied-piping under *wh*-movement)
Which forest in are you walked
'Into which forest did you walk?'
b. *Ik ben *de kamer uit* niet gelopen (scrambling)
I am the room out not walked
'I did not walk out of the room.'
c. *Zij zijn gelopen *het bos door* (PP over V)
they are walked the forest through
'They walked through the forest.'

Is this property restricted to PathPs selected by verbs, or does it hold for PathPs in general? Postpositional PPs can occur independently of motion verbs (Van Riemsdijk 1978, 1990). Yet, they cannot be *wh*-moved when this can be tested:

(77) *de kamer uit* met jou
the room out with you
'Out of the room with you!'

(78) de weg *de stad in*
the road the city into
'the road into the city'

(79) a. omdat hij meegereden is, *de berg op*
because he "withdriven" is, the mountain up
'because he drove with us up the mountain'

b. **welke berg op* is hij meegereden
which mountain on is he with rode
'Which mountain did he get a ride to with you?'

(80) a. zij waren *de hele dag door* hier boven aan het timmeren
they were the whole day through here upstairs at the hammering
'They were hammering upstairs the whole day long.'
b. **welke hele dag door* waren ze hier boven aan het timmeren?
which whole day through were they here upstairs at the hammering

I conclude that postpositional PPs always lack a C level and that this is a general property of PathPs (cf. 3.1.2.2).[42] In this respect, the Path projection resembles verbal projections such as VP, which can be neither *wh*-moved nor scrambled. I return to further similarities between Path and V in section 5.3.1.

3.2. Summary: Directional PPs

The properties of directional PPs of table 2.2 have now been discussed. The account can be summarized in table 2.3.

TABLE 2.3. Summary of the account of the syntactic behavior of selected directional PPs

	+Directional		
	PrepPP	*Simple PostPP*	*CircumP*
	All of the asterisks under pied-piping are explained in the same way: No PathP can undergo pied-piping. PathPs are never dominated by a C-type category, which is a prerequisite for *wh*-movement, scrambling, and PP over V.		
Pied-piping	* Was wrongly assigned a ✓in table 1. Examination shows that ✓is due to movement of CP(place), stranding silent Path.	*	*
PP over V	*	*	*
P-stranding: possible between NegP and verbal complex; C level is incorporated or absent			
by r-pronoun	✓	✓	✓
by DP	*DP is too low within the PlaceP projection.	✓DP escapes from remnant PlaceP.	DP is too low within the PlaceP projection.
by PP	CP(place) moves to Spec, Path. It is dominated by the right type of C node and can therefore move further.	*	✓CP(place) moves toSpec, Path and on.
P-incorporation: Local c-command between V and P is necessary			
P-incorporation	* P is within CP(place): It is too low in the structure.	✓ P is in Path and therefore close enough to V; V is the closest c-commander.	✓ P is in Path and therefore close enough to V; V is the closest c-commander.

4. Particles

Particles homophonous with prepositions have a variety of uses: idiomatic, directional, and aspectual. This section shows that idiomatic and directional particles fit into the structures established so far but does not pursue any of the other issues particles raise.

In the literature, verb particle constructions are either base generated as part of a complex V (and therefore do not project a P-type syntactic projection (Koster 1975; Johnson 1991, among others), or they project some syntactic projection. The projection containing the particle is argued to be either the projection of an intransitive P (a P with no complement, as in Emonds 1976, 1985), or, starting with Kayne (1985), some type of small clause in which the argument of the verb particle combination originates either in the particle's subject position (Kayne 1985) or in its complement position (Guéron 1986; Den Dikken 1992; Koopman 1991, among others). For the purposes of this chapter, any small clause structure will do the job: What matters is the categorial nature of the particle (P) and the fact that the complement originates within the PP. The question I address here is how the PP projection of the particle relates to the general structure of the PPs established in this chapter.

4.1. Idiomatic particles

Idiomatic particles form a thematic complex with V and lack autonomous theta properties (see also Kayne 1985). Particles are like unaccusative verbs and do not assign accusative case. Given the absence of independent lexical properties, a reasonable hypothesis is that idiomatic particles project a bare PP without any functional layers:

Verb particle constructions: V takes a bare PP complement

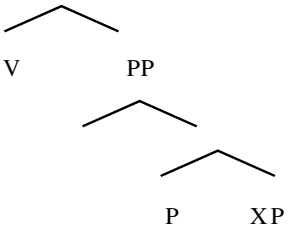

FIGURE 2.13

This structure accounts for the syntactic distribution of particles. Particles can incorporate into V because V is the closest c-commanding head of V:

(81) omdat ik Jan niet heb ***op***gebeld
because I John not have up.called
'because I have not called John up'

The complement of P can escape the PP via Spec, PP as usual. When the complement is a DP, as in (81), DP movement is obligatory: The unaccusativity of the particle (cf.

Koopman 1991) implies lack of case properties. Thus, there is no AgrP within the PP itself. Depending on which case is available externally, the DP will move in search of an accessible Case-licensing position.

The structure in figure 2.13 does not contain a PlaceP level. This is supported by the failure of PlaceP material to surface in verb particle constructions:

(82) omdat ik het/*er heb opgezocht
because I it/*there have "uplooked"
'because I looked it up'

Particles cannot be accompanied by bare modifiers, establishing the absence of Deg(place):

(83) omdat ik het (*vlak) op heb gezocht
because I it right up have looked
'because I looked it right up'

Idiomatic particle verbs therefore consist of a V selecting a bare PP complement.

Since the CP(place) level is absent, the PP cannot be preposed[43] or scrambled or occur in the PP-over-V position.

(84) a. **op* heb ik het niet gezocht
up have I it not looked
b. *omdat ik het *op* niet heb gezocht
because I it up not have looked
c. *omdat hij het heeft gezocht *op*
because he it has looked up

4.2. Directional particles

Directional particles express Path and therefore contain a projection of Path. Thus far, Path has been shown to take a CP(place) complement or a PlaceP complement. Directional particles fill the gap in the paradigm, with Path taking a bare PP complement:

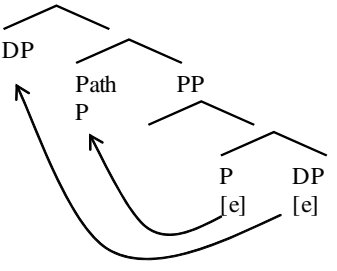

FIGURE 2.14

P raises to Path in directional PPs. From there, it can further incorporate into V. In addition, DP moves to Spec PathP and continues on its journey in search of an appropriate licenser. Since the complement of Path is a bare PP, r-pronouns cannot be licensed:

(85) Ik heb niets/*nergens *op*gepakt
I have nothing/no.there up picked
'I picked up nothing.'

Since the particle cannot be modified by a Deg(place), Deg(place) must be absent:

(86) Hij heeft het (*vlak/*pal) op gepakt
He has it right up picked
'He picked it right up.'

CP(place) must be absent, and directionals always lack a CP(Path) node: Directional particle PPs can basically not be preposed or scrambled or occur in the PP-over-V position.

Directional particles resemble idiomatic particle constructions: they are bare PPs embedded under a Path layer. The projection of directional particles differs from that of other directional PPs in that the complement of Path is a bare PP, not a PlaceP or a CP(place).

5. General issues

This chapter focuses on the architecture of PPs in Dutch, the development of a unified account of the different types of surface PPs, and the distribution of their constituent parts. What looks like a relatively simple syntactic category turns out to be quite complex, as usual. In this section, I briefly summarize the major results and address some general issues.

5.1. Structures

As I have shown, functional categories are not only expected within the extended projection of a P: their existence can also in fact be quite firmly established on the basis of the overt syntax. Two basic semantic types of PPs must be distinguished: directional PPs and nondirectional PPs. To these semantic categories correspond functional categories, for which Jackendoff's (1990) labels, Place and Path, seem entirely appropriate. The syntactic structure, motivated by distributional evidence, closely resembles the conceptual argument structure in Jackendoff (1990). This strongly supports the idea that the syntax builds the structure necessary for the semantic interpretation. Other functional categories involve Agr, degree modification, and C-like categories. The following structures were motivated:

5.2. PlacePs

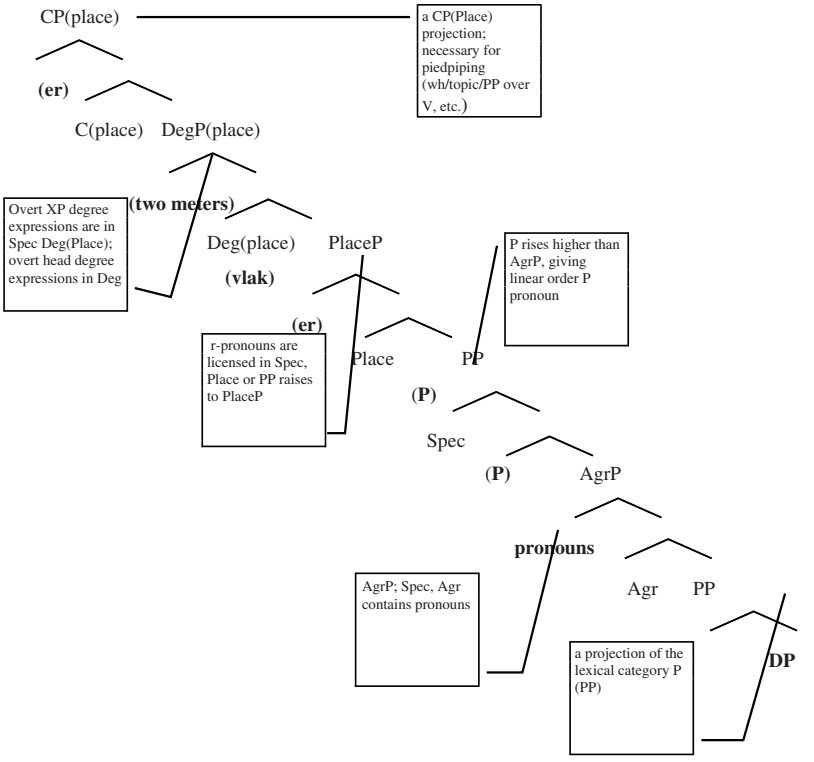

FIGURE 2.15

Within this structure, the preposition is never spelled out any higher than Place. From this it follows that Ps can never incorporate: P is simply not high enough within its extended projection to enter into the necessary structural relation to V (or into whatever PP external category it would incorporate).

5.2.1. Semantically empty Ps

The discussion has focused on locative PPs and has not addressed the problem of how semantically empty Ps fit into the picture. Empty Ps play a variety of roles as case markers and as Cs. In general, they have no particular semantic relationship with the complement they license. Are these Ps Cs, as Kayne (1994) proposes, or Ps, as Emonds (1985) argues? What precisely is at stake here? Whether something is a C or a P depends on the functional structure associated with the categories that dominate the head, not necessarily on the complement structure since both C and P can take surface clausal complements. For concreteness, consider a grammatical P comparable to *of* (i.e., Dutch *van). Van* looks like a P and shares with P the property that it projects at least a PlaceP projection in which r-pronouns can be licensed:

(87) de verwoesting *van* de stad — de verwoesting *ervan*
the destruction of the city — the destruction of it

Van is also dominated by a CP(place) since it can be *wh*-moved or scrambled and can occur in the PP-over-V position. This shows unambiguously that *van* has properties in common with P. Although this might appear incompatible with Kayne's (1994) proposal that Ps like *of* or *van* are Cs, in fact it is not. Kayne proposes that elements like *van* are Cs in that they select for a clausal complement: The following DP is not a direct complement of *van* but occurs in some Spec position in the clausal complement. Nothing prevents analyzing *van* as a P (hence, showing the external syntax of CP(place)), which somehow combines with an IP, out of which a DP has risen (i.e., there is no direct complement relation between *van* and the DP)[44] English C *for* can be treated in much the same way as Dutch *van.* Since it licenses the accusative case, there must be at least a P shell and an Agr shell present:

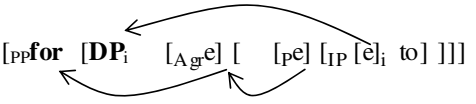

FIGURE 2.16

Prepositional complementizers raise the problem of exceptional case marking. English *for* licenses case on the subject of an infinitival, but Romance *de* and Dutch *om* do not. This could be taken as evidence that they do not provide any structural position for case (i.e., these Ps would not project an AgrP projection). This proposal is unattractive since it raises still another question: How does a language learner determine whether P projects AgrP? Alternatively, these prepositional Cs project the same structure as *for*, including AgrP. The reason that Romance languages and Dutch do not allow overt subjects in these infinitivals is not that a structural difference exists but follows from the different status of infinitivals in the languages in question. Infinitivals in Dutch and Romance have nominal morphology but do not in English. As a consequence, the entire infinitival complement is forced to rise to Spec, AgrP in Dutch and Romance, whereas DPs rise in English:

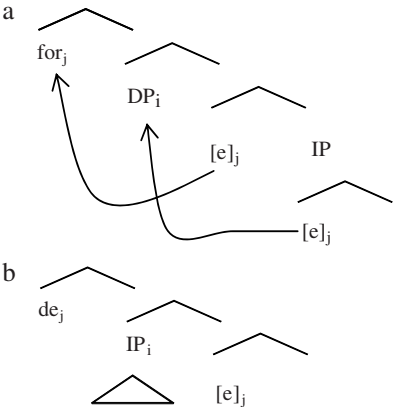

FIGURE 2.17

This proposal means that parametric variation is not structural (the structures are identical) but instead is due to the size of the moving constituent.

5.3. PathPs

Directional PPs have the skeletal structure in figure 2.18, where Path combines with some projection of the PlaceP:

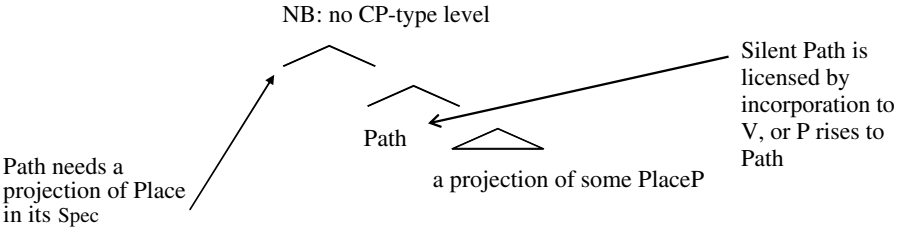

FIGURE 2.18

PathP is never dominated by a CP-type level, at least not by one that makes *wh*-movement or scrambling possible. This hypothesis is useful in that it explains why PathPs never undergo either scrambling or pied-piping under *wh*-movement.

The different constituents of the extended projection of the PP that can be selected by Path are shown in boxes (figure 2.19):

FIGURE 2.19

This structure raises two questions: why exactly does Path combine with these categories but no others, and what determines selection? The latter involves general issues about complementation, and this chapter presents no new insights into these. The former question should eventually be answerable, however. Spec, PathP must contain a PlaceP projection. A projection that does not carry this property recognizable on its sleeve will simply not be selectable because it will have nothing to offer to Spec, Path.[45]

5.3.1. Path: P and V

Although Path looks like a P and not like a V, it has both P-like and V-like behavior.

Dutch has verb particle constructions, with P optionally incorporating to V. The overt P in PathP can optionally incorporate into V as well.[46] This suggests that the Path head is part of a verb particle construction. If this is correct, PathPs are never dominated by a (*wh*-type of) CP projection because these projections are excluded with particles as well.

V-like behavior includes the head final character of Path.

Path and V do not have parallel case properties: Path in Dutch is never responsible for accusative case (cf. 3.1.3).

Taken together, these observations might suggest that Path projections may involve both a verbal projection and a particle construction. In other words, the Path projection would be a verbal small clause headed by a light verb that selects for a path particle.

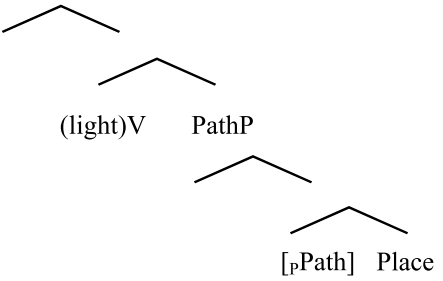

FIGURE 2.20

This structure allows us to sharpen the issues. Which projections are responsible for which properties? Are the verbal characteristics due to the presence of the light verb? Are the P characteristics due to the projection of the particle?

Consider the V projection. In general, VP small clauses are excluded as nominal complements, yet PathPs are fine within DPs (*de weg de stad in* 'the road into the city'). This indicates the absence of the VP small clause projection in this context, leaving just a "bare" PathP present. Thus, DPs represent important environments that allow teasing properties apart: properties of the small clause V projection should disappear within DPs, whereas properties of the Path projection should be present.

PathPs within DPs are always postpositional. The leftward movement of PlaceP to Spec, Path is therefore not a property of V but, as assumed all along, a property of Path. The shared property with V is accidental.

Pronominal DPs within postpositional phrases can show up either as r-pronouns or, in restricted cases, as accusative pronouns. When accusative pronouns are possible in clauses, they are excluded from parallel DPs:

(88) a. hij is de boom/hem/er in geklommen
he is the tree/him/there "inclimbed"
b. de klim de boom in / de klim er in /*de klim hem in
the climb into the tree / the climb therein / the climb him into

This shows that accusative case does not depend on properties of the Path projection but on properties of the light verb (or other characteristics of the clausal environment). Since this projection is missing within DPs, accusative case is simply unavailable.

The similarity with verb particle constructions, which yields optional incorporation of particles and PathPs, could in fact be due to the presence of the light V in verbal Path constructions. The presence of the light V would, of course, also be extremely important in light of the fact that languages with serial verbs typically use lexical verbs in directional constructions: If a structure like that in figure 2.20

underlies clausal directionals universally, questions about the overt forms of directionals cross-linguistically become discussable and answerable in precise ways.

5.3.2. Further questions

In this chapter I set out to explore the syntax of Ps, with the ultimate goal of getting a better understanding of the architecture of Ps universally. I did not proceed by hopping around from one language to another but instead provided a uniform analysis of the syntax of Ps in Dutch. I arrived at a reasonably coherent picture of the properties of the different types of PPs in Dutch and accounted for a large amount of data in a unified fashion. Although progress has been made, the last word has not been said about many of the issues raised here. In particular, it seems that we are just beginning to understand the extremely interesting issues surrounding the syntax of Path.

Some problems that remain in this chapter are general theoretical problems of long standing, not problems related to my analysis in particular: the theory of complementation, the optionality of incorporation into the verbal complex, and so on. My analysis also does not yield any new insights into the well-known problem that DPs can c-command out of their PPs (see, among others, Pesetsky 1995).[47]

Arguments for the architecture of PPs should come not only from careful language-internal analyses but also from success or ease in handling cross-linguistic variation. Indeed, if structural variation between languages is minimal or nonexistent, the structures motivated for Dutch should extend directly to PPs in other languages. Unfortunately, serious investigation of this issue goes beyond the scope of this chapter.

Notes

This chapter grew out of an earlier proposal for the structure of English PPs (Koopman 1991), and went through several versions ("The Structure of Dutch PPs" 1993, 1996). It finally appeared as chapter 8 of Koopman 2000. The present version differs from the latter in minor editorial details, but not in analytical content. No attempt is made to update the analysis within current (2009) theoretical understanding. I would like to thank Hans Bennis, Marcel den Dikken, Teun Hoekstra, Ed Keenan, Henk van Riemsdijk, Jeannette Schaeffer, and Dominique Sportiche for their comments. I also extend my thanks to the participants of my seminars on particles (UCLA, winter 1990) and head movement (UCLA, winter 1992), where the analysis presented in this chapter was originally developed. Financial support from the Academic Senate of UCLA is gratefully acknowledged.

1. Pollock (1989), Chomsky (1991), Sportiche (1995b), Cinque (1999), and many others.

2. Abney (1987), Carstens (1991), Longobardi (1994), Ritter (1991), Szabolcsi (1987, 1994), Valois (1991), among others.

3. Interestingly, though, there always appear to be two classes of Ps: inflected Ps and uninflected Ps.

4. See, in particular, Sportiche (1990, 1995b, 1998).

5. In particular, I adopt the theory of head movement outlined in Koopman (1994, 1995b).

6. See Chomsky (1995). Precursors to domain extension are the Head Constraint of Van Riemsdijk (1978) and the Government Transparency Corollary of Baker (1988).

7. Semantically empty Ps are basically used to create X-bar structures (or shell structures) in the same way that semantically empty Vs can be used to create subordinated structures (cf. the cases of indirect complementation involving 'say' discussed in Koopman 1984 and Koopman and Sportiche 1989).

8. This chapter presupposes a head initial VP for Dutch (following Zwart 1997 and Koster 1993) and antisymmetry (Kayne 1994). Therefore, PP over V cannot be a rightward movement rule. I continue to use the term *PP over V* as a descriptive phrase to talk about PPs that can occur to the right of the verbal complex. For an interesting account of PP over V, see Barbiers (1995), whose proposal seems incompatible with that in this chapter.

9. The analysis of Dutch PrepPs presented here updates Van Riemsdijk's 1978 analysis and insights to a large extent.

10. Besides the general locative pronoun *er*, this paradigm contains the demonstrative (*daar op* 'thereon'), [+wh] (*waar op* "whereon"), negative (*nergens op* "nowhere on"), and the universal quantifier (*overal op* "everywhere on") (Van Riemsdijk 1978).

11. I assume that (11) is impossible because *boven* takes a "small clause" PP (i.e., a projection of P that is smaller than the projection in which r-pronouns are licensed).

12. I thank an anonymous reviewer for the important observation that the Q can also be floated outside of the PP.

(i) ik heb *met deze mensen* gisteren *allemaal* gesproken
I have with these people yesterday all spoken

These facts remain unaccounted for in this chapter and merit further study. The text considers only floated Qs that are clearly PP internal.

13. These examples are acceptable with focal stress on the pronoun and no stress on the Q. I omit these cases from consideration. There is a slight contrast between subject and nonsubject. A remnant VP preposing analysis might be available for nonsubjects (with the preposed VP containing only the object and the floated Q), which would render the judgment less clear in the latter case.

14. It is well known that not all Ps allow for r-pronouns. Van Riemsdijk (1978) argued that Ps select for the features of their Specs. In my terms, Ps that disallow r-pronouns lack a property +Place, and therefore fail to license the PlaceP. The distribution of the +Place feature is interesting in that Ps that express notions not transparently related to location in time or space and allow for +R can also all be used as locative prepositions, suggesting an intimate connection between the two.

15. For similar proposals, see Koopman (1996).

16. What remains to be explained is why an r-pronoun *must* move if it is contained within a PP (i.e., what explains the ill-formedness of **op er*). My inclination is to not follow the economy line of explanation but to pursue an account by which the r-pronoun "robs" the P of the structural property that satisfies Place.

17. What is therefore crucial for P-stranding is the separation of DP and P at an early point in the derivation. For English, this can be achieved in the way the chapter describes it for r-pronouns: In English, DP extracts to Spec, Agr, and the remnant PP goes to Spec, Place. Now separated from PP, DP can extract further.

18. I assume that silent P is licensed in Place, yielding the following structure of the locative:

[er $[_{P}$ e$]_{i}$ $[_{PP}$ $[_{P}$e$]_{i}$]

That the overt P is in PP, not in Place, is shown by PP to Place movement discussed earlier.

19. It follows that there must be a Place projection that licenses the existential pronoun in existential sentences.

20. This recalls Corver's 1990 proposals for a DegP in APs.

21. Den Dikken attributes the examples in (25) to Bennis (1991). The judgments reported in Bennis differ though, as he judges the "b" examples as grammatical. My judgments on (25) coincide with Den Dikken's.

22. Traditional descriptions recognize two positions for incorporated heads (underlined in (i)):

(i) . . . (*op*) heb (**op**) willen (***op**) laten (**op**)bellen
(up) have (up) want (up) let (up) call
'have wanted to let call up'

As traditional analyses acknowledge, the preceding schema does not cover certain dialectal variation. Bennis (1991) assumes that P can be anywhere in the verbal complex as long as it is preverbal. In my dialect, there are three positions for incorporable elements: pre–finite verb, immediately following the finite (auxiliary) V, and preceding the verb on which it is theta dependent. However, it cannot appear in the following starred position (ii), which represents the verbal complex of (29):

(ii) dat Marie Jan het huis (**schoon**) heeft (**schoon**) willen (***schoon**) laten (**schoon**) maken
that Mary John the house clean has want let make
'that Mary wanted to let John clean the house'

The difference between my dialect and the one described in traditional terms can be reduced to the distribution of the finite auxiliary. My dialect seems to allow the auxiliary to optionally raise to a higher head position than the traditional dialect described in (i):

(iii) a. F X^o aux V V.
b. aux X^o [e] V V

For more discussion on this issue see Koopman (1995a).

23. Incorporation asymmetries can be derived in this purely structural way. I do not follow Baker and Hale's 1990 proposal for parameterization of functional and lexical heads with respect to relativized minimality, nor do I assume that there are two different types of incorporation as argued in Uriagereka (1988).

24. Alternatively, the smallest projection containing the lexical P pied-pipes to a Spec position, where it is locally c-commanded by the incorporator.

25. Marcel den Dikken informs me that this generalization might be too strong since he accepts examples like the following:

(i) de film waar ik onder ben weggegaan
the movie where I under am away gone

I do not accept such examples, and am unaware of studies on the variability in the judgments in this particular instance.

26. The alternative analysis of treating the degree and place modifier as a complex P undergoing incorporation should be rejected since complex Ps, or complex heads, fail to incorporate.

27. The basic behavior of postpositions with respect to incorporation, extraction, and so on is discussed in Van Riemsdijk (1978). Koster (1987) contrasts extraction possibilities from

postpositional and prepositional PPs. The external syntactic properties of directional phrases in relation to *have/be* selection are discussed in Hoekstra (1984) and Hoekstra and Mulder (1990). Van Riemsdijk (1990) was the first to propose that postpositional order derived from (rightward) moving the preposition to some (functional) P projection. My analysis maintains the idea that prepositional and postpositional PPs are related through movement (leftward though) and quite generally strives to present a uniform structural account of the whole class of directional PPs.

28. The difference in meaning between the prepositional and the postpositional PPs in (46a) and (46b) is not clear. According to my intuition, the object of a postposition obligatorily receives a literal interpretation (and the object of a preposition optionally). This accounts for the following contrast:

(i) a. ga uit de kamer
go out the room
'go out of the room!'

b. ga de kamer uit
go the room out

(ii) a. ga uit mijn ogen
go out my eyes
'Get out of my sight!'

b. *ga mijn ogen uit
go my eyes out

In (ia) the path described by the motion V involves the room. In (iib) the path cannot involve my eyes (you were never literally in my eyes), and the sentence is therefore ill formed.

29. This is generally taken to show that any V that combines with a directional is unaccusative (Hoekstra 1984; Hoekstra and Mulder 1990).

30. There do not seem to be any underived adjectives in Dutch that take directional PrepPs. However, Dutch has some deverbal adjectives that can take directional PrepPs (cf. Broekhuis 1998). Interestingly, these PPs are only prepositional and cannot be circumpositional or postpositional. This suggests that the Path feature is obligatorily incorporated into the verbal part of the adjective.

31. Some contain an optional postpositional element *(toe, heen, vandaan):*

(i) Hij loopt *naar* Nijmegen (toe)
he walks toward Nijmegen

(ii) de weg naar Nijmegen (toe)
the road (leading) to Nijmegen

Optionality holds for clausal and DP contexts alike, showing that Path is licensed Path internally. This suggests that the absence of the postposition is due to a PF deletion process. As Joost Zwarts (1997) states, the postpositional element becomes obligatory when r-pronouns are extracted:

(iii) Hij loopt er naar *(toe)
He walks there toward

(iv) de weg er naar *(toe)
the road there toward

If the absence of the postpositional element is handled at PF, then blocking deletion should be handled at PF as well. I believe that deletion in (iii) and (iv) is blocked for prosodic reasons. The preposition in circumpositional structures is always followed by a stress-bearing element

(indicated by the acute accent) (*naar Gróningen (toe)* but *er naar tóe)*. Optional postpositional elements can be absent only when unstressed, that is, in (i) and (ii), but not when in the stressed position.

32. For simplicity, I have put the entire PP in Spec, Path. However, the PP could land in a still higher projection (in accordance with the generalized, doubly filled C filter (Koopman 1996). This is not important in this chapter.

33. The acceptability of P incorporation in this context seems to vary somewhat across speakers, and within speakers, judgments may vary depending on individual lexical items. All of the native speakers that I have consulted accept at least several, if not all, cases of P incorporation. There is an extremely sharp contrast, however, between incorporation of the postposition and incorporation of the preposition in this structure. Any attempt to incorporate the latter yields total unintelligibility. Therefore, for all speakers, relative ease of incorporation shows that the postpositional element is the head.

34. The compound postposition *vandaan* does not incorporate a property that holds for compounds in many languages. I maintain that the failure of incorporation of *vandaan* shows that it is not really a single complex head but rather a sequence of two heads in different head positions (i.e., it has more syntactic structure), with *van* in the syntactically higher position.

35. The question of what this speaker variability correlates with still remains to be explored. Conceivably it correlates with the variability with respect to pied-piping the entire PathP discussed in the following section.

36. The first position in noninterrogative root clauses can contain noninterrogative circumpositional PPs but not interrogative circumpositional PPs:

(i) *tegen* het dorp *aan* worden nieuwe huizen gebouwd
against the village to are new houses built
(ii) *tegen welk dorpen aan worden nieuwe huizen gebouwd
against which villages to are new houses built

This contrast might be explained if (i) is embedded under a different constituent, say VP, out of which the participle has been extracted; that is, it would be a case of remnant movement (see also endnote 7.)

37. Particularly interesting is the fact that in acceptable sentences like (i), P incorporation is blocked:

(i) omdat zij *er boven in* is geklommen
because she there up in is climbed
(ii) *omdat zij we er boven is in geklommen
because she there up is in climbed

These facts follow: Since P is preceded by boven, P cannot have raised to Path and must therefore be within the PlaceP. Thus, CP(Place) is in Spec, PathP in these examples, and incorporation is simply impossible because of locality.

38. The existence of two derivations for directional PPs renders the analysis of the examples in (68) tricky. If the place P is within the CP(Place), the structure represents a prepositional directional and would reveal nothing about the postpositional structure. This derivation can be ruled out because P can be incorporated (cf. the boldfaced P in b). This is a diagnostic for P to Path movement yielding postpositional structures.

39. Thanks for an anomymous reviewer for poining out this example.

40. See also Müller (1998) for extensive discussion.

41. I cannot account for the fact that (85d) is slightly awkward, though it is infinitely better than (85c).

42. Directional PPs thus are some kind of "small clause." This conclusion is similar to that of Hoekstra (1984) and Hoekstra and Mulder (1990), who argue on the basis of auxiliary selection that verbs that take directional PPs are unaccusative and that directional PPs are small clauseith the subject of the main V originating within them. My analysis is neutral with respect to their particular proposals.

43. The PartP can be contrastively focused and occur in first position in root sentences, showing phrasal behavior. I have nothing to say here about such cases. This is consistent with a bare PP analysis or a remnant movement analysis: The preposed constituent is a VP that contains an incorporated P and a trace of V. The latter analysis again raises question about the condition on proper binding (i.e., how is the verbal trace in the preposed constituent licensed?).

(i) óp gaat de zon in het oosten; ónder in het westen
up goes the sun in the east; under in the west
'The sun comes up in the east, goes down in the west'

44. Strong empirical support for a Kaynian analysis is presented in Hoekstra (1995), (1999).

45. It is not clear at this point exactly how CP(place) satisfies Path since in the derivations it is not structurally close to either PlaceP. Following Koopman (1996), empty projections must be licensed at some point in the derivation. This implies that some category containing overt lexical material occupies Spec, CP(place) if nothing occurs there. Pied-piping PlaceP to Spec, CP(place) will make CP(place) be recognizable as PlaceP in the same way that having a *wh*-phrase in Spec, DP allows the DP to count as a *wh*-phrase.

46. Precisely this fact motivated Van Riemsdijk's rule of P-shift (1978), which turns a postposition into a particle.

47. But see Cinque 2006 for a proposal.

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3

MARCEL DEN DIKKEN

On the Functional Structure of Locative and Directional PPs

1. Introduction

Koopman's (2000) investigation of the structure of Dutch PPs is a significant milestone in generativists' thinking about adpositions.[1] By showing that there is quite a bit more to the structure of the PP than had previously been assumed[2] and giving P a full-fledged functional extended projection, Koopman explicitly assimilates P to the relatively uncontroversial lexical categories A, N, and V, thereby making P a thoroughbred member of the class of lexical categories. In addition, she simultaneously replicates in the adpositional domain a portion of the functional skeleton familiar from the extended projections of verbs and nouns, furthering the research program that subscribes to the view that all lexical categories have the same basic array of functional categories in their extended projections.[3] Koopman's study has its limitations, though. It is too sketchy and fragmentary in many places, not systematic enough to really nail the points that it is striving to make.

Taking Koopman's seminal work as its point of departure, this chapter seeks to flesh out the structure of the adpositional phrase in detail, taking its cue, like Koopman, from the Dutch facts (which are substantially amplified beyond Koopman's observations). The outcome of this investigation ends up strongly supporting Koopman's research program by developing it in several important ways. Specifically, among other things this chapter isolates counterparts to aspect, tense, and complementizer in the adpositional domain, it identifies both locative and directional Ps as lexical categories (P_{Loc} and P_{Dir}, respectively), each with its own array of functional categories in its extended projection, and it makes a case for the idea that these various functional categories are *selectively* present in an "ever increasing circles" kind of way. That is, spatial P always projects its own lexical projection, PP, but beyond that, it can (depending on

certain factors and with specific consequences that I address) merge directly with a higher lexical category, foregoing all functional structure of its own, or merge with a subset of the functional categories in its extended projection. Functional structure, then, is not omnipresent but is called upon selectively (contra Cinque 1999, for instance).

The chapter is organized as follows. In sections 2 and 3 I survey the landscape of Dutch locative and directional adpositional phrases against the background of Koopman's (2000) analysis, which is critically reviewed along the way. In section 4, I develop the structure of directional PPs beyond the end point of Koopman's discussion. Section 5 presents a detailed investigation of the structural parallelism between verbal, nominal, and adpositional extended projections and gives a principled rationale for the typology of complementation structures in directional adpositional phrases. Finally, section 6 concludes the chapter.

2. The landscape of Dutch locative and directional PPs: A bird's-eye view

2.1. PP types

The landscape of Dutch locative and directional adpositional phrases is complex, which is what makes it such a fertile domain of investigation into the functional structure of PPs. The following sets of examples are organized in such a way that, within each item, the "a" sentences illustrate the *locative* use of a particular PP type (if available), whereas the "b" sentences instantiate its *directional* use. The items are ordered from the simplest, most productive types (the simple *pre*PPs and *post*PPs) to the more complex cases.[4]

(1) a. *pre*positional, locative

hij zit in de stoel	hij ligt op de bank	hij staat voor de deur
he sits in the chair	he lies on the couch	he stands before the door

b. *pre*positional, directional

hij klimt in de stoel	hij springt op de bank	hij rijdt voor de deur
he climbs in(to) the chair	he jumps on(to) the couch	he drives before the door

(2) a. *post*positional, locative—N/A

*hij zit de stoel in	*hij ligt de bank op	*hij staat de deur voor
he sits the chair in	he lies the couch on	he stands the door before

b. *post*positional, directional

hij klimt de stoel in	hij springt de bank op	*hij rijdt de deur voor
he climbs the chair in(to)	he jumps the couch on(to)	he drives the door before

(3) a. *circum*positional, locative

de schutting staat om het huis heen	?de kabel ligt onder de brug door
the fence stands around the house	
PRT	the cable lies under the bridge through

b. *circum*positional, directional

hij loopt om het huis heen	hij loopt onder de brug door
he walks around the house PRT	he walks under the bridge through

(4) a. *complex post*positional, locative—N/A

*de auto staat de molen voorbij	*de kabel ligt de brug onderdoor
the car stands the mill before-by ('past')	the cable lies the bridge under-through

b. *complex post*positional, directional

de auto rijdt de molen voorbij	hij loopt de brug onderdoor
the car drives the mill before-by ('past')	he walks the bridge under-through

(5) a. *complex pre*positional, locative

de auto staat voorbij de molen	de auto staat tegenover het huis
the car stands before-by ('past') the mill	the car stands against-across the house

b. *complex pre*positional, directional

de auto rijdt voorbij de molen	*de auto rijdt tegenover het huis
the car drives before-by ('past') the mill	the car drives against-across the house

2.2. Basic empirical generalizations

Two important empirical generalizations emerge immediately from a cursory inspection of the facts of *simple* PPs (i.e., simple *pre*positional and simple *post*positional PPs) in (1) and (2):

(6) a. Dutch *locative* PPs are always *pre*positional.
b. Dutch *post*positional PPs are always *directional.*

Neither of these generalizations can be reversed. The generalizations in (6c,d) are spurious: The existence of *pre*positional *directional* PPs of the type illustrated in (1b) directly counterexemplifies (6c,d).

(6) c.	*Dutch *pre*positional PPs are always *locative.*	False
d.	*Dutch *directional* PPs are always *post*positional.	False

Thus, there is no strict correlation between directionality and postpositionality: Directional PPs often (though by no means always; see Den Dikken 2008 for detailed discussion of the restrictions on prepositional directional PPs with manner-of-motion verbs) vacillate between prepositional and postpositional word orders (in some cases subject to speaker variation), and some unambiguously directional PPs are exclusively *pre*positional. The examples in (7)–(11) give some key illustrations:

(7) a.	Jan liep in de kamer Jan walked in the room	unambiguous: locative only
b.	Jan liep de kamer in Jan walked the room in	unambiguous: directional only
(8) a.	Jan klom in de boom Jan climbed in the tree	ambiguous:[5] locative—'climb (while) in the tree' directional—'climb into the tree'
b.	Jan klom de boom in Jan climbed the tree in	unambiguous: directional only
(9) a.	Jan klom op de heuvel Jan climbed on the hill	ambiguous: locative—'climb (while) on the hill' directional—'climb onto the hill'
b.	Jan klom de heuvel op Jan climbed the hill on	unambiguous: directional only
(10) a.	Jan wandelde op de heuvel Jan walked on the hill	%ambiguous: locative—'walk (while) on the hill' %directional—'walk onto the hill'
b.	Jan wandelde de heuvel op Jan walked the hill on	unambiguous: directional only
(11) a.	Jan liep/rende naar het bos Jan walked/ran to the woods	unambiguous: directional only
b.	*Jan liep/rende het bos naar Jan walked/ran the woods to	ungrammatical

In combination with the verb *lopen* 'walk', an *in* PP with a *directional* interpretation ('into *x*') must be *post*positional (7), but in the complement of the verb *klimmen* 'climb' (8), an *in* PP supports a directional interpretation in both its *pre-* and *post*positional incarnations, and the same is true for the *op* PP in (9). For many speakers, the choice of verb is key in this connection. While *klimmen* allows prepositional *op* PPs to be interpreted directionally (as in (9a), which, like (8a), is ambiguous between a locative and a directional reading), the same *op* PP resists a directional interpretation in its prepositional incarnation with a verb like *wandelen* 'walk' for most speakers that I have asked (see (10a); *post*positional directional *op* is fine for everyone: (10b)). However, I have also found speakers who accept (10a) with a directional interpretation. So for such speakers, (10) behaves exactly like (8) and (9). It is important to bear in mind, then, that the (un)availability of a directional interpretation for a simple *pre*PP (a) depends on the choice of verb selecting the PP and (b) is subject to speaker variation within the Dutch-speaking world. I return to these points later in the chapter.

Returning to the broad generalizations in (6a,b), let me point out that, as a matter of fact, these generalizations are not entirely surface true: An important qualification must be made for a particular type of P complement, the class of so-called r-words, which is Van Riemsdijk's (1978) label for those pronominal arguments of P that obligatorily surface to the left of P (even when the P in question is otherwise strictly prepositional) and have the option of extracting from PP (something which other P complements typically cannot do).[6] The examples in (12), featuring *naast* 'beside', are illustrative for the entire class:

(12) a. Jan zat naast het meisje/de deur — unambiguous: locative only
Jan sat next.to the girl/the door

b. *Jan zat het meisje/de deur naast — ungrammatical
Jan sat the girl/the door next.to

c. Jan zat <*haar/*het> naast <haar/*het>
Jan sat her/it beside her/it

d. Jan zat <er> naast <*er>
Jan sat there$_{[+R]}$ beside there$_{[+R]}$

Throughout, therefore, any and all generalizations about word order in Dutch locative and directional PPs should be qualified with reference to the behavior of r-word PPs, which are virtually always postpositional.[7]

It is immediately apparent from the facts in (1)–(5) that directional PPs show a significantly greater degree of variation in surface patterns than do locative PPs. What is also clear from (1)–(5) is that the directional PP set is almost in toto a superset of the locative PP set; only in the case of *tegenover* 'against-across, i.e., across from' do we find that a particular token of a specific PP type occurs only in a locative context, not in a directional one. There are also tokens of specific PP types that are ungrammatical in both locative and directional contexts: *Voor* 'before, in front of' and *naast* 'next to', for instance, are never used postpositionally (r-words aside), so both the locative and the directional versions of (2a,b) fail for *voor*.

These remarks should make the reader aware, right from the outset, that there is an important pretheoretical sense in which directional PPs are "built upon" or "extensions of" locative PPs and also that there is a vast amount of idiosyncratic lexical variation among individual adpositions with respect to their syntactic patterning. Lexical idiosyncrasy is never a good guiding light in the development of an analysis. It makes sense, therefore, to downplay lexical variation to the extent that we can and to concentrate instead on what I take to be a significant property of the relationship between locative and directional adpositional phrases: the fact that the latter are, in some sense to be made precise, "extensions" of the former.

Koopman's (2000) analysis of locative and directional adpositional phrases embodies this insight: It considers directionality to be the inclusion in the extended projection of P of a single functional head, Path, on top of some locative adpositional constituent. My own analysis, which builds on Koopman's seminal work, incorporates the idea that directional PPs are "built on" locative PPs in a somewhat different way, recognizing two types of *lexical* P (locative and directional), each with its own array of functional categories in its extended projection, with the directional P lexically selecting for a locative adpositional structure as its complement.

3. The adpositional landscape charted: First explorations

3.1. Locative PPs

Koopman (2000) presents an analysis of locative and directional PPs wherein the lexical core of the structure of both PP types is assumed to be formed by a projection

of a *lexical* P head. This lexical head has an array of functional projections in its extended projection. Most of these projections bring in attributes of the *locative* PP: a PlaceP that provides a landing site for r-pronouns (SpecPlaceP), a DegP(Place) whose specifier position serves as the insertion position for modifiers of the type *tien meter* 'ten meters', and a CP(Place) that brings in a second potential landing site for r-words to the left of degree modifiers such as *tien meter*.

(13) Koopman's base structure for locative PPs[8]
$[_{CP(Place)}$ $Spec_{[+R]}$ [C(Place) $[_{DegP(Place)}$ MOD [Deg(Place) $[_{PlaceP}$ $Spec_{[+R]}$ [Place $[_{PP}$ P_{Loc} DP]]]]]]]

With the aid of the structure in (13), Koopman straightforwardly accounts for the fact that (14b) has two grammatical variants, with the r-word *er* on either side of *tien meter*:[9] When *er* appears to the right of *tien meter*, it has raised to SpecPlaceP; with *er* to the left of *tien meter*, it sits in SpecCP(Place). From this latter position, the r-word is free to escape from PP altogether (as in (15), with the r-word *waar*). Since non-r-word complements of P never reach the SpecCP(Place) position, they never have a chance to extract out of the locative P's extended projection. This accounts for the ungrammaticality of (15) with [–R] *die*.

(14) a. [tien meter naast de deur] heeft Jan gezeten
ten meter next.to the door has Jan sat
$[_{CP(Place)}$ C(Place) $[_{DegP(Place)}$ *tien meter* [Deg(Place) $[_{PlaceP}$ Place $[_{PP}$ *naast de deur*]]]]]
b. [<er> tien meter <er> naast] heeft Jan gezeten
$there_{[+R]}$ ten meter $there_{[+R]}$ next.to has Jan sat
$[_{CP(Place)}\langle er_i\rangle$ C(Place) $[_{DegP(Place)}$ *tien meter* [Deg(Place) $[_{PlaceP}\langle er_i\rangle$ [Place $[_{PP}$ *naast* ec_i]]]]]]]

(15) de deur {*die/✓ waar} Jan naast heeft gezeten
the door that/$where_{[+R]}$ Jan next.to has sat
'the door that Jan sat next to'

The fact that Dutch locative simple PPs are systematically *pre*positional except in r-word cases is accounted for by two assumptions. First, Koopman assumes that full DP complements to P_{Loc}, such as *de deur* 'the door', stay in situ to the right of P's base position, whence the ungrammaticality of the variant of (16), with *naast* immediately following *de deur*. Second, she assumes that P_{Loc} can raise no higher than Place and hence can never surface to the left of raised R-words, which are no lower than SpecPlaceP (cf. (16b)). That P_{Loc} never raises beyond Place to Deg(Place) or C(Place) is also instrumental in Koopman's account of the fact that locative Ps cannot incorporate into the verbal cluster: Since P_{Loc} can raise no further than Place, it can never get to a position local to the verb that selects CP(Place); hence, incorporation of P_{Loc} into the verbal cluster is out of the question. This explains the ungrammaticality of (16), with *naast* sandwiched in between the two verbs that make up the verbal cluster (*. . . *heeft naast gezeten*):

(16) a. ik geloof dat Jan <✓naast> de deur <*naast> heeft <*naast> gezeten
I believe that Jan next.to the door next.to has next.to sat
b. ik geloof dat Jan <*naast> er <✓naast> heeft <*naast> gezeten
I believe that Jan next.to there$_{[+R]}$ next.to has next.to sat

Note that in order for this account of the ban on incorporation of P_{Loc} into the verbal cluster to go through, it must be assumed that locative PPs are never just PlacePs—if they could be as small as PlaceP, then, with P_{Loc} raising to Place, there should be no locality problem obstructing the incorporation of P into the verbal cluster.

One last thing before we move on to directional PPs. From the fact that (14b) with the r-pronoun placed to the left of *tien meter* (concretely, *er tien meter naast*) is grammatical, we can conclude that pied-piping movement of the entire CP(Place) is possible. That much is straightforward. But it would seem that the other examples in (14) are ambiguous, nothing else said, between fronting of just DegP(Place) or topicalization of the entire CP(Place). In addition, of course there are maximal projections below DegP(Place) as well that one might imagine moving as a constituent. For instance, we might imagine moving just the lexical PP or PlaceP and leaving everything else behind:

(17) a. *[naast de deur] heeft Jan tien meter gezeten
next.to the door has Jan ten meter sat
b. *[er naast] heeft Jan tien meter gezeten
there next.to has Jan ten meter sat

The sentences in (17) are crashingly bad. To capture this in an analysis of locative PPs availing itself of (9a), it seems that we must forbid movement of any of the maximal projections embedded inside CP(Place). This is effectively what Koopman assumes: She hypothesizes that, while CP(Place) is mobile (incontrovertibly so), lower (extended) projections of P cannot be moved:[10]

(18) CP(Place) is mobile; lower projections cannot be moved

This takes care of (17) immediately.[11] With (18) in place, we are basically done with locative *simple* PPs.

We are not quite done with locative PPs *tout court*, however: The reader will recall that circumpositional and complex prepositional locative PPs are possible as well (cf. (3a) and (5a), repeated here, along with (4a), which is impossible).

(3) a. *circum*positional, locative
de schutting staat om het huis heen
the fence stands around the house PRT
?de kabel ligt onder de brug door
the cable lies under the bridge through

(4) a. *complex post*positional, locative—N/A
*de auto staat de molen voorbij
the car stands the mill before-by ('past')
*de kabel ligt de brug onderdoor
the cable lies the bridge under-through

(5) a. *complex pre*positional, locative
de auto staat voorbij de molen
the car stands before-by ('past') the mill
de auto staat tegenover het huis
the car stands against-across the house

There is no explicit discussion of locative complex PPs in Koopman's chapter, which, in its discussion of complex PPs, confines itself to their directional incarnations. I briefly revisit locative (3a) and (5a) after I have laid out Koopman's analysis of directional PPs, to which I turn next. The discussion here is quite a bit more complex and variegated than it was in the case of locative PPs, as we will see.

3.2. Directional PPs

Koopman (2000) assumes that directional PPs distinguish themselves from locative PPs in having a functional head (Path) in their extended projection, and that the PathP "appendix" is the only thing that structurally differentiates between locative and directional adpositional phrases. Put differently, directional PPs are a minimal extension of the structure of locative PPs.

(19) $[_{\text{PathP}}$ Spec [Path = ø [locative]]]

This hypothesis captures in a direct way the impression that emerged from our discussion in section 2, namely that directional PPs are built upon or extensions of locative PPs.

In (19), "locative" is shorthand for the structure of the extended projection of P_{Loc} that Path takes as its complement. We have seen in section 3.1 that locative PPs can be as large as CP(Place), so the maximal structure of directional PPs, on Koopman's assumptions, is (20a). The other logical possibilities afforded by the system of functional categories devised by Koopman are the ones in (20b–d). As the following subsections demonstrate, Koopman has reason to believe that the logical possibilities in (20a–c) are indeed attested. Furthermore, I add an argument of my own, couched within Koopman's framework of assumptions, to the effect that (20d) would need to exist as well:

(20) logically possible base structures for directional PPs within Koopman's theory
a. $[_{\text{PathP}}$ Spec [Path $[_{\text{CP(Place)}}$ $\text{Spec}_{[+R]}$ $[_{\text{C(Place)}}$ $[_{\text{DegP(Place)}}$ MOD [Deg(Place) $[_{\text{PlaceP}}$ $\text{Spec}_{[+R]}$ [Place $[_{\text{PP}}$ P DP]]]]]]]]]
b. $[_{\text{PathP}}$ Spec [Path $[_{\text{DegP(Place)}}$ MOD [Deg(Place) $[_{\text{PlaceP}}$ $\text{Spec}_{[+R]}$[Place $[_{\text{PP}}$ P DP]]]]]]]
c. $[_{\text{PathP}}$ Spec [Path $[_{\text{PlaceP}}$ $\text{Spec}_{[+R]}$ [Place $[_{\text{PP}}$ P DP]]]]]
d. $[_{\text{PathP}}$ Spec [Path $[_{\text{PP}}$ P DP]]]

3.2.1. Prepositional directional PPs

Path's complement is a full-fledged CP(Place) in directional *pre*PPs (as in (20a)). The head of the directional extension, Path^0, is null in prepositional directional PPs. Since we have already discovered that P_{Loc} can never raise beyond Place, there is nothing that could license this null Path head from below, so to speak: Nothing could

raise up to Path and thus license it. It then follows, on the plausible assumption that null Path needs to be licensed, that the null Path head must *incorporate* into the head that selects PathP.

The need for null Path to incorporate into the head that selects its projection has at least two immediately beneficial consequences. First, it allows us to analyze the sensitivity of directional *pre*PPs to the lexical properties of the selecting verb (recall the "a" examples in (7)–(10), repeated here) in terms of the latter's (in)ability to incorporate null Path: Verbs that support a directional interpretation for a *pre*PP in their complement are capable of incorporating Path, whereas verbs that fail as incorporators do not support a directional reading for their simple *pre*PP complements. Concretely, then, with reference to the facts in (7)–(10), what we can say is that *klimmen* is an incorporator, *lopen* is not, and *wandelen* is only for some speakers:

(7a)	Jan liep in de kamer Jan walked in the room	unambiguous: locative only
(8a)	Jan klom in de boom Jan climbed in the tree	ambiguous: locative—'climb (while) in the tree' directional—'climb into the tree'
(9a)	Jan klom op de heuvel Jan climbed on the hill	ambiguous: locative—'climb (while) on the hill' directional—'climb onto the hill'
(10a)	Jan wandelde op de heuvel Jan walked on the hill	%ambiguous: locative—'walk (while) on the hill' %directional—'walk onto the hill'

Koopman's (2000) analysis of directional *pre*PPs also makes sense of another selectional restriction, this time of a categorial (and categorical) nature. She argues that the need for null Path to incorporate, in conjunction with the assumption that N cannot incorporate øPath ('silent Path must attach to a –N category'[12]), is what rules out a directional interpretation for (21a) while still permitting a directional reading for examples of the type in (1b), where the head that selects PathP is verbal.

(21)	a. de weg/wandeling op de heuvel the road/walk$_N$ on the hill	unambiguous: locative only
	b. de weg/wandeling de heuvel op the road/walk$_N$ the hill on	unambiguous: directional only

This is an important result. It is indeed the case that *pre*PPs can receive a directional interpretation only when they occur in the complement of V; in the complement of N, directional PPs must be *post*positional—that is, generalization (6d), which as it stands is false (because it does not hold in verbal environments), holds for adnominal PPs. Koopman's (2000) null-headed PathP structure for directional *pre*PPs derives the unavailability of a directional interpretation for a prepositional PP in N's complement. However, (21b) is grammatical: A *post*positional PP in N's complement does support a directional interpretation. This suggests, in light of Koopman's discussion of (21a), that in *post*positional directional PPs, the Path head is not

dependent for its licensing upon an outside licenser: It gets licensed from within. I turn to this in section 3.2.3.

Before moving on to postpositional directional PPs, however, let me complete the discussion of directional *pre*PPs by briefly addressing a few remaining properties of these phrases. First, consider the fact that, just like locative prePs, directional prePs cannot incorporate into the verbal cluster—even though null Path does incorporate, of course, but without disturbing the surface word order. That the physical preposition cannot incorporate follows from the fact that, in directional prePPs, Path takes a full CP(Place) complement, with P_{Loc}, the lexical P, being unable to reach Path and hence being unable to ever maneuver itself into a position that is local to the selecting verb. The fact, then, that *voor* 'before, in front of', which is exclusively *pre*positional (recall (1) vs. (2)), cannot surface in between the two verbs that make up the verbal cluster in (22) follows straightforwardly:

(22) ik geloof dat de taxi <✓voor> de deur <*voor> komt <*voor> rijden
I believe that the taxi before the door before comes before drive
'I believe the taxi will pull up in front of our door'

Not only in this respect but also in *all* relevant internal respects directional *pre*PPs are expected to behave exactly like locative prePPs: Their structures, after all, are internally entirely identical all the way up to CP(Place); there is no lexical material introduced in $Path^0$, so the presence of PathP creates no word-order possibilities internal to the prePP over and above those observed for locative prePPs. This expectation is certainly fulfilled when it comes to the distribution of modifiers such as *tien meter* 'ten meters': These occur in all of the same positions in directional prePPs as they do in locative PPs (cf. (14)):

(23) a. [tien meter in de boom] is Jan geklommen
ten meter in the tree is Jan climbed
b. [<er> tien meter <er> in] is Jan geklommen
$there_{[+R]}$ ten meter $there_{[+R]}$ in is Jan climbed

R-word placement and incorporation in PPs that are both *strictly prepositional* and *strictly directional* introduce a complication, however. There are not many Ps that are both exclusively directional and exclusively prepositional—*naar* 'to' and *tot* 'up to' are the only uncontroversial ones that come to mind (*richting* 'toward' is also prepositional, but etymologically this is not an adposition but a noun ('direction'); I include it in the following set of examples, but the reader should be aware that *richting* certainly is not quintessentially a P). The complication presented by these exclusively prepositional directional Ps is that they do not allow r-word complements in spatial contexts—the examples in (24b) are all ungrammatical:

(24) a.	hij rijdt naar de stad	hij rijdt tot de grens	hij rijdt richting de grens
	he drives to the city	he drives up.to the border	he drives direction the border
b.	*hij rijdt er naar	*hij rijdt er tot/toe[13]	*hij rijdt er richting
	he drives $there_{[+R]}$ to	he drives $there_{[+R]}$ up.to	he drives there direction

The ungrammaticality of (24b) is not due (or at least not entirely) to some lexical accident involving the combination of these Ps and an r-word: Interestingly, *naar* and *toe* do allow r-words to their immediate left but not in *spatial* contexts:

(25) a. hij kijkt naar de film — hij komt niet tot werken
he looks to the movie — he comes not to work-inf
b. hij kijkt er naar — hij komt er niet *tot/✓toe
he looks there$_{[+R]}$ to — he comes there$_{[+R]}$ not to

Koopman's analysis of directional *pre*PPs would allow us to understand this if *naar* and its ilk (i.e., the set of strictly prepositional and strictly directional Ps) were base generated under Path^0. That would have the added benefit of explaining the fact that *naar* and other such directional Ps do not double as locatives: They are not lexicalizations of P_{Loc} or anything else in the structure up to and including CP(Place); hence, they do not have any locative incarnations. This would clearly be on the right track. Unfortunately, however, in Koopman's analysis of directional PPs, it actually will not do. For on Koopman's assumptions, PathP is the *only* piece of structure that is exclusively directional: There is no lexical P_{Dir}, nor are there any functional projections outside PathP in any of the structures in (20). So if we were to base-generate *naar* and its ilk in Path^0 and then placed PathP in the complement of a verb that is capable of incorporating Path (see earlier), we would expect it to be possible for such a verb to incorporate *naar*, but as a matter of fact, strictly prepositional and strictly directional Ps such as *naar* cannot incorporate at all:

(26) ik geloof dat Jan <✓naar> het bos <*naar> is <*naar> gelopen/gerend
I believe that Jan to the woods to is to walked/run

So Koopman has no obvious handle on strictly prepositional and strictly directional Ps such as *naar*: She cannot base-generate them in Path, for that would leave (26) unexplained (section 3.2.2 demonstrates that elements that do arguably lexicalize Path *can* incorporate into the verbal cluster), nor can she reasonably base-generate them in P_{Loc} or any of the functional heads in the locative extended projection, for that would leave her without an account of the fact that *naar* has no locative variant and that r-word placement, as in (24b), fails. The r-word facts are particularly complex in this particular empirical domain: While (24b) is indeed ungrammatical, the variant with *naar* has a grammatical counterpart that, surprisingly, includes the very same element *toe* (an allomorph of *tot*; see note 13) that we have seen is unable to support r-word placement itself. Simply put, while *naar* and *toe* are both individually incapable of licensing an r-word, when they team up, as in (27), the result is fine:

(27) hij rijdt er naar toe
he drives there$_{[+R]}$ to up.to

For Koopman, this complicates matters further: With just a single PathP outside the projection of a locative P as the defining characteristic of directional adpositional

phrases, it is difficult to accommodate two intrinsically directional (nonlocative) P elements plus an r-word outside CP(Place).

This is our first indication that Koopman's perspective on the structure of *directional* adpositional phrases is probably too restricted: More space is needed in the directional domain to make the facts fall into place. We will find additional indications to this effect in the discussion of simple postpositional, circumpositional, and complex pre- and postpositional PPs in the remainder of this section. Let me proceed, then, by considering Koopman's analysis of simple *post*positional directional PPs.

3.2.2. Postpositional directional PPs

In Koopman's (2000) account of postpositional directional PPs, P raises to Path, thereby lexicalizing Path^0 and lifting the latter's need to incorporate, and (a subpart of) the complement of Path raises to SpecPathP.[14] The grammaticality of (21b), a postpositional directional PP in an environment hostile to Path incorporation, then falls into place. Though incorporation is no longer forced once P has made its way up to Path, it remains an option whenever the head selecting PathP is [–N]. Thus, all versions of (28) are grammatical, with the ones having *in* positioned to the immediate right of *de boom* 'the tree' and between the auxiliary and the lexical verb both being derived on the basis of the structure of *post*positional directional PPs:

(28) ik geloof dat Jan <✓in> de boom <✓in> is <✓in> geklommen
I believe that Jan in the tree in is in climbed

So, in postpositional PPs, P, which is taken to originate in the same P head position that locative prepositions are born in, can apparently reach Path. However, we know from the discussion of locative PPs that P never raises to C(Place) or Deg(Place). From this combination of facts we now deduce that Path in simple postpositional PPs takes at most PlaceP as its complement, as in (20c). Since P raises to Path via Place, Koopman predicts that it should be impossible to lexicalize Place with the aid of a place modifier—a prediction that, as she points out, is borne out by the facts in (29b), contrasting minimally with (29a).

(29) a. Jan is (*boven*) in de boom geklommen
Jan is up in the tree climbed
b. Jan is (**boven*) de boom (**boven*) in geklommen

Degree modifiers (housed by DegP on Koopman's assumptions) are also predicted to be impossible in postpositional directional PPs: After all, with DegP(Place) necessarily absent from the structure of postpositional directional PPs, there is no room for modifiers like *tien meter* 'ten meters' in the tree. However, this prediction is *not* confirmed: It is perfectly possible to insert modifiers such as *tien meter* in postpositional directional PPs on either side of the noun phrase, as shown in (30):

(30) a. [tien meter de boom in] is Jan geklommen
ten meter the tree in is Jan climbed

b. [de boom tien meter in] is Jan geklommen
the tree ten meter in is Jan climbed

We thus need to return to the question of what to do with degree modifiers like *tien meter* in the syntax of directional PPs. This is a major concern of section 4 of this chapter.

To obtain postpositional word order on the basis of a structure like (20c) (which is Koopman's proposal for the structure of simple postpositional PPs), with P raising all the way up to Path, obviously there needs to be movement into SpecPathP. Koopman offers us a choice of raised constituents here: Path attracts either its PlaceP complement in its entirety or some projection contained in PlaceP. The case that interests us particularly is that of DP (P's complement) raising to SpecPathP. This case is interesting because, with DP raising to SpecPathP,[15] DP becomes eligible for subextraction from PP. Indeed, subextraction of non-r DPs is possible in postpositional directional PPs: The examples in (31a,b) are grammatical with *die*, the non-r relative pronoun:

(31) a. de boom {✓die/✓waar} Jan <in> is <in> geklommen
the tree that/where$_{[+R]}$ Jan in is in climbed
b. de heuvel {✓die/%waar} Jan <op> is <op> gewandeld
the hill that/where$_{[+R]}$ Jan on is on walked

The problem, however, is that r-word extraction from unambiguously directional PPs is not always grammatical: It succeeds in (31a), but it fails for many speakers in (31b) (cf. Helmantel 2002, 66). For Koopman, who assumes that the complement of Path in directional postpositional PPs is maximally as large as PlaceP, there is every reason to expect r-word extraction from postpositional PPs to be possible: It should be able to proceed via SpecPlaceP (see (32a), based on (20c)), a position we know can be occupied by r-words and used as an escape hatch for onward movement. While (31a) goes along with this expectation, the fact that (31b) is rejected by most speakers does not. Helmantel (2002, 66) concludes from (31b) that obligatorily postpositional PPs have Path select PP directly (as in (32b), which is based on (20d)). In this structure, there is no licensing position available for [+R] complements of P; hence, DP must be [–R]:

(32) a. [$_{\text{PathP}}$ Spec [Path [$_{\text{PlaceP}}$ *er*$_i$ [Place [$_{\text{PP}}$ P *ec*$_i$]]]]]
b. [$_{\text{PathP}}$ Spec [Path [$_{\text{PP}}$ P DP$_{[-R]}$]]]

The facts in (31) seem to suggest that (20c,d) *both* exist—and the generalization that emerges is that, in directional contexts, Ps that can be *only post*positional (like *op* in (31b), for most speakers) employ the structure in (32b) (banning r-words), while Ps that can *also* be *pre*positional (like *in* in (31a)) may employ (32a). The structures in (32a,b) actually give us the beginnings of an understanding of this generalization. The idea is the following: The presence of Place in the extended projection of P *allows* P to raise just to Place and no further and be fully licensed that way as a *pre*position. When there is no further functional structure between Place and Path,

Place+P has the *option* of raising on to Path, in which case a *post*position results. So (32a) gives rise either to a *pre*positional directional PP (with P in Place) or to a *post*positional PP (with Place+P raising on to Path). The structure in (32b), on the other hand, cannot support a prepositional output: There is no Place head to license P as a preposition; P *must* therefore raise to Path. So (32b) delivers exclusively *post*positional outputs *and* of course makes r-words strictly impossible (because there is no SpecPlaceP, the position that licenses r-words). Thus, we derive a direct correlation between P's grammaticality in a *pre*positional directional PP and the grammaticality of r-words—it is precisely those Ps that are happy to be used prepositionally in directional PPs that can accommodate, in their postpositional incarnation, a position for r-words; directional Ps that *must* (in a given context) be used *post*positionally and hence must employ (32b) do not support r-words.

This is an interesting result, incorporating Helmantel's (2002) objection to Koopman's (2000) proposal into the analysis. However, as it stands, it is incomplete: It does not yet shed light on the root causes of speaker variation with respect to (31b) and concomitantly directional (10a) (%*Jan wandelde op de heuvel* 'Jan walked onto the hill') as well. This, then, is something we need to return to.

Let me close the discussion of postpositional directional PPs by noting that, to obtain the beginnings of a result in the domain of (31), we need to revise Koopman's analysis by allowing the Path head of *post*positional directional PPs to take something smaller than PlaceP as its complement—specifically, a naked PP. So far, then, we have arrived at the following modified Koopmannian picture of the landscape simple directional PPs:

(33) simple directional PPs

a. *pre*positional
$[_{PathP}$ Spec [Path $[_{CP(Place)}$ $Spec_{[+R]}$ [C(Place) $[_{DegP(Place)}$ MOD [Deg(Place) $[_{PlaceP}$ $Spec_{[+R]}$ [Place $[_{PP}$ P DP]]]]]]]]]
→ P-to-Place and no further

b. *post*positional (I)
$[_{PathP}$ Spec [Path $[_{PlaceP}$ $Spec_{[+R]}$ [Place $[_{PP}$ P DP]]]]]
→ P-to-Place followed by Place+P-to-Path; PlaceP-to-SpecPathP or $DP_{[+R]}$-to-SpecPathP

c. *post*positional (II)
$[_{PathP}$ Spec [Path $[_{PP}$ P DP]]]
→ P-to-Path; DP-to-SpecPathP; no r-words

These three structures correspond to three of the four logical possibilities in (20) that Koopman's framework of assumptions allows for in principle (i.e., (20a,b,d)). The spectrum will be complete once we see option (20c) (in which Path takes a DegP(Place) complement) at work as well. For this, we need to discuss circumpositional directional PPs, the topic of the next subsection.

3.2.3. Circumpositional directional PPs

Let us now consider Koopman's analysis of *circum*positional directional PPs. The examples of circumpositional PPs given in section 2 are repeated here:

(3b) *circum*positional, directional

hij loopt om het huis heen	hij loopt onder de brug door
he walks around the house PRT	he walks under the bridge through

Koopman's (2000) analysis of circumpositional PPs deconstructs the circumposition as a combination of a preposition and a postposition, assuming that the postpositional part of the circumposition (*door, heen*) lexicalizes the Path head that, in prepositional directionals, is empty.[16] Since the postpositional part occupies the highest head in the extended projection of P, it may (but does not *have to*) incorporate into V, according to Koopman. She rightly notes (in note 33) that there is speaker and lexical variation here (whence the '*%*' on the incorporated *door/heen* in (34)), but she does not provide an account of this variation within her analysis.

(34) a. dat Jan onder de brug <door> is <%door> gelopen
that Jan under the bridge through is through walked
b. dat Jan om het huis <heen> is <%heen> gelopen
that Jan around the house PRT is PRT walked

Koopman further assumes that, in circumpositional PPs, Path may take either CP(Place) or DegP(Place) as its complement (cf. (35)), subject to speaker variation.

(35) a. [$_{\text{PathP}}$ Spec [Path = *door/heen* [$_{\text{CP(Place)}}$ Spec$_{[+R]}$ [C(Place) [$_{\text{DegP(Place)}}$ MOD [Deg(Place) [$_{\text{PlaceP}}$ Spec$_{[+R]}$[Place [$_{\text{PP}}$ P DP]]]]]]]]]
b. [$_{\text{PathP}}$ Spec [Path = *door/heen* [$_{\text{DegP(Place}}$) MOD [Deg(Place) [$_{\text{PlaceP}}$ Spec$_{[+R]}$[Place [$_{\text{PP}}$ P DP]]]]]]]

Some speakers allow extraction of the prepositional PP part of circumpositional phrases, as in (36). For these speakers, CP(Place) selection is legitimate in contexts in which Path is overt. However, Koopman notes correctly that there is speaker variation here as well—thus, Koster (1987, 177) reports a negative judgment on (36), which I share. For speakers who do not accept (36), only DegP(Place) is legitimate in Path's complement:

(36) a. %[onder welke brug] is Jan door gelopen?
under which bridge is Jan through walked
b. %[om welk huis] is Jan heen gelopen?
around which house is Jan PRT walked

Either way, it is expected that, since the complement of Path is a large extended projection of P_{Loc}, raising P's DP complement out of a circumpositional PP without converting it into an r-word should be impossible. This is correct: For an exclusively circumpositional case such as *om . . . heen*, only r-word extraction succeeds:

(37) a. de brug {?die/✓waar} Jan onder door is gelopen
the bridge that/where$_{[+R]}$ Jan under through is walked

b. het huis {*dat/✓waar} Jan om heen is gelopen
the house that/where$_{[+R]}$ Jan around PRT is walked

That (37a) is not impossible with *die* (though somewhat marked compared to its version with *waar*) has to do with the fact that the combination of *onder* and *door* is not exclusively circumpositional: It doubles as a complex postposition. I turn to this in section 3.2.4.

Staying with r-words for a moment, let me note that Koopman's account of circumpositional PPs does not predict any speaker variation with respect to the grammaticality of the extraction of r-words from them, as in (37)—correctly so. However, when it comes to the placement of r-words *within* the circumpositional PP, Koopman's analysis predicts, as Hedde Zeijlstra (personal communication) points out, that for those speakers who reject (36), it should be impossible to put an r-pronoun to the left of a degree modifier like *tien meter* 'ten meters' in a circumpositional PP (cf. (38)). This prediction is false, however: For all speakers, including those (such as me) who reject (36), placement of *er* to the left of *tien meter* is grammatical (in fact, the preferred option, vis-à-vis the alternative).

(38) [<er> tien meter <er> onder door] is Jan gelopen
there$_{[+R]}$ ten meter there$_{[+R]}$ under through is Jan walked

To get the desired surface word order in which the prepositional PP precedes the postpositional element base-generated in Path, Koopman has the complement of Path (i.e., CP(Place) or DegP(Place), depending on the speaker) raise to SpecPathP. As a result of the fact that the prepositional phrase ends up in a left-branch position, the prepositional part of circumposition is not incorporable (cf. (39)):

(39) a. dat Jan <onder> de brug door is <*onder> gelopen
that Jan under the bridge through is under walked
b. dat Jan <om> het huis heen is <*om> gelopen
that Jan around the house PRT is around walked

The judgment on (39) is robust and not subject to speaker variation, as expected: Regardless of whether Path's complement is CP(Place) or DegP(Place), it will have to move to SpecPathP in the course of the derivation, as a result of which it becomes opaque. The fact, however, that there is speaker variation in the domain of (34) and (36) is less straightforward—especially because the speaker variation seen in (34) and that seen in (36) are to a significant degree *correlated* (i.e., many speakers who reject (34) with incorporation also reject (36) and vice versa). The trick, therefore, is to find an account for these facts that not only sheds light on the speaker variation per se but also manages to relate the two domains of speaker variation in circumpositional PPs to each other.

Koopman's account is not optimally equipped for that task. We have already seen that her account of (36) is problematic (recall (38)). Moreover, Koopman has no account for the variation in (34) at all: (i) All speakers allow particles to incorporate into V (since all speakers of Dutch allow directional prepositional PPs in the relevant

contexts), (ii) all speakers allow particles to incorporate into V (the postpositional part of circumpositions is homophonous to a particle), and (iii) all speakers allow incorporation into V of postpositions, as we saw in section 3.2.2.

Before leaving the topic of circumpositional PPs, let me briefly address the fact (noted in section 2) that, as (3a) shows, circumpositional PPs are not limited to *directional* interpretations.

(3a) *circum*positional, locative

de schutting staat om het huis heen	?de kabel ligt onder de brug door
the fence stands around the house PRT	the cable lies under the bridge through

Koopman's analysis, by treating the postpositional portion of circumpositional PPs as a lexicalization of Path, seems to have no obvious way of extending to apparently *locative* circumpositional PPs of the type in (3a)—unless these are in fact treated as *directional* PPs. This may not be an unreasonable move for cases like (3a). There *is*, after all, a clear sense of a *trajectory*: Though the fence is not *going* anywhere, it does cover the entire trajectory defined by the circumference of the house, and though the cable is not *going* anywhere, it, too, is laid out along a trajectory that runs from one side of the bridge to the other. We may be dealing here with paths after all, therefore—even though there is no sense of *motion* along the path. The same is true, for all intents and purposes, in adnominal cases like (40) and in familiar metaphorical motion cases like (41) and its English translation:

(40)

het pad om het huis heen	de weg onder de brug door
the path around the house PRT	the road under the bridge through

(41) de weg loopt om het meer heen
the road walks around the lake PRT
'the road runs all around the lake'

As Goldberg and Jackendoff (2004, 543) point out, these latter cases are stative (despite the fact that they feature a motion verb) and are "indistinguishable from path resultatives in both syntactic structure and argument-structure properties." It seems plausible to me to assimilate them fully to eventive, directional constructions with a path and to assume that the particle (*heen, door*) lexicalizes the Path head.

3.2.4. Complex postpositional directional PPs

At the end of this inventory of directional adpositional phrases in Dutch, let me say a few words about alternations of the type in (42) (cf. (3b)–(4b)) and (43) (cf. (4b)–(5b)).[17]

(42) a. hij loopt onder de brug door
he walks under the bridge through
b. hij loopt de brug onderdoor
he walks the bridge under-through

(43) a. de auto rijdt voorbij de molen
the car drives before-by ('past') the mill
b. de auto rijdt de molen voorbij
the car drives the mill before-by ('past')

The example in (42a) is a straightforward case of a directional circumpositional PP, with *door* sitting in Path and the prepositional phrase raising into SpecPathP. For Koopman (2000), the complement of Path in circumpositional PPs is either a full-fledged CP(Place) or a DegP(Place) (cf. (35))—the former is a possibility only for speakers who allow the prepositional phrase embedded in the circumpositional phrase to undergo pied-piping movement (recall (36)).

Since, as we discovered in section 2.1.2 in the discussion of locative prepositional phrases, P never raises to Deg(Place), let alone to C(Place), a structure in which Path takes a CP(Place) or DegP(Place) complement will not be able to accommodate the complex postpositional case in (42b). To get (42b), we need to raise the preposition *onder* up to *door* in Path—and for that to be possible, the complement of Path should be no larger than PlaceP (recall the discussion of simple postpositional phrases in section 3.2.2). For the particular case of *onder* 'under', whose prepositional incarnation supports a directional reading and which, concomitantly, allows r-words (cf. *er onder door* 'there$_{[+R]}$ under through'), we should allow Path's complement to be as large as PlaceP (cf. (44), which mimics (20c)). Then P will raise to Place, as it always does on Koopman's analysis, and Place+P can subsequently raise further up to Path. The PlaceP in the complement of Path will raise to SpecPathP to procure the desired postpositional surface order:

(44) [$_{\text{PathP}}$ Spec [Path = *door* [$_{\text{PlaceP}}$ Spec$_{[+R]}$[Place [$_{\text{PP}}$ P = *onder* DP]]]]]

There is no a priori reason to believe that the complement of Path = *door* must always be as large as PlaceP: To get the desired complex postpositional output, it should also be possible for Path = *door* to take a simple PP complement, with P raising straight to Path, and P's DP complement raising to SpecPathP:

(45) [$_{\text{PathP}}$ Spec [Path = *door* [$_{\text{PP}}$ P = *onder* DP[–R]]]]

The two structures are equally legitimate (recall (20c,d)); (44) optionally delivers a complex postposition (because P = *onder* does not *have to* raise any further than Place), whereas (45) always does so. Even when they both yield complex postpositional outputs, however, (44) and (45) continue to make different empirical predictions: In (44), an r-word is legitimate, whereas in (45) it is not; and in (45), extraction of P's non-r-word complement should be possible, while in (44) extraction should be possible only for r-words. Since (44) and (45) are both grammatical structures that deliver complex postpositional PPs, it is expected, therefore, that complex postpositions should exhibit significant flexibility with respect to r-words and extraction. This is borne out both for *onder* + *door* and for *voor* + *bij*, the other case of complex postpositions mentioned in (43):[18]

(46) a. de brug {?die/✓waar} Jan onder door is gelopen (= (37a))
the bridge that/where$_{[+R]}$ Jan under through is walked
b. de molen {✓die/✓waar} Jan voorbij is gelopen
the mill that/where$_{[+R]}$ Jan before-by ('past') is walked

The case of (43) is rather harder than (42). Though *voor* and *bij* can each independently be used as particles (*hij stelde het haar voor* 'he posed it her pro-, i.e., he proposed it to her'; *hij legde het conflict bij* 'he laid the conflict by, i.e., he resolved the conflict'), neither one seems to be an obvious candidate for lexicalizing Path^0 in (44) or (45): *Voor* 'before' and *bij* 'by', to the extent that they can lexically encode paths to begin with, do not seem to bring in the desired path for the semantics of *voorbij*, which is 'past, beyond'. Both *voor* and *bij* seem to be places, not paths—something that seems to be confirmed by the fact that *voorbij*, qua complex *pre*P, supports a purely locative reading (cf. (5a)). So it seems that we should accommodate both *voor* and *bij* in the *locative* structural domain. Three logical possibilities now present themselves: (i) *Voor* spells out P_{Loc}, and *bij* lexicalizes Place, the two adpositional elements coming together via left-adjoining movement of P_{Loc} = *voor* to Place = *bij* (in keeping with antisymmetry; Kayne 1994);[19] or (ii) (as Guglielmo Cinque, personal communication, suggests) *bij* is itself a P_{Loc} that takes a (probably nominal) complement containing *voor* ('at (= *bij*) the PLACE before (= *voor*) *x*'), with movement once again delivering surface *voorbij*; or (iii) *voor* + *bij* is treated as a complex P_{Loc}: [$_P$ *voor* + *bij*]. Let me pursue option (i) first and see where it can take us. It is depicted in (47). With *voor* raising to *bij* and left-adjoining to the latter, (47) delivers *voorbij*, and with *voorbij* subsequently raising on, as a complex unit, to Path, we derive complex postpositional *voorbij:*

(47) [$_{PathP}$ Spec [Path = ø [$_{PlaceP}$ Spec$_{[+R]}$ [Place = *bij* [$_{PP}$ P = *voor* DP]]]]]

This structure makes reasonable sense of the examples in (43): It takes care of the oscillation between pre- and postpositional placement of *voorbij*, and it accommodates the fact that, in its prepositional incarnation, it supports a purely locative interpretation alongside the directional one discussed earlier. However, (47) cannot easily account for the fact that (46b) is grammatical both with *die*[–R] and with *waar*[+R]. The grammaticality of the *waar* version is of course easy to analyze: PlaceP makes a [+R] specifier position available through which *waar* can transit. The fact that *die* is grammatical as well, however, poses a problem: Bypassing the [+R] SpecPlaceP position on the way out of PlaceP would, *ceteris paribus* (but recall note 15), threaten to deprive us of an account of the fact that locative PPs categorically resist extraction of [–R] complements of P. The *die* variant of (46b) can be readily accommodated if we forego the projection of PlaceP altogether—but then *bij* cannot be the lexicalization of Place^0, of course. We could then decide to shift the structure one notch down, so to speak, pursuing option (ii), or we could (perhaps optionally) treat *voor* + *bij* as a complex P_{Loc}, as in (iii). The former will make raising of *voor* to *bij* difficult if *voor* is indeed embedded in a noun phrase with an abstract PLACE head. Finding ways of (dis)proving option (iii) is not easy; I leave this for further research. The question of what to do with the *die* version of (46b) aside, however, it seems

reasonable to suppose that (47) represents a possible structure underlying the examples in (43a,b).

So far we have been reasonably successful in applying Koopman's analysis to complex pre- and postpositional PPs. There is one empirical datum about these PPs, however, that the analysis developed so far has severe trouble handling: the fact that they are readily modified by degree modifiers of the type *tien meter*, which Koopman places in the specifier position of a DegP projected outside PlaceP. Consider the examples in (48) and (49):

(48) [<tien meter> de brug <tien meter> onder door] is Jan gelopen
ten meter the bridge ten meter under through is Jan walked

(49) a. [tien meter voorbij de molen] is de auto gereden
ten meter before-by ('past') the mill is the car driven
b. [<tien meter> de molen <tien meter> voorbij] is de auto gereden
ten meter the mill ten meter before-by ('past') is the car driven

In section 3.2.3 we discovered that Koopman encountered some trouble accounting for the absence of speaker variation in the combination of r-words and degree modifiers in circumpositional PPs (recall (38)). What we have just found out is more serious, however, and (not surprisingly) on a par with the problem we ran into in section 3.2.2 in the discussion of simple postpositional PPs: On Koopman's assumptions, there should not be space at all for modifiers of the type *tien meter* 'ten meters' in complex postpositional PPs of the type in (48a) and (49b), whose structures are given in (44)/(45) and (47). It is not difficult to accommodate (49a): Prepositional *voorbij* of course allows a DegP(Place) and even a CP(Place) in the complement of Path because *voorbij* does not raise up to Path. However, in (48) and (49b), the complex P must make its way up to Path, as in all postpositional PPs, on Koopman's assumptions—and such raising is impossible in the presence of a DegP(Place) or CP(Place): P_{Loc} cannot raise to Deg or C(Place).

It is clear, therefore, that the account of degree modification in adpositional phrases must be overhauled: As it stands, Koopman's (2000) analysis makes incorrect predictions with respect to the distribution of these modifiers. Revising Koopman's analysis on this point is a major concern of mine in section 4.

3.2.5. Directional PPs: Interim summary, problems, and prospects

At the end of this in-depth discussion of Dutch directional PP types, taking its cue from Koopman (2000) but going beyond it in a number of ways, let me provide a summary of the structures we have encountered:

(50) directional PPs: interim summary
a. [$_{PathP}$ Spec [Path [$_{CP(Place)}$ Spec$_{[+R]}$ [C(Place) [$_{DegP(Place)}$ MOD [Deg(Place) [$_{PlaceP}$ Spec$_{[+R]}$ [Place [$_{PP}$ P DP]]]]]]]]]
b. [$_{PathP}$ Spec [Path [$_{DegP(Place)}$ MOD [Deg(Place) [$_{PlaceP}$ Spec$_{[+R]}$ [Place [$_{PP}$ P DP]]]]]]]

c. [$_{PathP}$ Spec [Path [$_{PlaceP}$ Spec$_{[+R]}$ [Place [$_{PP}$ P DP]]]]]
d. [$_{PathP}$ Spec [Path [$_{PP}$ P DP]]]

All four logically possible complement types manifest themselves. Assuming that Path is a functional element and hence cannot license an argument directly, it is logically impossible for Path to select anything smaller than PP—so (50d) is the smallest possible complementation structure for Path. We have seen it attested in simple and complex postpositional directional PPs from which non-r-words can be extracted. One rung up the ladder of complexity, we find (50c), which is at work in postpositional PPs that allow r-words, and in complex pre/postpositional PPs of the type discussed in section 3.2.4. The structure in (50b) is proposed by Koopman (2000) as one of the options for circumpositional PPs—and there is no reason that it should not be available for simple prepositional directionals as well. For both circumpositional and simple prepositional directional PPs, we finally need to countenance the maximally complex structure in (50a) as well, to allow for extraction (which, on Koopman's assumptions, is restricted to CP(Place)—the counterpart, in the adpositional domain, of CP and DP).

With these structures in place, we have basically covered the entire spectrum of directional adpositional phrases in Dutch.[20] However, we have discovered that several problems need our immediate attention:

• In section 3.2.1, it was noted that Koopman's analysis has trouble accounting for the ungrammaticality of r-words in simple directional PPs that are strictly prepositional (see (24)) and for the fact that, when additional directional material is inserted, r-words become grammatical (see (27)). The trouble here is caused by the fact that, on Koopman's assumptions, PathP is the *only* piece of structure that is exclusively directional.

(24) a.	hij rijdt naar de stad he drives to the city	hij rijdt tot de grens he drives up.to the border	hij rijdt richting de grens he drives direction the border
b.	*hij rijdt er naar he drives there$_{[+R]}$ to	*hij rijdt er tot/toe he drives there$_{[+R]}$ up.to	*hij rijdt er richting he drives there direction

(27) hij rijdt er naar toe
he drives there$_{[+R]}$ to up.to

• In sections 3.2.2 and 3.2.3, we encountered a couple of cases of speaker variation that are not readily accommodated by Koopman's analysis. What is needed, it seems, is an analysis that can provide an integrated account of the various points of speaker variation, illustrated in (31), (34), and (36).

(31) a. de boom {✓die/✓waar} Jan <in> is <in> geklommen
the tree that/where$_{[+R]}$ Jan in is in climbed
b. de heuvel {✓die/%waar} Jan <op> is <op> gewandeld
the hill that/where$_{[+R]}$ Jan on is on walked

(34) a. dat Jan onder de brug <door> is <%door> gelopen
that Jan under the bridge through is through walked
b. dat Jan om het huis <heen> is <%heen> gelopen
that Jan around the house PRT is PRT walked

(36) a. %[onder welke brug] is Jan door gelopen?
under which bridge is Jan through walked?
b. %[om welk huis] is Jan heen gelopen?
around which house is Jan PRT walked?

• In sections 3.2.2 through 3.2.4, we discovered that Koopman's analysis meets with several problems in the area of degree modification of directional PPs. Her analysis cannot accommodate the facts in (30), (48), and (49b) with (simple or complex) postpositional directional PPs at all. Furthermore, it wrongly predicts that the acceptability of (38) with *er* placed to the left of *tien meter* 'ten meters' should be subject to speaker variation (since Koopman assumes that only some speakers allow a full CP(Place), with a [+R] specifier outside DegP(Place), in the complement of Path in circumpositional PPs).

(30) a. [tien meter de boom in] is Jan geklommen
ten meter the tree in is Jan climbed
b. [de boom tien meter in] is Jan geklommen
the tree ten meterin is Jan climbed

(38) [<er> tien meter <er> onder door] is Jan gelopen
there$_{[+R]}$ ten meter there$_{[+R]}$ under through is Jan walked

(48) [<tien meter> de brug <tien meter> onder door] is Jan gelopen
ten meter the bridge ten meter under through is Jan walked

(49) a. [tien meter voorbij de molen] is de auto gereden
ten meter before-by ('past') the mill is the car driven
b. [<tien meter> de molen <tien meter> voorbij] is de auto gereden
ten meter the mill ten meter before-by ('past') is the car driven

All of these problems ultimately point in the direction of a need for additional functional structure in the directional portion of the extended projection of P. In what follows, I begin by laying out the additional layers of structure that are required, and then I go on to show that, with those additional layers of structure in place, it can no longer be assumed that both the locative and the directional portions of the structure of PP are part of the extended projection of a *single* lexical P head. I therefore argue for an analysis of directional PPs that assumes that these have a functional structure that is built on the lexical projection of P_{Dir}. I argue as well, on the basis of a detailed investigation of the nature of the various functional categories needed in the extended projections of P_{Loc} and P_{Dir}, that there are systematic parallels between the functional extended projections of adpositions and those of nouns and verbs.

4. Place and Path and their modifiers: Degree modification up close

In the foregoing discussion of the various types of Dutch directional adpositional phrases, we have found reason to believe that the structures in (50), all taken from or based directly on Koopman (2000), are not sufficient. Especially in the domain of degree modification, they cannot account for the range of facts we find. Let me zoom in on this problem by highlighting what I think is the key problem: the fact that sentences of the type in (51) are systematically ambiguous. In figures 3.1 and 3.2, I have brought out the ambiguity of the example in (51a) graphically; similar pictures can easily be envisaged for the examples in (51b–d), which are likewise ambiguous in ways that will be spelled out in detail for (51a).

FIGURE 3.1

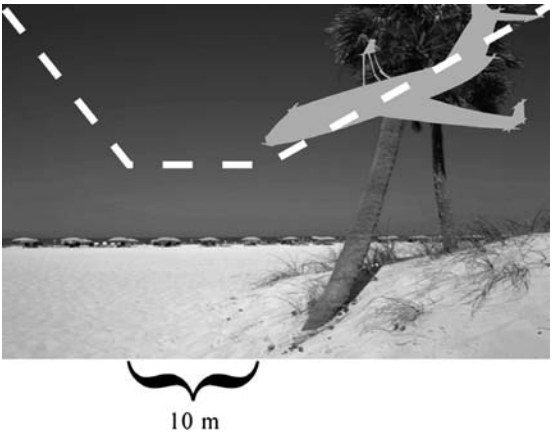

FIGURE 3.2

(51) a. het vliegtuig vloog tien meter boven het strand (langs)
the aircraft flew ten meter above the beach along
b. de rivier loopt tien meter achter het huis langs
the river runs ten meter behind the house along
c. de jongen rende tien meter onder de luifel door
the boy ran ten meter under the awning through
d. de auto reed tien meter tussen de lantaarnpalen door
the car drove ten meter between the lampposts through

One of the readings of (51a) can be paraphrased as in (52a), which says that the airplane flew ten meters above the beach (Place), all along the beach, as shown in figure 1. Alternatively, we can interpret (51a) as in figure 3.2, paraphrased in (52b): over the beach for a total distance (Path) of ten meters, at an unspecified height.

(52) a. het vliegtuig vloog tien meter *hoog* boven het strand (langs)
the aircraft flew ten meter high above the beach along
b. het vliegtuig vloog tien meter *lang*[21] boven het strand (langs)
the aircraft flew ten meter long above the beach along

The two senses of *tien meter* are combinable, as in (53), where the first instance of *tien meter* specifies the length of the path and the second the vertical distance from the beach (height).

(53) a. het vliegtuig vloog tien meter (*lang*) tien meter (*hoog*) boven het strand (langs)
the aircraft flew ten meter long ten meter high above the beach along
b. het vliegtuig vloog tien meter (*hoog*) tien meter (*lang*) boven het strand (langs)
the aircraft flew ten meter high ten meter long above the beach along

When the two modifiers (*tien meter lang* and *tien meter hoog*) combine, the most natural relative order is the one depicted in (53a). However, they can also appear in the opposite order, as in (53b). As (54) shows, only in (53a) does the sequence of modifiers form a constituent with the complex PP; in (53b), *tien meter hoog* is a VP modifier.[22]

(54) a. [tien meter *lang* tien meter *hoog* boven het strand (langs)] vloog het vliegtuig
ten meter long ten meter high above the beach along flew the aircraft
b. *[tien meter *hoog* tien meter *lang* boven het strand (langs)] vloog het vliegtuig
ten meter highten meter long above the beach along flew the aircraft

For the sake of completeness, (55) shows that the sequence of modifiers in (53a,b) never forms a constituent all by itself:

(55) a. *[tien meter *lang* tien meter *hoog*] vloog het vliegtuig boven het strand (langs)
ten meter long ten meter high flew the aircraft above the beach along
b. *[tien meter *hoog* tien meter *lang*] vloog et vliegtuig boven het strand (langs)
ten meter high ten meter long flew the aircraft above the beach along

When we now direct our attention to (51′), featuring the complex pre-/postpositions *bovenlangs*, *achterlangs*, and *onderdoor*,[23] we find that it is no longer possible to combine two tokens of *tien meter* and that, concomitantly, the sentences in (51′) are not ambiguous: Only the path-related reading of the degree modifier seems to survive when the two Ps amalgamate into a complex pre- or postposition.

(51′) a. %het vliegtuig vloog tien meter (??tien meter) <bovenlangs> het strand <bovenlangs>
the aircraft flew ten meter ten meter above-along the beach above-along
b. %de rivier loopt tien meter (*tien meter) <achterlangs> het huis <achterlangs>
the river runs ten meter ten meter the house behind-along
c. de jongen rende tien meter (*tien meter) <*onderdoor> de luifel <onderdoor>
the boy ran ten meter ten meter under the awning through

I personally find this particularly clear in the examples in (51′b) and (51′c)—due at least in part to the fact that I accept neither version of (51′a) without qualification (recall note 23). So let me discuss this effect with reference to the b and c examples in (51′), for which I believe the effect is clear. In (51′b), *tien meter* can specify only the length of the stretch along which the river flows behind the house (making a sudden turn away from the house beyond this ten-meter stretch) and at an unspecified distance behind the house; it cannot quantify the (constant) distance between the house and the river. Similarly, in (51′c), *tien meter* tells us the distance covered by the boy underneath the awning; it does not say anything about the proximity of the boy to the awning.

The formation of a complex pre- or postposition thus seems to affect the modification possibilities of degree modifiers such as *tien meter* ‘ten meters’. The fact that only the Path-related reading of the degree modifier is available when the two Ps amalgamate into a complex postposition is what is expected on the assumption that complex Ps are the result of moving one P up to the other: Generating a DegP(Place) in the complement of Path would prohibit movement of P up to Path (cf. Koopman’s 2000 generalization that P never raises to Deg(Place)). The only way to accommodate a Path modifier is to have it sit in the specifier of DegP(Path), outside PathP—a projection that should therefore be added to the repertoire of functional categories in the adpositional domain.

So far, the evidence we have surveyed reveals that there must be separate insertion sites for Place modifiers and Path modifiers, that both Place modifiers and Path modifiers can form a constituent with the complex PP, and that whenever they do, Path modifiers must precede Place modifiers. The facts in (55) show that the Path and Place modifiers do not adjoin one another. In addition, (51′) indicates that the presence of Place modifiers obstructs the formation of complex pre- and postpositions, whereas that of Path modifiers does not. All in all, it is clear that we need *two* positions in the tree for degree modifiers—one outside PlaceP (Koopman’s DegP(Place), which is already in place) and one outside PathP (let us call it DegP(Path) for the time being).

There is at least one additional projection needed as well. For degree modifiers can occur on either side of r-words, *both* when they modify Place *and* when they are Path modifiers. Consider (56):

(56) a. het vliegtuig vloog <*er*> tien meter *lang* <*er*> tien meter *hoog* <*er*> boven (langs)
the aircraft flew there ten meter long there ten meter high there above along
b. [<*er*> tien meter *lang* <*er*> tien meter *hoog* <*er*> boven (langs)] vloog het vliegtuig
there ten meter long there ten meter high there above along flew the aircraft

In light of the data in (56), we need landing sites for r-movement to the right of Deg(Place) (Koopman's SpecPlaceP), to the left of Deg(Place) (Koopman's SpecCP(Place)), *and*, crucially, to the left of Deg(Path). This last position for r-words is not accommodated if we just add a DegP(Path) outside PathP. Let us take the landing site of r-movement to the left of degree modifiers to be consistently a SpecCP position. We know that it is a SpecCP position in the locative domain, so let us assume that it is a SpecCP position in the directional domain as well. Putting all this together, we are then led to postulate a CP(Path) outside of DegP(Path). The interim result is (57):

(57) $[_{CP(Path)}$[C(Path) $[_{DegP(Path)}$ Deg(Path) $[_{PathP}$ [Path $[_{CP(Place)}$ [C(Place) $[_{DegP(Place)}$ [Deg(Place) $[_{PlaceP}$ [Place $[_{PP}$ [P DP]]]]]]]]]]]]

We have now posited two full-blown functional sequences leading up to CP, one for Place and one for Path, in the extended projection of just a *single* lexical head: P. This is not right. The structure in (57) is ill formed: No single lexical head supports two extended projections that are simultaneously present. This entails that, in order to accommodate the full array of modification and r-word placement possibilities of directional PPs, the path domain must be an extended projection of a lexical P head in its own right. In other words, (57) should be revised as in (58), with a lexical PP in between Path and CP(Place) and with the projections outside PP_{Dir} serving as members of the extended projection of P_{Dir}, the directional counterpart to P_{Loc}.

(58) $[_{CP(Path)}$ [C(Path) $[_{DegP(Path)}$ Deg(Path) $[_{PathP}$ [Path $[_{PP}$ [P_{Dir} $[_{CP(Place)}$ [C(Place) $[_{DegP(Place)}$ [Deg(Place) $[_{PlaceP}$ [Place $[_{PP}$ [P_{Loc} DP]]]]]]]]]]]]]]]

With this in place as the maximal structure for directional PPs, still based on Koopman's (2000) original proposal, it becomes a straightforward matter to account for the placement of path modifiers, which caused us such trouble on Koopman's original assumptions: There is now a full complement of functional projections in the Path domain to those belonging to the Place domain. In section 5.3.2 I return to the problem of speaker variation on a number of points in the syntax of post- and circumpositional PPs.

5. Extended projections and the typology of adpositional phrase structures

The structure of directional PPs arguably is not always as elaborate as in (58): The complement of the upstairs P_{Dir} is not necessarily a full-fledged CP(Place), nor is P_{Dir} necessarily dominated by an extended projection. To get a better understanding of

what the options are, in section 5.1 I juxtapose the extended projections of verbs, nouns, and adpositions with an eye toward getting a better sense of the nature of the various functional projections in P's extended domain. Against the background of our findings on this point, I then survey the range of complement types that P_{Dir} can take.

5.1. Comparing the extended projections of P, V, and N: A typology of extended projections

What are the correspondents of the functional projections in the extended projections of P_{Loc} and P_{Dir} in the extended projections of verbs and nouns, which are relatively better understood? I take it to be uncontroversial that the extended projection of the lexical head V includes, at its core, the following three functional projections:

- a projection for aspect, $Asp^{[EVENT]}$
- a projection for temporal deixis (making a distinction between 'now', 'past', and 'future'), $Dx^{[TENSE]}$
- a projection for a complementizer (harboring the illocutionary *force* of the sentence), $C^{[FORCE]}$

These projections are organized as in (59a), with the aspectual projection closest to the lexical core and the CP in outermost position, topping off the extended projection of V. For noun phrases, a similar organization is readily defended, as depicted in (59b). The NumP recognized by many researchers since at least Ritter (1991) performs the role of aspect in the verb's extended projection (the *mass/count* distinction, which Num regulates, is parallel to the *delimited/nondelimited* distinction in the verbal domain—see Verkuyl 1993 on the notion of "quantized" reference); to bring out the parallelism between verbal aspect and nominal aspect, I relabel NumP as $Asp^{[NUM]}P$. Personal deixis, $Dx^{[PERSON]}$ (making a distinction between 'me', 'you', and 'other'), is the counterpart to temporal deixis ('present, 'past', and 'future') in the verbal domain. Finally, D is the functional equivalent of C; I label it $C^{[DEF]}$ to register the fact that it serves to top off the noun's extended projection like complementizers do in the verbal domain and to express the fact that the determiner head brings in definiteness (comparable to force in the verbal domain).

(59) a. $[_{CP}\ C^{[FORCE]}\ [_{DxP}\ Dx^{[TENSE]}\ [_{AspP}\ Asp^{[EVENT]}\ [_{VP}\ V. . .]]]]$
b. $[_{CP}\ C^{[DEF]}\ [_{DxP}\ Dx^{[PERSON]}\ [_{AspP}\ Asp^{[NUM]}\ [_{NP}\ N. . .]]]]$
c. $[_{CP}\ C^{[SPACE]}\ [_{DxP}\ Dx^{[SPACE]}\ [_{AspP}\ Asp^{[SPACE]}\ [_{PP}\ P. . .]]]]$

Extending this line of thought into the prepositional domain, as in (59c), we are led to recognize an aspectual projection in the immediate vicinity of the lexical projection of P as well: $Asp^{[SPACE]}$. The head of this aspectual projection encodes the difference between *locative* and *directional* Ps in a way similar to the distinction made by the verbal aspect head between *stative* and *dynamic* Vs. Thus, Koopman's PlaceP and PathP are readily identified as two sides of the same aspectual coin: spatial aspect ($Asp^{[SPACE]}$). Both $Asp^{[PLACE]}$ (locative aspect) and $Asp^{[PATH]}$ (directional aspect)

come in *delimited/bounded* and *nondelimited/unbounded* forms. For Asp[PATH], this is immediately apparent (both *walk into the house* and *walk around the house* involve a Path-denoting PP, but while the former Path is bounded, the latter is not (inherently); see esp. Zwarts 2005b). For locative Asp[PLACE], Tortora (2006) has presented cogent arguments for a bounded/unbounded distinction as well—noting, among many other things, that the Italian locative PPs *sopra il tavolo* 'on the table' and *sopra al tavolo* 'on to-the table' differ in that in the former the figure is at a specific point on the table (punctual, bounded location), whereas in the latter it is spread out all over the table (nonpunctual, unbounded location). There is ample reason to believe, therefore, that spatial aspect (Asp[SPACE]) exists and comes in two flavors, Asp[PLACE] and Asp[PATH]. Topping off the extended projection of P is another CP, Koopman's CP(Place), and, for directionals, the CP(Path) that I introduced in section 4. In between CP and AspP, once again, is a projection for deixis, Dx[SPACE], distinguishing (analogously to what happens in the verbal and nominal domains) between 'here' ('at the speaker') and 'there' ('not at the speaker') in the locative domain and, for directionals, between orientation 'toward the speaker' and 'away from the speaker'.

Dutch and present-day English lexically underdetermine the spatial deixis axis: The distinction between 'here' and 'there' is not matched by one between orientation 'toward the speaker' and 'away from the speaker' (cf. archaic English *hither* and *thither*, respectively). German, on the other hand, possesses a sufficiently rich lexicon to be able to make the relevant deictic distinctions in both the locative and the directional realm:

(60)		[PROXIMAL]	[DISTAL]	(German)
a.	Asp[PLACE]	*hier*	*da/dort*	
b.	Asp[PATH]	*her*	*hin*	

The particles *her* and *hin* (see, e.g., Van Riemsdijk and Huybregts 2001) make precisely the kind of deictic distinction we would expect to find in the domain of directional adpositional phrases. In complex adpositional phrases such as (61a,b), these particles co-occur with two adpositional elements, attaching to the postP:

(61) a. auf das Dach hinauf/über/unter
on the-ACC roof DXPRT-on/over/under
b. aus dem Haus heraus
out.of the-DAT house DXPRT-out.of

I do not have sufficient space in this chapter to develop the syntax of (61a,b) and similar circumpositional PPs in German in any detail.[24] Suffice it to say that the particles *her* and *hin* seen in these examples are the obvious candidates for lexicalizing the directional incarnation of the head Dx[SPACE].

Hungarian *ide* 'hither, toward the speaker' and *oda* 'thither, away from the speaker' are similar to German *her* and *hin*. They can perform the same aspectual operator functions that adpositions can perform as well, and in this respect, the directional Dx[SPACE] particles are entirely on a par with their locative counterparts, *itt* 'here'

and *ott* 'there'. Thus, consider the pairs in (62) and (63) (adapted from É. Kiss 2000, 192–93):

(62)	a.	János	alá	futott	a	fának	(Hungarian)
		János	to.under-POSS	ran	the	tree-DAT	
	b.	János	oda	futott	a	fa	alá
		János	to.there	ran	the	tree	under
		both: 'János ran/has run under the tree'					

(63)	a.	János	mellette	futott	a	pataknak	
		János	near-POSS	ran	the	stream-DAT	
	b.	János	ott	futott	a	patak	mellett
		János	there	ran	the	stream	near
		both: 'János was running near the stream'					

Without going into the (considerably more complicated) details of these Hungarian alternations, what we can say is that in the "a" sentences, the adpositional element (*alá*, *mellette*) itself performs the aspectual role of verbal prefix by raising into the aspectual domain of the verb, whereas in the "b" sentences this aspectual role is played by the deictic particles, *ott* and *oda*, with the adposition staying further down inside the complex PP (= $CP^{[SPACE]}$). The relevance of these Hungarian examples in the context of our discussion in this section lies specifically in the fact that the locative and directional deictic particles, *ott* 'there' and *oda* 'thither', behave exactly on a par—which plausibly suggests that they should be given the same syntactic treatment.

To sum up, we systematically find that there are functional projections for *aspect*, *deixis,* and *complementizer* elements in the extended projections of V, N, and P. Of these various functional categories, the aspectual ones have different feature contents depending on the featural properties of the specific lexical heads in whose extended projection they appear. An $Asp^{[EVENT]}$ head in the extended projection of a stative verb will be [+stative] (or [–dynamic]), whereas one in the extended projection of an eventive/dynamic verb will be [+dynamic]. An $Asp^{[NUM]}$ head in the extended projection of a mass noun will be [–plural] (in English), whereas one in the extended projection of a count noun can (but of course does not have to) be [+plural]. By the same token, an $Asp^{[SPACE]}$ head in the extended projection of a locative adposition will be [–directional], whereas one in the extended projection of a directional adposition will be [+directional]. A certain amount of aspectual "coercion" is possible in all of these domains. For nouns and verbs, this is well known: Count nouns can "become" mass (via the "universal grinder": *he got an egg* vs. *he got egg on his necktie*) and vice versa (via the "universal packager": *he likes beer* vs. *he would like a beer*). Also, activities can "become" accomplishments (*he ran (*in ten minutes)* vs. *he ran to the store (in ten minutes)*). In the adpositional domain we find similar effects: Thus, a basically locative P such as English *in* can "become" directional in certain contexts (*he stood in the room* vs. *he walked in the room*) but not in others (*he stumbled in the room* cannot "coerce" *in* into a directional interpretation; *into* is needed to express directionality here).[25]

Like the Asp head, the Dx and C heads in the extended projections of V, N, and P also vary in feature content, but they are different from Asp in that the choice of features for Dx and C is always relatively independent of the features of the lexical head. Thus, in principle every noun phrase that can be definite is compatible with both distal and proximal demonstratives (harbored by DxP, either in its head or in its specifier position, depending on language-particular and item-specific factors). Similarly, every verb is in principle compatible with present, past, and future tense (though of course there can be restrictions on the use of certain tenses: In English, for instance, the present tense is usually incompatible with episodicity). Likewise, every adpositional element can in principle be combined with either distal or proximal deixis ('at/toward the speaker' or 'not at/away from the speaker'). The same point can presumably be made for the C head as well, but I do not elaborate on this here—at least in part because of the fact that it is not entirely clear what C contributes in the adpositional domain. That there is a structural need for a C-projection outside DxP in the adpositional domain is clear: Its specifier provides a landing site and an escape hatch for movement. However, the (inherent or derived) feature content of the head of this projection is still largely obscure.

Now that we have identified the middle functional projection in the extended projection of P as Dx[SPACE]P, the counterpart to Dx[PERSON]P in the noun phrase, and Dx[TENSE]P (aka TP) in the clause, there is no special relationship any longer between this middle functional projection and the insertion site of degree modifiers such as *ten meters*. It may still be the case that these modifiers appear in the projection of Dx[SPACE] (Koopman's Deg(Place) and my Deg(Path) in section 4). However, the raison d'être for Dx[SPACE]P is no longer the mere need to accommodate degree modifiers. It is entirely plausible to assume that the specifier position of Dx[SPACE]P can be filled by movement of the complement of P, just like SpecDx[TENSE]P (aka SpecTP) is typically filled by movement of an argument of the verb. Temporal adverbial modifiers such as *yesterday* are commonly assumed not to be base-generated in SpecTP but instead to occupy a position adjoined to TP, and aspectual adverbial modifiers of the type *for/in x amount of time* likely adjoin AspP. It is an open question whether the kinds of modifiers Koopman places in her SpecDegP (*ten meters*) are the spatial counterparts of aspectual adverbials or of temporal modifiers instead. I proceed cautiously by keeping the differences between Koopman's analysis and mine to a minimum, and I therefore assume degree modifiers such as *ten meters* to be in a position adjoined to Dx[SPACE]P (the counterpart to Koopman's DegP).

Let me close this section by recapitulating the ways in which I have adapted Koopman's analysis and my own extension thereof (offered in section 4) from the point of view of the systematic parallelisms between the verbal, nominal, and adpositional domains. Koopman's PlaceP is now one of two instantiations of a spatial aspectual projection Asp[SPACE]P, with PathP = Asp[PATH]P as its directional twin. Her DegP(Place) has been relabeled Dx[PLACE]P and is now viewed as the adpositional equivalent of Dx[PERSON]P in the nominal domain and Dx[TENSE]P (aka TP) in the clause; it has received a sibling (Dx[PATH]P) for directional phrases, in line with our findings in section 4. CP(Place) remains in its old form, being doubled by a CP(Path) in the extended projection of directional adpositions. The maximal structures that thus emerge for locative and directional adpositional phrases are given in (64):

(64) a. $[_{CP}\ C^{[PLACE]}\ [_{DxP}\ Dx^{[PLACE]}\ [_{AspP}\ Asp^{[PLACE]}\ [_{PP}\ P_{Loc}\ \ldots]]]]$
b. $[_{CP}\ C^{[PATH]}\ [_{DxP}\ Dx^{[PATH]}\ [_{AspP}\ Asp^{[PATH]}\ [_{PP}\ P_{Dir}\ \ldots]]]]$

5.2. Complement types

With this in place, let us ask what kinds of complements P_{Dir} can take. Put differently, what can occupy the '. . .' in (64b)?[26] Here again, I look beyond adpositional phrases for the contours of an answer.

For lexical verbs that select a(n extended) projection of another verb, I argue that we find the following typology of complement types:[27]

(65) a. $V\ [_{VP}\ V\ \ldots]$
b. $*V\ [_{AspP}\ Asp\ [_{VP}\ V\ \ldots]]$
c. $V\ [_{DxP}\ Dx^{[TENSE]}\ [_{AspP}\ Asp\ [_{VP}\ V\ \ldots]]]$
d. $V\ [_{CP}\ C\ [_{DxP}\ Dx^{[TENSE]}\ [_{AspP}\ Asp\ [_{VP}\ V\ \ldots]]]]$

The structure in (65a), where the higher lexical verb takes a "naked" VP as its complement, is grammatical and is arguably attested in "clause union" or "restructuring" constructions (see Wurmbrand 2001 for extensive discussion). The lower V in this structure obligatorily incorporates into the higher V (producing the familiar "clause union" effects) in order to be licensed: V must be licensed by being included in a T chain (in the sense of Guéron and Hoekstra 1988, 1993); if V does not have a TP in its own extended projection, it must be included in the T chain of a higher verb by incorporating into that verb and forming a complex verb with it.

Verbs for which it can be argued (for instance, on the basis of their resistance to embedded sentential negation or temporal adverbial modification) that they have T-less complements cannot include perfective viewpoint Asp in their complement. Thus, to the embedded VP of a French *faire*-causative such as *je lui fais lire le livre* 'I make him read the book' it is impossible to add perfective aspect: **je lui fais avoir lu le livre* 'I make him have read the book'. The presence of perfective Asp in the complement of V demands the presence of a lower $Dx^{[TENSE]}$ as well. I take this to be indicative of a local dependency relationship between Asp and Dx.[28] In the structure in (65b), Asp and the embedded V cannot locally satisfy their need to be licensed by $Dx^{[TENSE]}$, nor can they be incorporated into the T chain headed by the matrix $Dx^{[TENSE]}$ by raising up to the higher V and incorporating into it: The lower verb cannot incorporate into the higher verb because there is a functional head (Asp) intervening between the two Vs, and (as Li 1990 shows) movement of a lexical head through a functional head up to a higher lexical head is impossible ("improper head movement"). Thus, while bearing in mind what is said in note 28, I take the structure in (65b) to be ungrammatical.

By contrast, the structures in (65c) and (65d) are well formed and well attested in the empirical facts (cf. raising and ECM infinitives with *to* for (65c) and full-fledged CP complements for (65d)). In both cases, the lower verb can be fully licensed within the complement of the higher verb: There is a T head present in the higher verb's complement that can fully license the lower verb. The T head in (65c) is anaphoric to the T head of the higher clause (since it cannot be anchored in its own C); in (65d), the lower clause is fully self-contained.

Now, assuming that the parallels I draw in section 5.1 between the various functional heads in the extended projection of P and the functional heads in the extended projection of V stand up to scrutiny, and assuming further that what I say about the vicissitudes of the structures in (65) carries over, *mutatis mutandis*,[29] to the adpositional domain, we may replicate the pattern in (65) for the case of directional PPs, deriving the typology of complement types for P_{Dir} given in (66):

(66) a. P_{Dir} [$_{PP}$ P_{Loc} DP]
b. *P_{Dir} [$_{AspP}$ $Asp^{[PLACE]}$ [$_{PP}$ P_{Loc} DP]]
c. P_{Dir} [$_{DxP}$ $Dx^{[PLACE]}$ [$_{AspP}$ $Asp^{[PLACE]}$ [$_{PP}$ P_{Loc} DP]]]
d. P_{Dir} [$_{CP}$ $C^{[PLACE]}$ [$_{DxP}$ $Dx^{[PLACE]}$ [$_{AspP}$ $Asp^{[PLACE]}$ [$_{PP}$ P_{Loc} DP]]]]

In the structure in (66a), the lower P (P_{Loc}) obligatorily *incorporates* into the higher P (P_{Dir}), forming a complex P_{Loc} + P_{Dir} (where either P may be null or overt). When the lower P incorporates into the higher P, there can be no $DxP^{[PLACE]}$ downstairs—which takes care of the fact that in (51′), earlier, the degree modifier *tien meter* 'ten meters' can be construed only with the Path, not with the Place. In the structures in (66c) and (66d), the presence of functional structure between the lower P and the higher P prevents incorporation, so the two Ps will not amalgamate; when they are both overt, they will be spelled out separately. Thanks to the presence of functional structure between the two Ps, there is space available for degree modifiers of Place downstairs—which accounts for the facts in (51)–(54), given earlier.

5.3. Beyond PP_{Dir}

In adjudicating the structures in (66), I focused on the demands imposed by the higher P head, P_{Dir}, on the size of its complement. Let us now consider the options for the functional structure outside the lexical projection of P_{Dir}. In the structures in (66) as they stand, P_{Dir} has no extended projection at all. If indeed P_{Dir} foregoes its own extended projection and ends up having its maximal projection PP_{Dir} merge directly with V, it stands no chance of getting itself licensed within its own extended projection (since it has none). Hence, if PP_{Dir} merges directly with V, P_{Dir} must incorporate into V, and when P_{Dir} incorporates into V, Baker's (1988) 'Government Transparency Corollary' (GTC)[30] turns the complement of P_{Dir} into a derived complement of the complex V + P_{Dir}.

Suppose, on the other hand, that P_{Dir} does have an extended projection of its own erected on top of its lexical PP. Then P-incorporation into V will not take place: Instead, P_{Dir} will be fully licensed within its extended projection. How large will that extended projection be? The first head we can merge is $Asp^{[PATH]}$. Since Asp is strictly dependent on Dx, merging $Asp^{[PATH]}$ automatically forces the merger of $Dx^{[PATH]}$ as well. $Dx^{[TENSE]}P$ is suitable as a V complement (as in ECM and raising constructions; recall (65c)), but $Dx^{[PATH]}P$ is not. The head of the $Dx^{[TENSE]}P$ complement of V is incorporable into the higher verb's T chain, with the higher $Dx^{[TENSE]}$ head anaphorically binding the lower $Dx^{[TENSE]}$. However, the head $Dx^{[PATH]}P$ is not anaphorically bindable by $Dx^{[TENSE]}$: Though they are each other's counterparts in their respective domains, they are not the same creature; hence, they cannot engage

in a relationship of anaphoric binding.[31] So once P_{Dir} elects to erect an extended projection of itself on top of its lexical projection, it must project all the way up to CP.

We thus obtain two options beyond PP_{Dir}, depicted in (67a,b):

(67) a. V $[_{PP}\ P_{Dir}\ \ldots]$
b. V $[_{CP}\ C^{[PATH]}\ [_{DxP}\ Dx^{[PATH]}\ [_{AspP}\ Asp^{[PATH]}\ [_{PP}\ P_{Dir}\ \ldots]]]]$

With this in mind I take a look at the continuations of the structures in (66a) and (66c,d), each time considering both options in (67).

5.3.1. Beyond (66a)

We know from the discussion in the opening paragraph of section 5.3 that the derivation beyond the merger of P_{Dir} in (66a) proceeds via incorporation of the lower P_{Loc} into the higher P_{Dir}. Beyond this point, there are two options, as indicated earlier. Suppose, first of all, that PP_{Dir} merges directly with V, as in (67a). Then we obtain the result in (68):

(68) (66a) + (67a) = V $[_{PP}$ PDir $[_{PP}\ P_{Loc}$ DP]]

In the derivation ensuing from this structure, P_{Dir} needs to incorporate into V. However, in addition, P_{Loc} must also incorporate into P_{Dir}, for P_{Loc} had elected to forego an extended projection of its own. The result of overt syntactic incorporation of the $P_{Loc} + P_{Dir}$ complex into V can be realized as a complex verb unless this is blocked by a morphological well-formedness condition (cf. Roberts 1997; Den Dikken 2003b)—when $P_{Loc} = \emptyset$ or $P_{Dir} = \emptyset$ (so that only one part of the P + P complex is overtly realized), physical incorporation may be audible, but when both P_{Loc} and P_{Dir} are overt, a well-formedness condition that prevents compounds from being spelled out word internally in incorporation structures ensures that the copy of the $P_{Loc} + P_{Dir}$ complex that is phonologically realized at PF is the one in P_{Dir}.

Regardless of whether the P complex is phonologically realized within the verbal cluster, with $P_{Loc} + P_{Dir}$ incorporating into V the Government Transparency Corollary will turn P_{Loc}'s DP complement into a derived complement of the V complex. Like all DP complements of V in Dutch (an OV language), it will therefore have to undergo Object Shift, ending up to the left of V. Thus, we expect the DP in directional PPs of this type to behave exactly like an object of a transitive verb.[32] That it does indeed is confirmed by the fact that relativization of the DP with the aid of a non-r relative pronoun is possible in simple and complex postpositional PP constructions: The examples in (31) and (46), repeated here, attest to this:

(31) a. de boom {✓die/✓waar} Jan <in> is <in> geklommen
the tree that/where$_{[+R]}$ Jan in is in climbed
b. de heuvel {✓die/%waar} Jan <op> is <op> gewandeld
the hill that/where$_{[+R]}$ Jan on is on walked

(46) a. de brug {?die/✓waar} Jan onder door is gelopen
the bridge that/where$_{[+R]}$ Jan under through is walked
b. de molen {✓die/✓waar} Jan voorbij is gelopen
the mill that/where$_{[+R]}$ Jan before-by ('past') is walked

The fact that DP obligatorily undergoes object shift into the extended projection of the verb also predicts that, with the P_{Loc} + P_{Dir} complex incorporating into V, it should be impossible to move the sequence DP P_{Loc} + P_{Dir} as a constituent. This seems, at first blush, to be an incorrect prediction, for (69a,b) are perfectly well formed:

(69) a. [de boom in] is Jan geklommen
the tree in is Jan climbed
b. [de brug onder door] is Jan gelopen
the bridge under through is Jan walked

However, recall that merging PP_{Dir} directly with V (which is the scenario that fails to deliver the sequence DP P_{Loc} + P_{Dir} as a constituent) is only *one* of the ways of continuing the derivation beyond (66a): We also have the option of merging PP_{Dir} with an extended projection of its own, as in (67b). So suppose that PP_{Dir} merges with $Asp^{[PATH]}$, and then AspP merges with $Dx^{[PATH]}$, and then DxP merges with $C^{[PATH]}$, resulting in (70):

(70) (66a)+(67b) = V $[_{CP}$ $C^{[PATH]}$ $[_{DxP}$ $Dx^{[PATH]}$ $[_{AspP}$ $Asp^{[PATH]}$ $[_{PP}$ P_{Dir} $[_{PP}$ P_{Loc} DP]]]]]

In this structure, P_{Loc} raises to P_{Dir} as before because there is no extended projection of P_{Loc} present in the structure, so the DP complement of P_{Loc} comes to behave as though it is the complement of P_{Dir} (by the GTC), and we expect to get raising of P_{Loc}'s object to $Spec Asp^{[PATH]}P$. Furthermore, we expect P_{Dir} to raise to $Asp^{[PATH]}$ but no further (recall Koopman 2000 on the impossibility of P–raising to Dx, her Deg). This results on the surface in a simple or complex postpositional construction in which the sequence DP P_{Loc} + P_{Dir} does indeed behave as a constituent (a CP) and hence is eligible for topicalization, as in (69).

5.3.2. Beyond (66c,d)

Having taken care of the derivation beyond (66a), let us ask how the derivation of (66c,d) proceeds beyond the projection of PP_{Dir}. Once again there are two scenarios, and I consider them in turn, starting with (67a), the merger of PP_{Dir} directly with V.

(71) a. (66c) + (67a) = *V $[_{PP}$ P_{Dir} $[_{DxP}$ $Dx^{[PLACE]}$ $[_{AspP}$ $Asp^{[PLACE]}$ $[_{PP}$ P_{Loc} DP]]]]
b. (66d) + (67a) = %V $[_{PP}$ P_{Dir} $[_{CP}$ $C^{[PLACE]}$ $[_{DxP}$ $Dx^{[PLACE]}$ $[_{AspP}$ $Asp^{[PLACE]}$ $[_{PP}$ P_{Loc} DP]]]]]

Since P_{Dir} foregoes the construction of an extended projection in this scenario, the merger of V must be followed by the incorporation of P_{Dir} into V, which, via Bakerian "government transparency," turns the complement of the incorporated P_{Dir} into the complex verb's derived complement.

This has immediate repercussions for the variety of complements that P_{Dir} can take. Recall from the discussion at the very outset of this section that $DxP^{[SPACE]}$ is unsuitable as a V complement because $Dx^{[SPACE]}$ cannot be licensed within its own CP and also cannot be anaphorically bound by the matrix $Dx^{[TENSE]}$. That means that the structure in (71a), in which P_{Dir} takes a $Dx^{[PLACE]}P$ complement, comes out ill formed. For (71b), on the other hand, the derivation will converge—but only for those speakers who accept $C^{[PLACE]}P$ in the (derived) complement of a directional verb, as in (10a), repeated here:

(10a) Jan wandelde op de heuvel — %ambiguous: locative—'walk (while) on the hill'
Jan walked on the hill — %directional—'walk onto the hill'

For such speakers, this $C^{[PLACE]}P$, which becomes a derived complement of V in (71b) as a result of obligatory incorporation of P_{Dir} into V and must therefore be shifted leftward to a position to the left of the verb,[33] will also be able to undergo fronting on its own, leaving P_{Dir} behind.

Concretely, then, we predict that speakers who allow $C^{[PLACE]}P$ in the (derived) complement of a directional verb should allow sentences of the type in (36), and they should likewise allow the postpositional part of circumpositional directional PPs to surface inside the complex verb as a result of incorporation of P_{Dir}, as in (34). The examples are repeated here:

(34) a. dat Jan onder de brug <door> is <%door> gelopen
that Jan under the bridge through is through walked
b. dat Jan om het huis <heen> is <%heen> gelopen
that Jan around the house PRT is PRT walked

(36) a. %[onder welke brug] is Jan door gelopen?
under which bridge is Jan through walked?
b. %[om welk huis] is Jan heen gelopen?
around which house is Jan PRT walked?

While (36) is subject to speaker variation, as noted in section 3, all speakers readily accept sentences of the type in (72), involving fronting of the entire circumpositional PP:

(72) a. [onder welke brug door] is Jan gelopen?
under which bridge through is Jan walked?
b. [om welk huis heen] is Jan gelopen?
around which house PRT is Jan walked?

The "direct merger of PP_{Dir} with V" scenarios based on (66c,d) (depicted in (71)) fail to produce sentences of the type in (72): There is no CP-sized constituent that comprises the entire circumpositional phrase. For sentences of the type in (72), we thus need to resort to scenarios in which P_{Dir} has an entire extended projection of its own erected on top of its lexical projection, as in (73):

(73) a. (66c) + (67b) = V $[_{CP}$ $C^{[PATH]}$ $[_{DxP}$ $Dx^{[PATH]}$ $[_{AspP}$ $Asp^{[PATH]}$ $[_{PP}$ P_{Dir} $[_{DxP}$ $Dx^{[PLACE]}$ $[_{AspP}$ $Asp^{[PLACE]}$ $[_{PP}$ P_{Loc} DP]]]]]]]

b. (66d) + (67b) = V $[_{CP}$ $C^{[PATH]}$ $[_{DxP}$ $Dx^{[PATH]}$ $[_{AspP}$ $Asp^{[PATH]}$ $[_{PP}$ P_{Dir} $[_{CP}$ $C^{[PLACE]}$ $[_{DxP}$ $Dx^{[PLACE]}$ $[_{AspP}$ $Asp^{[PLACE]}$ $[_{PP}$ P_{Loc} DP]]]]]]]]

In these scenarios, P_{Dir}'s prepositional complement will raise to Spec$Asp^{[PATH]}$P and P_{Dir} raises to $Asp^{[PATH]}$ but no further (recall, once again, Koopman 2000 on the ban on P–raising to Dx, her Deg). The full-fledged $C^{[PATH]}$P, which is happy to serve as a complement to a directional verb for all speakers, can undergo A′ fronting as a unit, thereby producing (72) as desired. $C^{[PLACE]}$P (present in (73b)), on the other hand, *cannot* be moved out of the $C^{[PATH]}$P: To do so would involve taking a CP out of a CP, a classic "A-over-A" violation. In (73a), where P_{Dir} takes a $Dx^{[PLACE]}$P complement,[34] subextraction of the locative phrase is impossible as well: In this structure, there is no $C^{[PLACE]}$P present at all. We thus expect it to be impossible in both scenarios in (73) to perform subextraction of P_{Loc} + DP by itself, stranding P_{Dir}. Concretely, (73a,b) rule out (36). Likewise, since a full $C^{[PATH]}$P is projected above PP_{Dir}, we expect incorporation of P_{Dir} into V not to take place: Example (34) cannot be derived from either of the structures in (73).

What we have now derived is precisely the correlation between P_{Dir}–incorporation and subextraction of the prepositional PP out of a circumpositional directional PP that we uncovered in section 3. Both P_{Dir}–incorporation and prePP subextraction are ruled *out* in the scenarios in (73), whereas they are both ruled *in* in those in (71). Additionally, since the structures in (71) are available only for speakers who allow $C^{[PLACE]}$P in the complement of a directional verb, we factor speaker variation in (10a) into the equation as well. So we have now determined that the root of the speaker variation that we find in (34) and (36) lies in the speakers' allowing or disallowing a $C^{[PLACE]}$P to be the (derived) complement of a directional verb, as in (10a). This I consider to be an important result. For it is indeed the case that for many speakers a correlation exists between P_{Dir} incorporability and fronting of $C^{[PLACE]}$P in circumpositional PPs. I hasten to add, though, that I have also found speakers for whom (10a), (34), (36) are *not* correlated. It is likely, then, that additional factors are at play in these domains. Sorting out these additional factors must at this time remain a (very difficult) task for future research.

5.4. Strictly prepositional directional Ps and r-movement

At the end of the previous section, I presented a solution for one of the problems listed in section 3.2.5: the "speaker variation correlations" problem. I had already taken care of the modifier distribution problem in section 4 by developing the structure of directional adpositional phrases beyond Koopman's single PathP. What remains to be done is to address the first problem we stumbled upon when we were reviewing the Dutch PP data against the background of Koopman's (2000) analysis: the fact that purely prepositional directional Ps such as *naar* 'to(ward)' ban r-words unless (as in the case of *naar*) an additional P element (*toe*) is added. The key facts for *naar*, which presents the most interesting problem in this domain, are repeated here:

(24) a. hij rijdt naar de stad
he drives to the city
b. *hij rijdt er naar
he drives there$_{[+R]}$ to

(26) ik geloof dat Jan <✓naar> het bos <*naar> is <*naar> gelopen/gerend
I believe that Jan to the woods to is to walked/run

(27) hij rijdt er naar toe
he drives there$_{[+R]}$ to up.to

What we are looking for is an account of *naar* that will (a) restrict it to directional contexts, (b) prevent it from freely incorporating into the verb (recall (26)), and (c) explain the r-word facts. In light of (a), we should base-generate *naar* in the directional portion of the structure; that is, *naar* cannot originate as a P_{Loc} head, for otherwise it would be very difficult indeed to account for the fact that it can never be used locatively. However, base-generating it as a lexicalization of P_{Dir} would seem to leave (26) a mystery: P_{Dir} can (and in fact must) incorporate into the verbal cluster in syntax whenever PP_{Dir} is merged directly with the verb.

If *naar* is to be a lexicalization of P_{Dir}, we must therefore find a way of barring its immediate projection from merging directly with V. This can in fact be guaranteed if *naar* is assumed to select only $Dx^{[PLACE]}P$: After P_{Dir} incorporation into V, this $Dx^{[PLACE]}P$ would illegitimately end up as a derived V complement (recall the discussion of (71a)). Though such a categorial selection approach to the ban on incorporation of *naar* is certainly a possible one on which I would not want to slam the door, I suggest an alternative perspective that has the additional advantage of also allowing us to make sense of the r-word facts.

Developing my suggestion at the end of section 3.2.1, I propose that *naar* is a lexicalization of $Asp^{[PATH]}$, the aspectual functional head merging with PP_{Dir} (whose head will be empty in *naar*-type directional PPs). Since we know from the discussion earlier in this section that $Asp^{[PATH]}P$ cannot merge directly with V, the fact that *naar* cannot incorporate into the verbal cluster follows: In order to incorporate, it would have to either raise through higher nonlexical heads (which would be "improper"; Li 1990) or skip the functional heads that separate it from the verb (which violates the locality conditions on head movement; cf. Travis 1984; Baker 1988).

Base-generating *naar* in $Asp^{[PATH]}$ also sheds light on the r-word facts. $Asp^{[PATH]}$ itself does not make a landing site available for r-words (unlike $Asp^{[PLACE]}$, Koopman's 2000 Place head). However, we know from the discussion in section 4 that r-words can be placed to the left of Path modifiers within the confines of the maximal complex PP. Recall (56), repeated here: The leftmost token of *er* in these examples occupies the specifier position of $C^{[PATH]}$:

(56) a. het vliegtuig vloog <*er*> tien meter *lang* <*er*> tien meter *hoog* <*er*> boven (langs)
the aircraft flew there ten meter long there ten meter high there above along
b. [<*er*> tien meter *lang* <*er*> tien meter *hoog* <*er*> boven (langs)] vloog het vliegtuig
there ten meter long there ten meter high there above along flew the aircraft

In order for *naar* to accommodate an r-word to its left, therefore, it needs to accommodate a projection of $C^{[PATH]}$ in its extended projection. What I now suggest is that *toe* is the spell-out of this C head: Specifically, *toe* is the complementizer that provides a landing site for r-words (SpecCP). The account of *naar*(+*toe*) that emerges from these notes is summarized in (74a):

(74) a. $[_{CP}\ Spec_{[+R]}\ [C^{[PATH]} = toe\ [_{DxP}\ Dx^{[PATH]}\ [_{AspP}\ Asp^{[PATH]} = naar\ [P_{Dir} = \emptyset\ .\ .\ .]]]]]$[35]

To derive (27), we raise *er* into SpecCP in (74a) and move *naar* up via $Dx^{[PATH]}$ to $C^{[PATH]}$. Left adjunction of *naar* to *toe* produces *naar* + *toe*, and with the r-word preceding this complex, we obtain the desired surface output:[36]

(74) b. $[_{CP}\ er_i\ [C^{[PATH]} = naar_j + toe\ [_{DxP}\ Dx^{[PATH]}\ [_{AspP}\ Asp^{[PATH]} = t_j\ [P_{Dir} = \emptyset\ .\ .\ .\ t_i]]]]]$

The SpecCP position in (74a) is not uniquely available to r-words: *Naar* plus its non-r complement can also be moved into this position, producing (75a). Modification of the Path with *tien (kilo)meter* 'ten (kilo)meters' is grammatical both with and without *toe* (see *hij rijdt tien kilometer naar de stad (toe)* 'he drives ten kilometer to the city (up.to)'); by contrast, stranding a Path modifier to the right of *toe* is impossible (**hij rijdt naar de stad toe tien kilometer*). This suggests that the constituent raised to SpecCP in the course of the derivation of (75a) is $Dx^{[PATH]}P$, not $Asp^{[PATH]}P$ alone, as depicted in (75b):

(75) a. hij rijdt naar de stad toe
he drives to the city up.to
b. $[_{CP}\ [_{DxP}\ Dx^{[PATH]}\ [_{AspP}\ Asp^{[PATH]} = naar\ [P_{Dir} = \emptyset\ .\ .\ .]]]_k\ [C^{[PATH]} = toe\ t_k]]$

This derivation is parallel to that of complementizer-final constructions (in languages such as Japanese) proposed in Kayne (1994), with TP raising into SpecCP.

The question of whether DxP can raise on out of CP altogether into a position in the matrix clause is a difficult one to answer both theoretically and empirically. It is not clear at this time what the theoretical restrictions on DxP raising are in general. While an antisymmetric analysis of complementizer-final languages suggests that TP can raise to its local SpecCP, long-distance dependencies involving TP and a more distant A′ position are not readily found (in English, for instance, topicalization of TP out of an embedded clause is impossible (*[*Mary is intelligent*]*, everybody thinks that*). For the case of *naar* + *toe* directionals in Dutch, the status of the subextraction of *naar* + DP with the stranding of *toe* remains to be investigated in a systematic way. The analysis sketched earlier predicts that subextraction of *naar* and its complement should be strictly impossible if that complement is an r-word: In (74b), *naar* and the r-word do not form a constituent. In (75b), by contrast, *naar* and a non-r DP in its complement do form a constituent. I have found sporadic cases of the type "*waarnaar*—SUBJECT—*toe*—V" on the Web (searching strings with pronominal subjects, which form a finite set, I got a total of forty-eight hits, a vanishingly small number compared to the tens of thousands of hits for strings of the type "*waar*—SUBJECT

PRONOUN—*naar toe*—V"), but I have not done any systematic research on the question of whether these cases are significantly rarer or judged to be much worse than the corresponding cases in which *naar* + DP is moved away from *toe.*

If the derivation of (27) given in (74b) is on the right track, we can also make a prediction about the incorporation of the *toe* portion of *naar* + *toe* into the verbal cluster. In (74b), *naar* + *toe* forms a complex head as a result of the left adjunction of *naar* to *toe*, so incorporation of *toe* by itself should be out of the question because it would have to involve "excorporation" of the host (i.e., movement of a segment of a multisegment category), which is a theoretical anomaly (see Kayne 1994). The prediction that this makes is that (76a) should be ungrammatical for *all* speakers, including those who otherwise allow incorporation of the particle stranding the rest of the circumpositional PP (as in (34)).[37] The asterisk on (76a) reflects the prediction made by the analysis. My current impression of the facts is that the prediction holds up, but an extensive survey of speakers' judgments remains to be carried out in order to verify it. The fact that (76b) is ungrammatical (in dialects that do not have 'Verb Projection Raising'), despite the fact that *naar* + *toe* in (74b) forms a complex head in the complement of the verb, has an independent source (briefly touched upon at the outset of section 5.3.1): A morphological well-formedness condition bans the lexicalization of P + P complexes below V^0.

(76) a. *dat hij er naar is toe gereden
that he there$_{[+R]}$ to is up driven
b. *dat hij er is naartoe gereden
that he there$_{[+R]}$ is up.to driven

Though, as the tentative discussion in this section makes amply clear, many questions remain concerning the details of the analysis of *naar* constructions, the richer structure of directional adpositional phrases emerging from this discussion gives us a framework within which to properly contemplate and, one hopes, ultimately answer these questions. The largely descriptive notes here provide a beginning, to be pursued further in future work.

5.5. P and case: Some notes on German locative and directional adpositional phrases

The Dutch Ps just discussed, *naar* and *tot/toe*, pose problems that are in some ways similar to those presented by German prepositions that are strictly directional yet assign a case that one normally finds assigned by locative adpositions—*zu* 'to' (the cognate of Dutch *tot/toe*) and *aus* 'out.of' are cases in point.[38] Consider the paradigm in (77):

(77) a. er rannte zu dem Laden (DIR)
he ran to the-DAT store
a′. *er rannte zu den Laden
he ran to the-ACC store
b. er rannte aus dem Laden (DIR)
he ran out.of the-DAT store
b′. *er rannte aus den Laden
he ran out.of the-ACC store
c. er rannte in dem Laden (LOC/*DIR)
he ran in the-DAT store
c′. er rannte in den Laden (DIR)
he ran in(to) the-ACC store

The pair in (77c,c′) is representative of a large set of prepositions in German that encode the difference between their locative and directional uses not in terms of word-order variation (as is common in Dutch, as we have seen) but in terms of the morphological case assigned to their complement: dative case for the locative, and accusative case for the directional version. However, *zu* and *aus* do not show this case alternation: They exclusively assign dative case despite the fact that they are inherently directional. Two major questions are posed by these simple observations: (i) how should the case alternation in (77c,c′) (between dative and accusative, for the locative and directional readings, respectively) be structurally encoded (if at all)? and (ii) how can invariant dative case (as in (77a,b)) be reconciled with directionality?[39]

The German adpositional element *auf* has a variety of incarnations. In (78a) it functions as a verbal particle (like English *up*), while in (78b,c) it is a preposition taking a nominal complement. That nominal complement is dative marked in (78b) and accusative marked in (78c), and this case distinction has repercussions for the interpretation of the PP: The dative PP in (78b) is unambiguously locative, while that in (78c) is unambiguously directional. The adpositional element *auf* can also combine with a deictic particle (*hin* in (78d); recall section 5.1), in which case it may either surface to the right of its accusative-marked dependent, as in (78d), or to the left or right of an accusative PP headed by *auf*, as in (78e). The examples in (78d,e) are like (78c) in featuring accusative case on the noun phrase, and concomitantly they receive a directional reading:

(78) a. (er stand) auf — particle
he stood up

b. auf dem Berg — locative
on the-DAT mountain

c. auf den Berg — directional
on the-ACC mountain

d. den Berg hinauf — directional
the-ACC mountain HIN-on

e. <hinauf> auf den Berg <hinauf> — directional
HIN-on on the-ACC mountain HIN-on

One thing that the paradigm in (78) tells us is that the adpositional element *auf* by itself does not seem to (have to) possess a case feature: It can occur without a dependent altogether, as in (78a). Similarly, of course, V does not (have to) possess a case feature—not even when it is transitive: Thus, in Romance *faire* infinitive causatives (cf. (79)), there is just a single accusative case feature available, and there is evidence (from so-called long passives, as in Italian (79c)) that the sole accusative case available in these constructions is checked in the matrix clause; the infinitival verb thus does not seem to contribute a case feature of its own in this context.

(79) a. Jean fait manger sa soupe à Marie
Jean makes eat her soup to Marie
'Jean makes Marie eat her soup'

b. *Jean fait <Marie> manger sa soupe <Marie>
c. la macchina fu fatta riparare a Gianni
the car was made repair to Gianni

In *faire* infinitive constructions, there is but a single functional head providing an accusative structural case feature; these constructions arguably instantiate a structure of the type in (65a), with a bare VP in the complement of the matrix causative verb and no Asp head downstairs to check accusative case.

Extrapolating to PP constructions, let us conclude that P's ability to assign or check structural case is dependent on the presence in the structure of an aspectual projection. For locative Ps (which govern dative case), this translates into a link between *structural* dative case and the functional head $Asp^{[PLACE]}$:

(80) the DP complement of P_{Loc} checks oblique[40] case iff $Asp^{[PLACE]}$ is present in the structure

Formulating (80) as a biconditional ('iff') entails that whenever $Asp^{[PLACE]}P$ is projected, there *must* be oblique (in German, dative) case checking in locative PPs; and, conversely, that whenever $Asp^{[PLACE]}P$ is not projected, there *cannot* be oblique case checking in locative PPs. In light of the biconditional in (80), the fact that German locative PPs in V's complement systematically show dative case on P's DP complement thus confirms that locative PPs in the complement of a verb systematically feature a projection of $Asp^{[PLACE]}$.

Taking (80) to be a biconditional as stated also has interesting consequences for the analysis of *directional* PPs featuring accusative case on P_{Loc}'s DP complement (as in (78c)). If the presence of $Asp^{[PLACE]}P$ goes hand in hand with the assignment/checking of dative case, then the absence of dative case on P's DP complement must mean that $Asp^{[PLACE]}P$ is not projected. That is, in directional PPs featuring accusative case on the nominal complement, P_{Dir} selects PP_{Loc} directly. With P_{Dir} selecting PP_{Loc}, dative case is uncheckable. Hence, in cases like (78c), P_{Loc} = *auf* must be like the particle *auf* in (78a) in radically lacking a case feature (essentially as in the case of *faire* infinitive causatives in Romance). Its DP complement is case dependent on the *accusative* case-checking head $Asp^{[PATH]}$ in the extended projection of P_{Dir}; hence, it checks the accusative case. If, on the other hand, P_{Dir} selects a full-fledged $C^{[PLACE]}P$ (or $Dx^{[PLACE]}P$) as its complement, so that there is an $Asp^{[PLACE]}$ present in the extended projection of P_{Loc}, the DP must check the dative case against $Asp^{[PLACE]}$, in keeping with locality. This is what is going on in directional PPs that feature *aus* 'out.of' and *zu* 'to', as illustrated in (77a,b).

We thus end up with the following (partial) typology of German PPs, focused specifically on their case properties:

(81) a. V [$_{CP}$ $C^{[PLACE]}$[$_{DxP}$ $Dx^{[PLACE]}$[$_{AspP}$ $Asp^{[PLACE]}$<*DAT*> [$_{PP}$ P_{Loc} $DP_{<DAT/*ACC>}$]]]]
b. V [$_{CP}$ $C^{[PATH]}$[$_{DxP}$ $Dx^{[PATH]}$[$_{AspP}$ $Asp^{[PATH]}$<*ACC*> [P_{Dir} [$_{PP}$ P_{Loc} $DP_{<ACC/*DAT>}$]]]] (cf. (70))
c. V [$_{CP}$ $C^{[PATH]}$[$_{DxP}$ $Dx^{[PATH]}$[$_{AspP}$ $Asp^{[PATH]}$[P_{Dir} [$_{DxP}$ $Dx^{[PLACE]}$ [$_{AspP}$ $Asp^{[PLACE]}$<*DAT*> [$_{PP}$ P_{Loc} $DP_{<DAT/*ACC>}$]]]]]]] (cf. (73a))
d. V [$_{CP}$ $C^{[PATH]}$[$_{DxP}$ $Dx^{[PATH]}$[$_{AspP}$ $Asp^{[PATH]}$[P_{Dir} [$_{CP}$ $C^{[PLACE]}$ [$_{DxP}$ $Dx^{[PLACE]}$ [$_{AspP}$ $Asp^{[PLACE]}$<*DAT*>[$_{PP}$ P_{Loc} $DP_{<DAT/*ACC>}$]]]]]]] (cf. (73b))

Locative PPs in the complement of V always project a full-fledged CP; hence, they systematically feature oblique (in German, dative) case on DP. Locative PPs in the complement of P_{Dir}, on the other hand, vary in size: They can feature a large extended projection—$Dx^{[PLACE]}P$ or a full $C^{[PLACE]}P$—or they can remain bare. In the former case, DP will once again show up with dative case (because $Asp^{[PLACE]}$ is present downstairs, and whenever $Asp^{[PLACE]}$ is there, there is dative case to be checked: (80)); in the latter, dative case is absent, and DP will be case dependent on an aspectual functional head outside the locative PP.[41]

A few things are worth stressing in the context of this brief discussion of P and case. First, it should be clear from what I said in the preceding paragraphs that I take the case assigned by adpositions to be *structural* case—that is, it is checked in the domain of an aspectual functional head ($Asp^{[SPACE]}$), just as the structural accusative case assigned by verbs is checked in the domain of *v* (likewise arguably aspectual in nature).

Second, I take case features to be the prerogative of aspectual heads, *not* lexical heads—the latter are not listed in the lexicon as being (inextricably) linked to a case feature: After all, transitive verbs and adpositions are perfectly grammatical *without* a case feature. This is perhaps particularly clear in the case of German *auf* (78): When it occurs as a particle (78a) or as a directional P (78c), it does not introduce a case feature at all. The simplest way of getting these facts is to say that lexical heads never introduce case features—structural case is the province of aspectual heads; whether a particular structural case is available depends wholly on whether the aspectual head responsible for its checking is present in the structure.

A third note that is relevant at this point is that the partial typology in (81) correctly ensures that there is no one-to-one link between directionality and accusative case on DP. After all, (81c,d), in which P_{Dir} takes an extended projection of P_{Loc}, *including* $Asp^{[PLACE]}$ as its complement, deliver directional PPs with a *dative* DP complement, checking its case feature against $Asp^{[PLACE]}$. These kinds of structures are instantiated by directional PPs with case-invariant Ps like *aus* 'out.of' and *zu* (cf. (77c)). For these kinds of PPs it is particularly clear that P_{Dir} *cannot* take DP complements all by itself. After all, if it could, then for *aus* and *zu* (which are exclusively directional) one would be at a loss to find a source for structural dative case: There is no $Asp^{[PLACE]}$ head in the extended projection of P_{Dir}. Directional PPs that feature dative-only Ps such as *aus* and *zu* can be accommodated straightforwardly on the basis of structures of the type in (81c,d), in which P_{Dir} takes an extended projection of P_{Loc} as its complement, but not on the basis of a structure in which P_{Dir} takes a DP complement. It seems to me plausible to deny quite generally that P_{Dir} ever takes a DP as its complement; instead, it always selects a(n extended) projection of P_{Loc}.

Finally, let me reiterate that, although it is true that spatial PPs with accusative-marked DPs are directional,[42] it is not the case that directional PPs *must* take an accusative-marked DP—and the system outlined here is right in not making a prediction of this sort.

5.6. Summary: A typology of locative and directional adpositional phrases

To summarize section 5, let me give a brief synopsis, first of all, of our findings in the domain of *directional* PPs. There are two variables in directional PPs: (i) the size of

the complement of P_{Dir} and (ii) the size of the structure dominating P_{Dir}. When P_{Dir} projects a full-fledged extended projection all the way up to $C^{[PATH]}P$, it will be fully licensed within its own extended projection. It will raise up to $Asp^{[PATH]}$ but no further, and it can take the full gamut of independently permissible complement types: $C^{[PLACE]}P$, $Dx^{[PLACE]}P$, and bare PP_{Loc}. This is illustrated in (82b). When, on the other hand, P_{Dir} projects a bare PP that merges directly with V, as in (82a), P_{Dir} must incorporate into V, which drastically narrows down the permissible complement types: $Dx^{[PLACE]}P$ is then ruled out because, as a result of P_{Dir}'s incorporation into V, it would end up becoming a derived complement of V, and $Dx^{[SPACE]}P$ is never a permissible (derived) complement of V (for reasons discussed earlier); $C^{[PLACE]}P$ is a permissible complement to incorporated P_{Dir} only for those speakers who allow a locative $C^{[PLACE]}P$ in the (derived) complement of a directional verb—something that is a matter of idiolectal variation and ties in directly with the permissibility of physical incorporation of the postpositional part of circumpositional PPs and with the grammaticality of phrasal movement of the prePP part of circumpositional PPs.

(82) a. $V\ [_{PP}\ P_{Dir}\ \{\%C^{[PLACE]}P/{*}Dx^{[PLACE]}P/\checkmark PP_{Loc}\}]$

b. $V\ [_{CP}\ C^{[PATH]}\ [_{DxP}\ Dx^{[PATH]}\ [_{AspP}\ Asp^{[PATH]}\ [_{PP}\ P_{Dir}\ \{\checkmark C^{[PLACE]}P/\checkmark Dx^{[PLACE]}P/\checkmark PP_{Loc}\}]]]]$

The schema in (82) translates into the following set of permissible directional PP structures in the complement of a verb:[43]

(83) directional PPs embedded under V

a. $[_{PP}\ P_{Dir}\ [_{PP}\ P_{Loc}\ DP]]$

b. $\%[_{PP}\ P_{Dir}\ [_{CP}\ C^{[PLACE]}\ [_{DxP}\ Dx^{[PLACE]}\ [_{AspP}\ Asp^{[PLACE]}\ [_{PP}\ [P_{Loc}\ DP]]]]]]$

c. $[_{CP}\ C^{[PATH]}\ [_{DxP}\ Dx^{[PATH]}\ [_{AspP}\ Asp^{[PATH]}\ [P_{Dir}\ [_{PP}\ P_{Loc}\ DP]]]]]$

d. $[_{CP}\ C^{[PATH]}\ [_{DxP}\ Dx^{[PATH]}\ [_{AspP}\ Asp^{[PATH]}\ [P_{Dir}\ [_{DxP}\ Dx^{[PLACE]}\ [_{AspP}\ Asp^{[PLACE]}\ [_{PP}\ P_{Loc}\ DP]]]]]]]$

e. $[_{CP}\ C^{[PATH]}\ [_{DxP}\ Dx^{[PATH]}\ [_{AspP}\ Asp^{[PATH]}\ [P_{Dir}\ [_{CP}\ C^{[PLACE]}\ [_{DxP}\ Dx^{[PLACE]}\ [_{AspP}\ Asp^{[PLACE]}\ [_{PP}\ P_{Loc}\ DP]]]]]]]]$

As a subset of (83), we also get a picture of the types of grammatical *locative* PPs. When embedded under P_{Dir}, locative PPs can be of three different sizes: PP_{Loc}, $Dx^{[PLACE]}P$, and $C^{[PLACE]}P$. However, for locative PPs embedded under *V*, the set of options is much more restricted—there is, in fact, precisely one grammatical structure for locative PPs when they are embedded under V: They must project the full array of functional projections in their extended projection, all the way up to $C^{[PLACE]}P$, as shown in (84):

(84) locative PPs embedded under V

$[_{CP}\ C^{[PLACE]}\ [_{DxP}\ Dx^{[PLACE]}\ [_{AspP}\ Asp^{[PLACE]}\ [_{PP}\ P_{Loc}\ DP]]]]$

Verbs never take a bare PP_{Loc} as their complement. There are two empirical considerations that lead us to this conclusion. First, German locative Ps are systematically dative case assigners, which, in light of (80), translates into the systematic presence of $Asp^{[PLACE]}$ in (plain) locative PP structures. Second, locative Ps cannot incorporate

into the verbal cluster ((85)). This would not follow if we could forego projecting functional structure outside PP_{Loc} in V's complement.

(85) dat Jan <in> de sloot heeft <*in> gesprongen
that Jan in the ditch has in jumped
'that Jan has been jumping in the ditch'

It is not entirely clear why verbs cannot take bare PP_{Loc} complements. One possibility that deserves further thought is that this is because all locational/positional verbs that take locative adpositional complements are *copular* verbs (cf. Hoekstra and Mulder 1990). That, coupled with the hypothesis that copular verbs are incapable of incorporating lexical/overt Ps,[44] might then take care of the fact that bare PP_{Loc} is impossible in the complement of V. Regardless of the exact roots of this ban, we may generalize at this point that PP_{Loc} must be included either in a full extended projection of its own (as in (84) and (83b,e)) or in a(n extended) projection of P_{Dir} (as in (83a,c,d)).

6. Concluding remarks

In closing, let me summarize some of the major findings of the discussion in this chapter. Starting out from Koopman's (2000) seminal analysis of the Dutch PP, I first confirmed the central core of Koopman's structure of locative PPs, then developed the structure of directional PPs in full detail, introducing a lexical P_{Dir} head and fleshing out the extended projection of this P head. Establishing parallels between the extended projections of verbs and adpositions, I identified aspectual and deixis heads for Place and Path as the equivalents of aspectual and deixis heads in the extended projections of verbs and nouns.

While many individual pieces of the analysis presented here contribute to our understanding of the syntax of PP and to syntactic theory more generally, I conclude by noting that if this analysis stands up to scrutiny, it can be read as an extended plea for the existence of P as a lexical category. The fact that spatial Ps can have elaborate extended projections strongly confirms this conclusion. Of course, this is not to say that *all* adpositions are lexical in *all* syntactic contexts. It is very likely, in fact, that Ps like *at* in *look at X* serve as lexicalizations of functional heads (*v* is a possible candidate; see Szekely 2003), and Ps sitting in aspectual (particles) and inflectional (English *to*) positions or even further up in functional heads in the A′ domain (such as English *for* in *for-to* infinitives) are of course well attested as well. However, if what I have argued in this chapter holds water, it would be wrong to take the "prepositions as probes" program initiated by Kayne (2001) to its logical conclusion and abolish the lexical category of P altogether. Truly lexical adpositions do exist: The spatial adpositions are a case in point.[45]

Notes

This chapter is ultimately a spin-off of graduate seminars on the syntax of prepositions taught at the CUNY Graduate Center in the spring of 2003 and at the LOT Winter School in

Amsterdam in January 2004. I thank the participants for their feedback. I presented portions of this work at the workshop on prepositions at the University of Venice (November 4–5, 2005), organized by the editors of the present volume, at the Linguistics Colloquium at UConn (November 18, 2005), and at the "Syntax and Semantics of Spatial P" conference held at Utrecht University (June 2–4, 2006). I am very grateful to the organizers of these events for inviting me to present my thoughts on adpositional phrases there and to Guglielmo Cinque, Yael Sharvit, and Peter Svenonius for their insightful comments and criticisms. Special thanks go to Christina Tortora and Hedde Zeijlstra for important observations and discussion.

1. The traditional term *adposition* is a catch-all for pre-, post-, and circumpositions; since, however, its initial letter coincides with that of "adjectives" and since arguably all adpositional phrases are underlyingly prepositional, I use the label "P" throughout.

2. Van Riemsdijk (1990) is an early plea for the existence of functional prepositions projecting functional structure outside the lexical PP.

3. Early arguments to the effect that the structures of noun phrases and clauses are highly similar are found in Szabolcsi (1983, 1994) and Abney (1987). I return to the matter in more detail later. On "extended projection" see Grimshaw (1991, 2000).

4. See Helmantel (2002) for more detailed illustration. I should note right at the outset that when a particular sentence pair is seen to exhibit word-order flexibility (e.g., (4b) *de auto rijdt voorbij de molen* and (5b) *de auto rijdt de molen voorbij*), the two sentences making up the pair are not necessarily fully semantically equivalent—though the meaning differences between the individual members of a pair may not always be very easy to circumscribe.

5. The ambiguity of (8a) dissolves in the periphrastic perfect. In unambiguously locative constructions, *hebben* 'have' is selected as the auxiliary of the perfect, whereas in unambiguously directional constructions, *zijn* 'be' is chosen. Thus, auxiliary selection in the perfect disambiguates (8a) toward either of its interpretations, with *heeft* 'has' yielding the locative reading, and *is* 'is' the directional one. Note that (ib) with *heeft* is not ungrammatical per se, but it has a radically different structure: *De boom in* 'the tree in' here is a directional PP that serves as a contrastive topic (with an intonation rise culminating on *in*) that modifies the climbing event. This is paraphrasable as follows: "On his way *into* the tree, Jan climbed (whereas on his way out of the tree, he jumped)." I ignore this particular reading. (All of the preceding remarks apply to (9) as well. To save space, I do not illustrate this here.)

(i) a. Jan {heeft/is} in de boom geklommen (unambiguous: *heeft* locative only)
Jan has in the tree climbed (unambiguous: directional only)

b. Jan {*heeft/is} de boom in geklommen (unambiguous: directional only)
Jan has/is the tree in climbed

6. The term *r-word* was transparently chosen (on the analogy of "*wh*-word") because all of the members of the class of r-words in Dutch have an *r* in them: *er* 'there', *daar* 'there', *waar* 'where', *hier* 'here', *ergens* 'somewhere', *nergens* 'nowhere', *overal* 'everywhere'. Obviously, though, that is by no means a defining characteristic of r-words (cf. *haar* in (12b), which likewise has an *r* in it but does not behave like an r-word).

7. An important systematic exception is the category of serial PPs of the type *from x to y.* These, in fact, force *pre*positional order even when both constituent PPs contain an r-word, as shown in (ib,c). Helmantel (2002, section 6.2.2) discusses a few other contexts in which r-words appear in *pre*positional PPs.

(i) a. van het kastje naar de muur
from the cupboard to the wall

b. van hier naar daar
from here to there
c. *hiervan daarnaar
here-from there-to

8. Koopman's structure for locative PPs also features an AgrP just outside the lexical PP. She resorts to movement to SpecAgrP in an attempt to account for Q-float facts: *Met ons allemaal* 'with us all' is assumed to result from movement of *ons* 'us' to a higher A-position, stranding the quantifier *allemaal* 'all' along the way (as in Sportiche's 1988 analysis of Q-float). The Q-float argument, when taken seriously, actually requires more than just an AgrP between Place and PP. In fact, Q-float stranding quantifiers in complement positions is generally impossible (**I saw the men all* [same in Romance]; cf. Sportiche 1988), for whatever reason; so if *allemaal* in *met ons allemaal* 'with us all' is a floating quantifier, it cannot have been stranded in P-complement position: Instead, it must have been stranded in a low specifier position, with the pronoun raising up further to the next specifier. The situation then comes to parallel what we find in clauses in Dutch: *All* complements (whether pronominal or full nominal) raise to some VP-external specifier position; weak pronouns take an additional step beyond that point, to a higher specifier that is still in the "middle field." Viewed this way and assuming that movement to a specifier is tantamount to movement to a *functional* specifier position (given that lexical categories cannot serve as attractors—they have no "EPP property," in current terminology), the Q-float facts in PPs would diagnose *two* functional projections between Place and PP.

However, there is reason to believe that in PPs like *met ons allemaal* 'with us all' we are *not* in fact dealing with Q-float. The key fact here is that Q-float remains possible with heavy stress on the pronoun (*met* ons *allemaal, niet met* hen *allemaal* 'with US all, not with THEM all'): We know independently that stressed pronouns behave like full DPs and hence are not expected to take the additional movement step beyond SpecAgrP that weak pronouns are obliged to take. The fact that Q-float is still possible with stress on the pronoun then suggests that it is *not* the result of stranding of Q under raising of the pronoun; instead, the [pronoun Q] order is presumably the result of a local movement operation *within* the confines of the pronoun's maximal projection. And if that is what is going on in the derivation of *ons allemaal* 'us all', the Q-float facts show us nothing about the extended projection of P. I therefore do not include Koopman's AgrP in the structure of the locative PP.

9. I chose examples featuring topicalization of the entire adpositional phrase here to make sure, for the r-word cases, that the r-word is still physically inside the PP and has not scrambled out of it.

10. There is apparently no parallel with the verbal domain here. After all, Dutch is famous (cf. Den Besten and Webelhuth 1987) for its "remnant topicalization," apparently involving fronting of the bare VP. It is likely that even the barest cases of remnant topicalization (cf., e.g., *geven zou Jan Marie dat boek waarschijnlijk nooit* 'give would Jan Marie that book probably never') do not instantiate fronting of the lexical VP but instead involve topicalization of some functional projection dominating VP, from which all arguments have been extracted. However, regardless of the exact nature of the node that is undergoing remnant topicalization in such examples, it seems fairly clear that this node is not CP; after all, one would be hard pressed to maneuver all nonverbal material outside CP, even on a highly sophisticated, "Italianate" outlook on the cartography of the left periphery. It does seem to be possible, therefore, to pied-pipe smaller-than-CP extended projections of *verbs*, and in this respect, there seems to be a breakdown of parallelism between the verbal and adpositional domains.

11. R-pronouns can escape from CP(Place) altogether, raising via SpecCP(Place): See (ia). Nothing else said, I now predict that it should be possible to front a modifier like *tien*

meter along with the adposition, with the r-pronoun left in the "Mittelfeld," as in (ib), but (ib) is entirely impossible (whereas (ib′) is at least marginally possible) for reasons that are very difficult to fathom, not just from Koopman's perspective but also in general. I have no solution to offer for this problem, which I would like to put high on the agenda of future research into the syntax of PPs.

(i) a. Jan heeft er nog nooit tien meter naast gezeten
Jan has there$_{[+R]}$ yet never ten meter next.to sat
b. *[tien meter naast] heeft Jan er nog nooit gezeten
ten meter next.to has Jan there$_{[+R]}$ yet never sat
b′. naast heeft Jan er nog nooit gezeten
next.to has Jan there$_{[+R]}$ yet never sat

12. Koopman suggests that Path might belong to the verbal system, which might be why it must attach to a [–N] category. A statement of this specific sort is presumably superfluous, however: It arguably suffices, when it comes to blocking incorporation of øPath into N, to observe that the complement of N is generally impermeable (cf. CNPC effects and the ban on complementizer deletion in noun-complement clauses; Stowell 1981); see Chomsky (1986) for the hypothesis that the opacity of noun-complement clauses is due to the (stipulated) barrierhood thereof.

13. The morphemes *tot* and *toe* entertain a relationship of suppletive allomorphy; the latter is used whenever this P is used intransitively (as a particle) or (in nonspatial/nontemporal contexts) in combination with an r-word.

14. I return to the size of the constituent raising to SpecPathP shortly.

15. It raises apparently without stopping in SpecPlaceP, the position reserved for r-words. It seems to be precisely in the context of Place (containing the moved P) raising to Path that DP-movement to SpecPathP becomes a possibility—the option of raising DP to SpecPathP must be confined to simple postpositional phrases and be ruled out for prepositional and circumpositional phrases (where Place does not raise).

16. Koopman considers the possibility that the postpositional part of circumpositions may itself be base generated as the head of a PP in Path's complement, but she does not take a clear stand on the issue. I return to this point in section 4.

17. Koopman (2000) does not discuss complex pre- and postpositions of the types illustrated in (42b) and (43a,b) in any detail.

18. The reason that (46a) (= (37a)) is not absolutely perfect with *die* is not clear to me at this time; (46b) is impeccable with both *die* and *waar*.

19. The idea that *bij* is a locative particle that lexicalizes Place is independently plausible in light of the fact that, in the history of the Germanic languages, *bij* and its cognates have given rise to the prefixal particle *be-* (which we actually see surfacing in one of the English renditions of Dutch *voorbij*, that is, *beyond = be- + yond).*

This analysis for *voorbij* could likely carry over to *tegenover*, illustrated in (5a), but the issues here are complex. The English rendition of *tegenover* is phrasal: *across from.* Of the two constituent parts of *across from*, the first occurs independently as a particle (*she comes across as honest); from*, by contrast, is obligatorily transitive. If either of the elements that make up *across from* is to be a locative particle, therefore, the only candidate is *across*. The counterpart of *across* in the Dutch case is *over* (*zij komt eerlijk over* 'she comes honest over (i.e., across); *zij komt over als (een) eerlijk(e vrouw)* 'she comes over (i.e., across) as (an) honest (woman)'). So it seems possible to analyze *tegenover* as structurally parallel to *voorbij*, with the second P-element in the string lexicalizing Place and the first being the spell-out of P_{Loc} raising up to Place and left-adjoining to the particle that is base

inserted there. However, questions remain about *tegenover*, one of which is the fact that it is unable to be construed directionally (see (5b)). I cannot address the questions surrounding *tegenover* here.

20. I do not address here a construction that is presumably a separate case, as illustrated in (i); see Helmantel (2002).

(i) a. van het begin af
from the start off
b. vanaf het begin
from-off the start

21. The phrase *tien meter lang* is unambiguously a Path modifier:

(i) a. het vliegtuig vloog tien meter hoog/lang boven het strand
the aircraft flew ten meter high/long above the beach
b. de vlieger hing tien meter hoog/*lang boven het strand
the kite hung ten meter high/long above the beach

22. Thanks to Peter Svenonius (personal communication) for urging me to look into the question of whether the Path modifier in (53a) is a constituent of the complex adpositional phrase or instead a VP modifier. That *tien meter hoog* 'ten meter high' can indeed be a VP modifier all by itself, whereas *tien meter lang* 'ten meter long' cannot, is shown by the sharp contrast in (i):

(i) a. [tien meter *hoog* vliegen] kun je met dit vliegtuig niet tien meter *lang* boven het strand (langs)
ten meter high fly can you with this aircraft not ten meter long above the beach along
b. *[tien meter *lang* vliegen] kun je met dit vliegtuig niet tien meter *hoog* boven het strand (langs)

Note also the facts in (ii). Since the manner adverb *hard* 'fast' does not denote a path, it is impossible for *nog geen tien meter lang* to adjoin to it, which explains the ungrammaticality of (iic); that (iid) is well formed confirms that the path modifier is VP adjoined.

(ii) a. hij heeft nog geen tien meter *lang* hard gerend
he has yet no ten meter long hard run (i.e., 'he hasn't even been running for ten meters')
b. [nog geen tien meter *lang*] heeft hij hard gerend
c. *[nog geen tien meter *lang* hard] heeft hij gerend
d. [nog geen tien meter *lang* hard gerend] heeft hij

23. There is no complex pre- or postpositional version for (51d). Of the other three examples, only (51c′) seems to be universally acceptable in the Dutch-speaking world—and there appears to be a broad consensus as well about the fact that *onderdoor* qua complex P can be used only postpositionally. On (51a′) and (51b′), judgments vary substantially. I marginally accept both versions of (51a′) (but find both inferior to circumpositional (51a)) and reject the complex *pre*positional version of (51b′), finding its complex *post*positional variant perfect, but all versions of (51a′,b′) seem to be attested.

24. In Den Dikken (2003a, section 4), I present a detailed discussion of the structure of German PPs from the perspective of the analysis developed in the text. See also Abraham (this vol.) and Noonan (this vol.) for relevant discussion of German locational PPs.

25. The "coercion" of one aspectual class into another is a topic I cannot explore further here.

26. For P_{Loc}, I assume without argument that it always takes a DP complement. Though PP recursion (one PP being embedded in another PP) is not at all uncommon, *locative* Ps generally do not take adpositional complements. One (facetious) exception that I am aware of is Morris Bishop's *up from out of in under there* (*New Yorker* [Sept. 27, 1947]), where *in* takes an *under*-PP.

27. I am confining the discussion throughout to the class of *lexical* verbs, setting *functional/auxiliary* verbs aside. Arguably, as their name suggests, functional/auxiliary verbs are not representatives of the lexical category V.

28. This dependency relationship manifests itself in Romance causatives in the form of a ban on the *perfective* aspect in the bare-infinitival complement of the causative verb. It does not seem to be the case that *all* values for Asp demand a local $Dx^{[tense]}$ in this environment, however: Guglielmo Cinque (personal communication) points out that Italian causative *fare* allows the inchoative, repetitive, and terminative aspectual verbs *andare* 'go', *venire* 'come', *tornare* 'return', and *finire* 'finish' in its complement. These aspectual verbs exhibit typical nonlexical behavior in being transparent to clitic climbing (*glielo faccio andare a/finire di dire* 'I make him go say/stop staying it'), which suggests that they occupy Asp, not V. It is possible, therefore, that the fate of (65b) should be relativized to the specific value of Asp. Hereinafter, I base my argument on the most restrictive case, barring (65b), to see where this leads us.

29. I do not actually make the requisite "mutations" here. It is certainly not a trivial question how the T-chain-based discussion of the vicissitudes of (65a–d) can be made to carry over into nontemporal domains such as the noun phrase or the adpositional phrase. I assume, however, that such a translation is possible, and I take it to be the null hypothesis that the patterns we find in the verbal extended projection are replicated in the extended projections of other lexical categories.

Both Zwarts (2006) and Lestrade (2006) find fault with the idea that $Asp^{[Place]}P$ can be absent from directional PPs, as in the structure in (66a), pointing to a problem of compositionality: One would expect there to be a Place function present in all spatial PPs, and if this Place function translates (as in Jackendoff's 1990 assumptions) into the presence of a PlaceP, then directional PPs that lack PlaceP are an anomaly. However, for me Koopman's (2000) PlaceP is an aspectual projection, $Asp^{[Place]}P$ making a bounded/unbounded distinction for locative PPs (recall the discussion after example (59)); it does not *encode* the Jackendovian Place function, which I assume to be encoded directly by P_{Loc} itself by way of a lexical distinction between P_{Loc} and P_{Dir}.

30. The GTC says that a head that has an element incorporated into it governs everything that the incorporated head governed in its original structural position. Incorporation thus extends the government domain of the incorporating head downward. The formulation of the GTC is in terms of government, a now defunct notion. I do not have space here to outline the contours of a minimalist update of the GTC; see Den Dikken (2007, section 4.3) for a brief discussion.

31. See also Svenonius (2004) for the idea that P introduces an event argument that cannot be bound by T (unlike V's E-role).

32. Nothing else said, we would now expect the P-object to be able to be promoted to subject in a passive construction—that is, we expect pseudopassivization to be grammatical in incorporation contexts. This expectation is not borne out. In Den Dikken (2003a, section 5) I address this issue in detail, presenting a perspective on pseudopassivization that derives the facts.

33. That locative PPs originating in the complement of V are illegitimate in postverbal position is shown in (i). The exact nature of the landing site of the leftward-shifted $C^{[Place]}P$ is unclear (cf. Koster's 1994 and Zwart's 1994 PredP) but clearly irrelevant for our purposes here.

(i) a. dat Jan <op de tafel> zat <*op de tafel>
that Jan on the table sat on the table
b. dat de kleren <aan de lijn> hangen <*aan de lijn>
that the clothes on the line hang on the line

34. $Dx^{[Place]}P$ is licit in the complement of P_{Dir} in (73a) (whereas it was not in (71a)) because $Dx^{[Place]}$ can be anaphorically bound by $Dx^{[Path]}$ in this structure. It is the absence of $Dx^{[Path]}$ in (71a) that makes it impossible for P_{Dir} to select $Dx^{[Place]}P$ in this context.

35. The exact size of the complement of P_{Dir} is an open question for me at this time. What the analysis needs to ensure is that a non-r DP in the complement of P_{Dir} cannot make it into $SpecAsp^{[Path]}P$: Such movement would deliver postpositional word order.

36. This account readily carries over to *van . . . af*, which replicates the pattern in (24), (25), and (27) (see (i)), with *af* as the spell-out of $C^{[Path]}$ (like *toe* in the text example). For *door . . . heen* in (ii) (where (iib) is ill formed if *er* represents *de kamer* 'the room' in (iia); the string *hij rende er door* 'he ran through it' is not ill formed per se: It is fine if *er* stands for, e.g., a puddle), a similar analysis is available, though this time we cannot assume that *heen* lexicalizes $C^{[Path]}$ underlyingly: *Heen* is a deixis particle that represents $Dx^{[Path]}$ (recall the discussion of (61) with reference to German *hin*, of which Dutch *heen* is a direct cognate). On the assumption that *heen* raises to $C^{[Path]}$ in the course of the derivation of (iib), the text account extends to *door . . . heen* as well.

(i) a. hij sprong van de brug/toren (af)
he jumped from the bridge/tower off
b. hij sprong er van *(af)
he jumped $there_{[+R]}$ from off

(ii) a. hij rende door de kamer (heen)
he ran through the room DXPRT
b. hij rende er door *(heen)
(* without *heen* as r-word counterpart of (iia))
he ran $there_{[+R]}$ through DXPRT

37. For (75b), it is less clear what the analysis predicts. Whereas incorporation of a lower head into a lexical head via intermediate stopovers in functional head positions along the way violates Li's (1990) binding condition on head movement (constituting "improper movement"), incorporation of the *highest* functional head into the lexical head selecting it is not technically speaking "improper" (A-to-A′-to-A): The initial trace in simple, two-member chains whose foot is in a non-lexical/A′ position and whose head is in a lexical/A position does not qualify as a variable (given that variables are by definition A′ bound), so no binding violation could ensue in chains of this sort (see also Den Dikken 1995, 26n23 for discussion of this point). There may indeed be cases of incorporation of a nonlexical/functional head into a lexical head, creating simple, two-member chains. Den Dikken (1995) argues at length that verbal particles are nonlexical elements, yet they can ostensibly incorporate into verbs. Moreover, in the nominal domain, both Uriagereka (1988, 1996) and Baker and Hale (1990) argue for movement of determiners up to V in cases of determiner or

pronoun incorporation/cliticization. As far as "(im)proper movement/binding" is concerned, therefore, there should not necessarily be a problem with incorporation of *toe* in (75b) into the verbal cluster.

38. *Zu* is not strictly speaking *strictly* directional: There are a few cases in which *zu* is locative (*zu Hause* 'at home', *Humboldt-Universität zu Berlin* 'Humboldt University at Berlin'), but these are no longer part of a productive pattern in present-day German. By contrast, *zu* as a directional P is entirely productive. *Nach*, the cognate of Dutch *naar*, is not productively used with DPs with determiners (it is predominantly used with place names); verifying the case assigned by *nach* is therefore difficult in light of the fact that it is the determiner that spells out case in German, whereas the head noun is typically uninflected (a few special cases notwithstanding).

39. In what follows I present my take on these questions from the point of view of my theory of PP structure. See also Zwarts (2005a) and Lestrade (2006) for recent discussions of adpositional case (the latter from a typological point of view).

40. "Oblique" here stands for any case other than nominative and accusative. For German, this amounts to dative; the few Ps that govern genitive in German (*innerhalb* 'inside', *außerhalb* 'outside', *infolge* 'because of', *trotz* 'despite', *während* 'during', *wegen* 'due to') are all noncore Ps (derived from something adjectival, nominal, or participial) and are ignored here. Lestrade (2006, 33) points out correctly that my formulation of (80) in Den Dikken (2003a), specifically in terms of dative case, would prevent it from carrying over to languages that employ different oblique cases for the complement of P_{Loc} (instrumental, locative, genitive).

41. In the structures in (81), this aspectual head is $Asp^{[Path]}$, which is assumed to check accusative case. Recall, however, that directional PPs are not necessarily as large as CP: In particular, bare directional PPs are legitimate in the complement of V. In a configuration in which neither P_{Loc} nor P_{Dir} has an aspectual projection in its extended projection, accusative case on DP is checked against an aspectual head in the extended projection of V. See Den Dikken (2003a, section 5) for relevant discussion.

42. The qualification "spatial" is important here: *Ohne* 'without' is an accusative case assigner, but it is clearly not directional; it is not a spatial PP to begin with; hence, it could not possibly by directional. I have nothing to say about nonspatial PPs in this chapter.

43. Recall from the brief discussion in section 5.5 that there may be reason to believe (based on the case facts of German directional PPs) that P_{Dir} cannot take *nominal* (DP) complements.

44. The Benvenistian adage that "*have* = *be* + P" (cf. Kayne 1993; Den Dikken 1995) does not refute the text claim as long as the incorporated P is always *null* in this case. See Den Dikken (1995) for discussion of the idea that dative shift, which is argued to be an integral part of the derivation of *have* sentences, is always set in motion by the need to license a *null* dative P.

45. One property of Ps (including spatial Ps) that is often raised as an argument for treating them as functional rather than lexical elements is the fact that they belong to a *closed class*. I do not believe this constitutes a valid basis on which to categorize Ps as nonlexical. The range of conceptually and physically possible spatial relationships is simply too small to facilitate the kind of infinity found with quintessential open-class categories such as N. One cannot make up a new spatial relationship at will; in making up spatial P elements, one is tied to the limitations of three-dimensional space. Languages certainly vary *within* the range of physically possible spatial relationships when it comes to their lexicalizations of such relationships, but they cannot go *beyond* that range.

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4

PETER SVENONIUS

Spatial P in English

1. Introduction

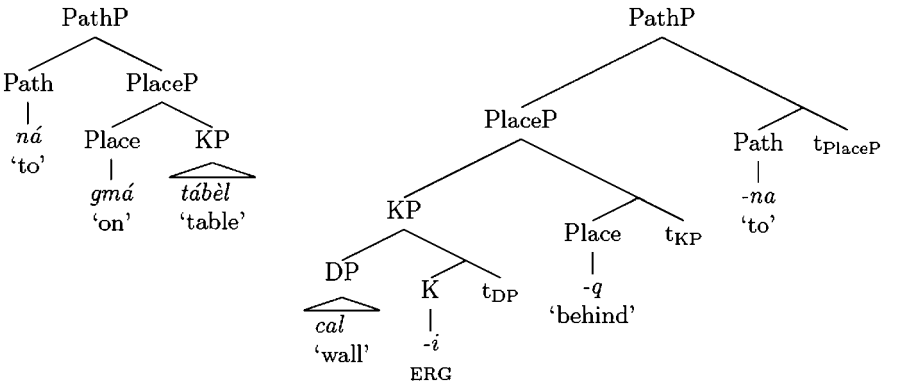
The syntactic structure of prepositional phrases is quite rich, as has been demonstrated in numerous recent detailed studies of individual languages. In this chapter I present an analysis of the prepositional system of English, focusing on spatial expressions and applying a cartographic approach (of the sort pioneered by Cinque 1999).

A recurring observation is the basic distinction between what can be called Place (associated with locational meanings) and what is often called Path (associated with directed motion). Place elements give information about the physical configuration of the relationship between a figure (an object whose location is at issue) and a ground (the reference landmark for the location of the figure).[1] This is illustrated in (1a), where "the elephants" is the figure and "the boat," the ground. Path elements give information about a trajectory; Path elements may specify whether a Place is a goal (1b) or a source (1c) and may specify the orientation of a trajectory (1d):

(1) a. The elephants remained **in** the boat.
b. They cast a wistful glance **to** the shore.
c. The boat drifted farther **from** the beach.
d. Their ears sank **down** several notches.

When Path and Place elements co-occur, Path is morphosyntactically outside Place—either further away from the nominal stem, in a local case system (cf. Kracht 2002) or further away from the noun phrase, when they are unbound morphemes (Van Riemsdijk and Huybregts 2002). This can be illustrated with a pair of languages:

(2) a. ná gmá tábèl (Zina Kotoko; Holmberg 2002)
to on table
'onto the table'
b. cal-i-q-na (Tabasaran; Comrie and Polinsky 1998, 99)
wall-ERG-*behind-to*
'to behind the wall'



In (2a), the base order of Path and Place is preserved at the surface. In (2b), both are affixal, and the tree is represented in "roll-up" fashion (in the tree for Tabasaran, I represent the case morpheme as a K head, on the inessential assumption that the ergative morphology projects).

In this chapter I examine the detailed structure of English Place and Path projections and the words that appear in them. I concentrate on spatial expressions (see Roy and Svenonius 2009 for an extension to temporal and other nonspatial uses). In particular, I consider four classes of P elements, as presented in the following table.

(3)

Projective	Bounded	Extended	Particle
behind	among	around	up
in front of	between	through	down
inside	next to	across	on
outside	beside	along	off
above	upon	over	in
below	near	under	out
beyond	against	past	away

Within each of these classes are further distinctions; for example, *under* and *over* have some properties that distinguish them from the other extended Ps.[2] Also, *in* and *on* have bounded place uses that are distinct from their particle uses, and *near* has several properties that distinguish it from the other bounded Ps. Nevertheless, the preceding table gives an approximate first categorization; the distinction between the first and second columns is laid out in section 2; the character of the elements in

the third column is discussed in section 3 (along with Path elements like *to* and *from*); and the particles in the fourth column are discussed first in section 2 and then further in section 4.

2. Place

2.1. Distribution of PlaceP

As an initial hypothesis it can be assumed that the elements in the leftmost column in the table in (3) (the column labeled "Projective") head a class of syntactic entities called PlaceP, which can express locational relations in certain contexts in English. One external diagnostic for PlaceP is that it can be the complement of stative verbs expressing location, such as *remain* or *be located*, and can also occur as a locative adjunct to verb phrases that imply no motion.

(4) a. The boat remained **behind** the hill.
b. The boat was located **inside** the cave.
c. The boat stood **below** the bend.
d. The boat burned **beyond** the city limits.
e. The boat was painted **in front of** the palace.
f. The boat remained **above** the dam.

This is also true of certain more complex expressions, which are discussed in section 4.

(5) The boat remained six miles up the river

Verbs can be organized into obligatory direction (e.g., *go*), optional direction (e.g., *fly*), and nondirection (e.g., *stay*) on the basis of the interpretations of expressions like those in (6); the first example is obligatorily directional, the second ambiguously directional or locative, and the third obligatorily locative (I discuss the P element *over* later):

(6) a. The plane went over the city.
b. The plane flew over the city.
c. The plane stayed over the city.

The most natural interpretation for a projective PlaceP with an optional motion verb is the locative one, though a directional reading is often freely available:

(7) a. The plane flew behind the trees.
b. The rabbit jumped inside the cage.
c. The submarine sailed below the ice.
d. The marathoners ran beyond the city limits.
e. The revelers danced in front of the palace.
f. The mountaineers climbed above the dam.

All of the PlaceP expressions in (4) can also serve as a complement to the preposition *from*:

(8) a. The boat drifted from behind the hill.
b. The boat drifted from inside the cave.
c. The boat drifted from below the bridge.
d. The boat drifted from beyond the city limits.
e. The boat drifted from in front of the palace.
f. The boat drifted from above the dam.

Furthermore, PlaceP expressions can appear as restrictive modifiers with ordinary common nouns:

(9) a. the boat behind the hill
b. the boat inside the cave
c. the boat below the bridge
d. the boat beyond the city limits
e. the boat in front of the palace
f. the boat above the dam

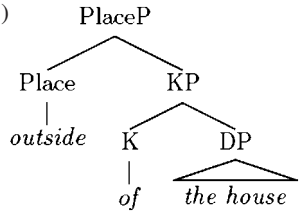
When these sequences (i.e., PlacePs) take on a directional or path-denoting meaning, as with motion verbs like *drift*, I assume it is due to a null path element with the approximate semantic value of overt *to* (Gruber 1967). In fact, overt *to* is marginally licit in these contexts:

(10) a. The boat drifted (?to) behind the hill
b. The boat drifted (?to) inside the cave
c. The boat drifted (?to) below the bridge
d. The boat drifted (?to) beyond the city limits
e. The boat drifted (?to) in front of the palace
f. The boat drifted (?to) above the dam

On the cartographic approach to phrase structure, there is at least roughly a category Path over a category Place in a functional sequence (cf., e.g., Van Riemsdijk and Huybregts 2002).

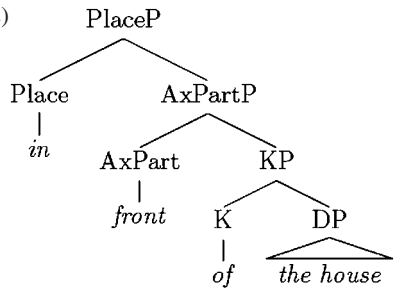
However, an even more refined structure can sometimes be discerned. In many cases, Place itself can be further decomposed. There is evidence for a category that I call K for case, manifested by a genitive marker in many languages (as with English *of* in *out of the box, outside of the house, east of Russia*) (compare Starke's 1993 structures for French prepositional phrases and Yadroff's 1999 ones for Russian, which both postulate a functional head below one with more content).

(11)



Complex expressions like *on top of* and *in front of* can be analyzed as in (12), with an additional component of Place (see Svenonius 2006 on Ax[ial]Parts).

(12)



Elements like *outside* might similarly be decomposed into *out* plus *side* (an AxPart implying sidelike boundaries).[3] I also assume that it is in the functional area that I am calling AxPart that frames of reference are fixed since, for example, a *front* can be identified either relative to the viewer or on the intrinsic properties of the ground; cf. Levinson (1996a, 2003); Rooryck and Vanden Wyngaerd (2007). AxParts are important for the understanding of the spatial systems of many languages, though distinct AxPart morphemes like *front* and *back* do not play a large role in the English P system.

Importantly, multipart examples like *in back of* or *on top of* often have distributions and meanings like monomorphemic examples like *behind* or *against*.[4] This raises an important question: If *in back of* is syntactically complex and *behind* has the same syntax, does it follow that *behind* is syntactically complex? This chapter pursues the hypothesis that the answer is yes and that there is a very tight syntax-semantics isomorphism.

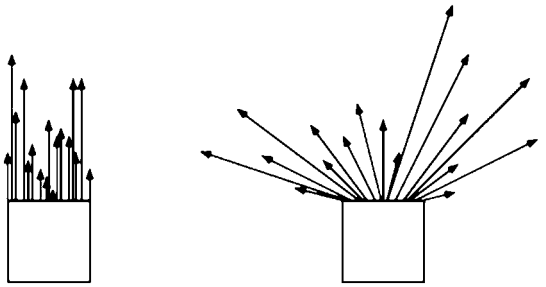
For instance, the presence or absence of an overt morpheme corresponding to K does not seem to have major consequences for the syntax or semantics, so if K is determined to serve a function when it is overt, then a null K serving the same function might be posited in cases where it is not overt. Thus, in many cases, a single overt morpheme will correspond to a rich syntactic structure (a hypothesis that my colleague Michal Starke calls "nanosyntax"). Part of the goal of this analysis is to identify the syntactic structures that are spelled out by each preposition.

2.2. PlaceP and vector spaces

Generally, a spatial adposition can be modeled as a function from a DP object (a ground) to a region in the sense of Creary, Gawron, and Nerbonne (1989) or Nam (1995): a contiguous set of points in space. However, to capture various complexities such as the distribution of measure phrases (as in "ten centimeters above the window") and directional adverbials (as in "diagonally above the window"), Zwarts (1997) and Zwarts and Winter (2000) develop a vector space semantics for location PPs.

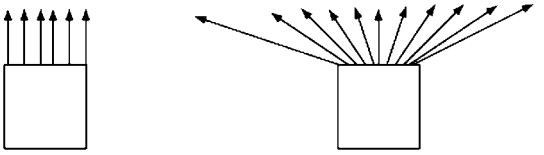
For example, to calculate the space picked out by the preposition *above*, one projects vectors of all lengths pointing upward from the ground DP, as illustrated in (13) for a PP like "above the window" (two alternative conceptions are illustrated, one with vectors pointing straight up and another with vectors pointing upward at various angles). Each vector ends at a point in space, and this collection of points defines the place "above the window."

(13)



A measure expression like "one meter" can then be assumed to pick out a subset of vectors that intersect a plane defined by a length of one meter measured on the vertical vectors. Thus, if you were told to look for a bug one meter above the window, you might look in the space indicated by the arrowheads in (14) (again, diagrammed twice, once on the assumption that vectors point straight up and again on the assumption that they point upward at varying angles).[5]

(14)



The vector-based analysis provides an explicit semantic decomposition of the meaning of projective prepositions. Next I present some evidence that suggests that each component of the semantic decomposition corresponds to a syntactic projection. In this decomposition, K is a function from a ground DP to a region. Specifically, K returns what Wunderlich (1991) calls an *eigenplace*, the space occupied by the ground.[6] An AxPart (words like *front* and *top*, mentioned in the previous section) is a function from eigenplaces to subparts of them.[7]

A projective preposition must include as part of its meaning a function from regions to vector spaces, composed of vectors pointing away from the region (upward for *above*, backward for *behind*, and so on). Finer discriminations about precise angles, distance, and so on is (I assume) left up to pragmatics and conditions of language use; for example, someone may feel that some of the vectors in (14) are too oblique or that some are to be preferred over others as more canonically picking out "above," but I am not concerned with these details (see, e.g., Carlson, Regier, and Covey 2003 for evidence of how functional considerations affect intuitions about spaces described by prepositions).

As a locative PP must identify a region in space on the basis of those vectors, there must be another function that maps vector spaces onto the regions picked out by the relevant vectors (the *loc*⁻ function of Zwarts and Winter 2000); in effect, a projective adposition has to turn a region (the eigenplace of the ground) into a vector space and then back into a region (the set of points in which the figure is located).

Measure expressions restrict vector spaces, not regions, so strict compositionality would suggest that measure expressions are introduced in between these two steps; if the steps are directly represented in the syntactic structure, then this means that what I have been calling Place consists of at least two parts (not including AxPart and K): one part that creates the vector space, and another that identifies the ends of the vectors as a region. Koopman (2000) proposes a Deg head above Place that introduces measure expressions in its specifier; I use the label Deg for the head that is responsible for picking out regions on the basis of the vector spaces that I now assume are the output of a distinct category, Loc. Thus, what was called Place at the beginning of this section is now decomposed into at least the components Deg-Loc-AxPart-K. Also, Deg and Loc are present at least in all projective adpositions, and AxPart and K are present at least in all adpositions that presuppose something about the axial structure of the ground reference object (e.g., *along* presupposes that the ground has a "long" axis).

For the present purposes it can be assumed that it is in AxPart that a preposition like *above* is specified to point upward (i.e., that the relevant subpart of the ground, away from which vectors are projected, is its top); note that *above* can have different frames of reference, which implies the presence of AxPart on the proposal of Rooryck and Vanden Wyngaerd (2007) that it is in AxPart that frame of reference is determined.[8]

The term *Place* will continue to be useful as a cover term for whatever collection of functional heads converts a reference object into a locative expression in a given situation. Since a locative PP is relational, a figure argument must also be introduced.

Adpositions such as *in* and *on* seem to name relations between a figure and some kind of space (roughly, containment and contact, respectively). In the case of projective prepositions, the figure is related not directly to the ground but rather to the space picked out by the functions that I referred to earlier with the label Place, possibly decomposed into Deg-Loc-AxPart-K. Thus, it seems likely that the figure is introduced above Deg.

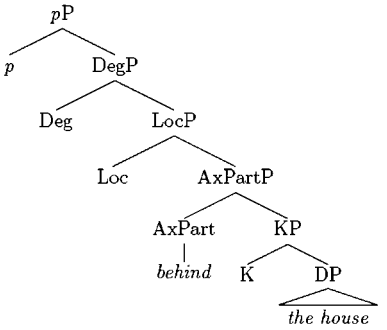
I therefore posit a category *p* (Svenonius 2003, 2007), which introduces a figure in neo-Davidsonian fashion (parallel to Kratzer's 1996 voice head in the verb phrase). This *p* is the natural locus of relational notions of containment, attachment, and support, which are commonly expressed by prepositions such as *in* and *on* and their counterparts cross-linguistically (cf. Levinson 1996b). I will present arguments shortly that *p* is above Deg, as discussed later (this hierarchy is discussed further in Svenonius 2008).

In a path-denoting prepositional phrase, *p* is dominated by additional structure, including the projection called Path in section 1. Path is canonically expressed by *to* or *from.* A path is an organized collection of spaces normally arranged with a directionality (see Krifka 1998; Zwarts 2005 and references there; see also Gawron 2006 on stative uses of paths). In a source expression (e.g., "from the frying pan"), the complement of *from* is interpreted as the initial part of the path; in a goal expression (e.g., "to the fire"), the complement is the endpoint. To keep the semantics of these Path heads constant, it can be assumed that when they appear to combine directly with a DP ground (as in "to the fire," as opposed to, e.g., "to inside the fire"), there is also syntactic material identifying Place (i.e., some or all of the *p*-Deg-Loc-AxPart-K structure just postulated), but nothing much in the present account hinges on this (see Svenonius 2008).

2.3. Degree in PlaceP

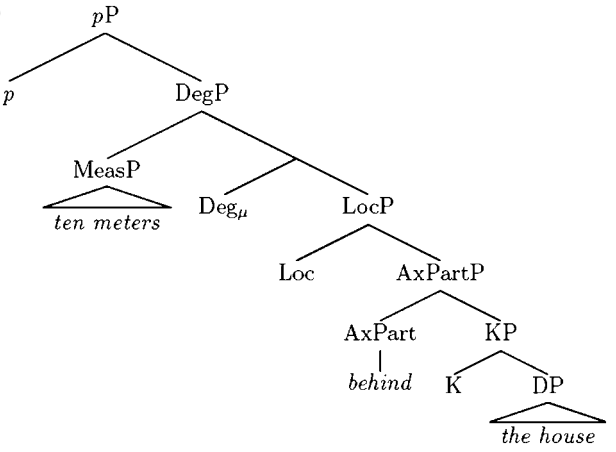
As already noted, following Koopman's (2000) and Den Dikken's (this volume) analyses of Dutch, I assume a Deg head as a component of Place; the usual denotation of this Deg head, I assume, is a function from vector spaces to the regions of space that the vectors pick out (making it the syntactic manifestation of Zwarts and Winter's 2000 *loc*⁻, as noted earlier). A locative PP like "behind the house" might look something like (15), where I represent *behind* under the AxPart node. The relationship of the vocabulary item to the other syntactic nodes in the tree is discussed shortly.

(15)



A measure phrase, I assume, is introduced in the specifier of a different head of category Deg, Deg_{μ} (corresponding to what Svenonius and Kennedy 2006 called "Meas" in APs).[9] Deg_{μ} is like Deg except that it takes a measure phrase as its specifier. This is illustrated in (16), for "ten meters behind the house."

(16)



The projective expressions in the first column in (3) (*in front of, below*, etc.) but not the bounded expressions from the second column (*between* and *next to*, etc.) can be modified by measure expressions that, as already noted, basically give the lengths of vectors (subject to the caveat in note 5).

(17) a. We remained sixty feet in front of the palace.
b. My clothes are ten meters below the bridge.

(18) a. *They came from six feet between the trees.
b. *They opened the door one meter next to the stage.

What unifies the bounded prepositions is that they each include a meaning component not found in the projective prepositions. Some presuppose a complex relation between a figure and a ground (*among, between, amid*), some imply a short distance (*next to, beside*), and others imply contact (*upon, against*). This contrasts with the projective prepositions, which all feature the same basic relationship between a figure and a ground: A region is projected from some part of the ground, and the figure is located in that region.

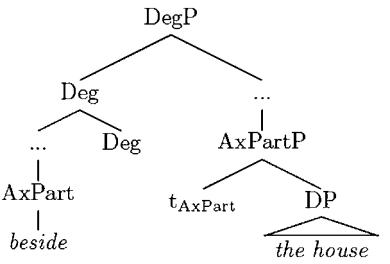
I have identified three distinct functions in the construction of a projective adpositional meaning (in addition to AxPart and K): the projection of vectors (Loc), the identification of a region on the basis of that vector space (Deg), and the introduction of a figure argument with some relationship to that region (*p*). Each bounded adposition is different in at least one way, which makes the inclusion of Deg_{μ} in the Deg position inappropriate or impossible. For example, *upon* and *against* include the meaning component of contact, like *on.* I have suggested that contact is a relational meaning contributed by *p;* if contact is simply incompatible with Deg_{μ}, which introduces a measure argument measuring vector lengths, then *upon* and *against* will be incompatible with measure expressions.

Similarly, if *beside* and *next to* imply closeness to the ground, which is a function of the lengths of vectors, then conceivably *beside* and *next to* supply a meaning component for Loc and/or Deg that is incompatible with Deg_{μ} (see Svenonius 2008 for a development of this line of reasoning).

It is also possible that some of the bounded prepositions are not projective at all; if a preposition like *between* or *among* includes in its meaning some nonprojective sense where projective prepositions have Deg and Loc, then it might not provide a vector space at all, and Deg_{μ} would be inapplicable. I suggest later that there is reason to think that *between* and *among* supply *p* meanings and that that is enough to make them incompatible with Deg_{μ}, but the argument is a subtle one, and the nonprojective analysis might be right after all.

In a late-insertion model of syntax (e.g., Halle and Marantz 1993), vocabulary items are inserted postsyntactically into syntactic trees. Assuming such a model, a bounded preposition like *beside* would be specified with Deg features because it supplies lexical content for Deg ('close,' following Svenonius 2008), as well as some lower Place features, such as AxPart (where *side* makes its contribution). If lexical insertion is the association of vocabulary items with terminals, then some independent factor must ensure that Deg and AxPart are in the right configuration at the time of insertion for one vocabulary item to associate with both features. For example, it might be assumed that all P heads in English are conflated by head movement before lexical insertion, as illustrated in (19):

(19)



Alternatively, vocabulary insertion might allow vocabulary items to associate with several heads without head movement (as in Ramchand 2008); what is important later is that when two heads X and Y are lexicalized by a single vocabulary item, the phrasal projection of Y, YP cannot undergo phrasal movement to a specifier between X and Y (specifically, in the account developed later, the movement of a certain phrasal subconstituent of PlaceP to a higher Place-internal position is incompatible with the spelling-out of both AxPart and Deg or *p* by *beside* and other bounded Ps).[10]

2.4. Omission of ground in PlaceP

In the previous section, I suggested that the bounded prepositions each have a meaning component of contact, closeness, or interpolation not found among the projective prepositions. This meaning component requires the bounded prepositions to lexicalize syntactic structure that is incompatible with the head introducing measure expressions, and as a result, the bounded prepositions cannot be modified by measure expressions.

However, I have not yet demonstrated how that account is superior to one in which the incompatibility between boundedness and measurement is handled in a nonsyntactic semantic component or one in which bounded features and measurability features block each other without the mechanism of syntactic projection. In this section I show how this analysis predicts additional consequences that the alternatives would not predict.

As noted in section 1, the landmark that is the complement of a preposition can be called the ground. Omission of the ground is possible in certain contexts; with the projective prepositions from the first column in (3), anaphoric identification of the ground is generally sufficient.

(20) a. As the group approached the final summit, Espen stayed **behind** (them).
b. There was a box on the table. **Inside** (it) was fine Swiss chocolate.
c. We stood on a bridge. **Below** (it) we could see barges laden with port wine.
d. Nils looked over the snowdrift. The frozen fjord **beyond** (it) was dotted with seals.
e. I saw a line of soldiers. A soldier **in front** (of it) was talking on the phone.
f. There was a beach. **Above** (it), the cliffs swarmed with birds.

The bounded series of prepositions, the ones listed in the second column in (3), disallows anaphoric identification of ground.

(21) a. As the group approached the final summit, Espen stayed **among** *(them).
b. We stood below a bridge. **Upon** *(it) we could see trucks laden with port wine.
c. There were two stacks of boxes in the warehouse. **Between** *(them) was a forklift.
d. I saw a small house. **Beside** *(it) was a gas pump.
e. There was a beach. **Next** *(to it), the cliffs swarmed with birds.

The possibility of a null anaphoric ground correlates roughly with the possibility of overt **there**.

(22) a. Get **behind/inside/in front of/?below/?above/?beyond** there.
b. *Get **among/upon/between/beside/next to** there.

Kayne (2004) notes that in expressions like *in there* and *under here, here* and *there* are not interpreted as the ground; *under here* means or can mean something like "here, under something" rather than "under this place."[11] This suggests that in at least some expressions, like those in (22a), the ground is null, and the deictic element is introduced higher up; assuming that higher material is introduced on the left (Kayne 1994), the preposition in (22a) has moved to the left, as Kayne (2004) suggests.

The spatial words *here* and *there* can appear in a PP to the left of the preposition, as seen in (23):

(23) a. Come here inside the closet.
b. Lie there behind the dresser.

Note that the ground must be overt in such cases.

(24) a. ??Come here inside.
b. ??Lie there behind.

The words *here* and *there* can also be added to full DPs but not easily to pronouns.

(25) a. the house there
b. the man here
c. *it there
d. *him here

On the basis of these observations, we can see that (26a) must involve a DP with *here* inside it since (26b) is ungrammatical except on a reading where *here* is not interpreted outside the PP altogether (i.e., with a structure like the one in "get inside the spacecraft at this end").

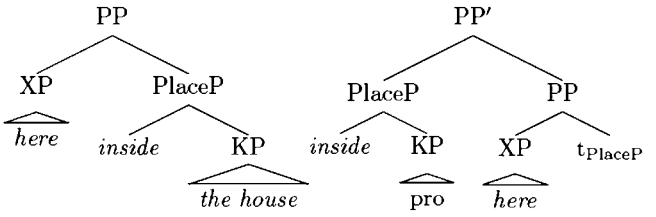
(26) a. Get inside the house here.
b. *Get inside it here.

Now, taking (26b) to show that PP-internal *here* cannot appear to the right of a full PP with overt ground, it can be concluded from (27a) and (27b) that a PlaceP with a null KP must move across the position of PP-internal *here* and furthermore that this movement is possible only when KP is null.

(27) a. Get inside here.
b. *Get here inside.

What appear to be two facts (appearing with a null KP and appearing with a following *here* or *there*) then reduce to a single one, namely the obligatory movement of PlaceP with null KP to a position left of the deictic element (illustrated here using shorthand labels PP and PP' for as-yet unidentified categories, to be discussed in section 2.5).

(28)



Suppose, then, that it is this movement that somehow licenses the null KP. This is an important assumption in the analysis sketched in the following section.

It remains to be explained why this option is available for some Ps and not others: why Place expressions like *above* are compatible with a null anaphoric KP that means something like *there*, while bounded prepositions like *beside* are not. In addressing this, I now turn to some cross-linguistic observations after introducing some general facts about degree measurement.

2.5. A deictic projection

I pointed out in section 2.4 that the projective prepositions (but not the bounded ones) allow a null KP through movement to a PP-internal position. In section 2.3, it was shown that the same two classes are also distinguished by the possibility of measure modification.[12]

(29) a. He was a hundred meters behind the bus.
b. We were a few inches in front of the bull.

(30) a. *He was a hundred meters between the airplanes.
b. *We were a few inches next to the bull.

I have identified three semantic features that distinguish bounded Ps: contact (clearest for *against* and *upon*), closeness (suggested for *beside* and *next to*), and interpolation (*among* and *between*). By making certain assumptions about projection and the organization of functional categories, I suggested that the presence of these features could be incompatible with measure expressions.

The question to be addressed here is why this cluster of properties should also prevent bounded Ps from having null KPs. The answer I propose is based on the assumption, outlined earlier, that a bounded preposition expresses features that must be checked on a higher head (namely, the *p* or Deg features). I suggested earlier that licensing of null KP requires movement of some projection of PlaceP. If PlaceP moves as a phrase to a specifier position below *p* or Deg, then the right configuration for checking *p* or Deg features cannot be achieved (assuming, on a head-movement analysis, that a head cannot move out of a specifier; cf. Baker 1988). In this section, I bolster the plausibility of that account by showing in a little more detail some of the evidence for a fine structure of Place.

There is evidence from other languages for a layer of functional structure below Deg that can express different degrees of proximity to a deictic center (Svenonius 2006); for example, in Korean, a demonstrative can be added to a PP structure, thereby adding a proximal or distal interpretation, as exemplified in (31) (originally from Son 2006):

(31) Ku sangca-nun oscang ce mit-ey twu-ess-ta.
the box-TOP *chest* DIST *bottom*-LOC *place*-PAST-DC
'I put the box over there under the chest'

Similarly, Tsez has a distal morpheme that separates the Place suffix from the Path suffix in the local case system (examples constructed on the basis of Comrie and Polinsky 1998).[13]

(32) a. besuro-ƛ-āy
fish-under-from
'from under the fish'
b. besuro-ƛ-āz-ay
fish-under-DIST-*from*
'from there under the fish'

Suppose that these distal and proximal morphemes are the spell-out of features in a layer called Deix[is]. There is evidence that Deix is below Deg, at least in Persian (see Pantcheva 2006, 2008 on Deix elements in Persian), as shown by the order of the measure phrase and the distal marker in (33a) (data from Marina Pantcheva, personal communication).

(33) a. dær 10 metri-ye un birun-e xane
at *10 meters*-EZ DIST *outside*-EZ *house*
'there, 10 meters outside the house'
b. *dær un 10 metri-ye birun-e xane
at DIST 10 *meters*-EZ *outside*-EZ *house*

On a generally cartographic approach to PP structure, we might then expect that if a language like English introduced proximal or distal information into a PP structure, it would do so in the same region.

PlaceP, which precedes Deix in English, cannot also precede Deg:

(34) a. a few centimeters under here
b. *under a few centimeters here

Thus, it seems that the movement of the groundless PlaceP is to a specifier below Deg but above Deix; suppose it is the specifier of Deix itself. Somehow this movement licenses a null KP complement of Place. If a bounded preposition is to be inserted, PlaceP cannot move to the specifier of Deix because those Ps must head-move to Deg or to *p*, which as argued are both higher than Deix (Deg was shown to be higher than Deix in Persian, and *p* was argued to be higher than Deg on interpretive grounds).

I speculated earlier that a preposition like *between* might simply be nonprojective, for example, requiring a Deg or Loc head with a denotation other than the projective one. That would be sufficient to explain why it does not occur with measure expressions but not to explain why it does not occur with a null ground. The explanation suggested here for the distribution of null grounds is that *between* must specify either Deg or *p* meaning, which on current assumptions means it must head-move up to Deg or *p*. Recall that *p* is the locus of relational meanings like containment, contact, and attachment. If a component of the meaning of *between* is something like a figure-ground relation of interpolation, then *between* would have to head-move to *p*, which would preclude PlaceP movement to SpecDeixP. Stated differently, PlaceP movement to SpecDeixP precludes the insertion of a bounded preposition because the configuration suitable for such insertion is destroyed by the phrasal movement.

As it happens, there is evidence bearing on this speculation. The exact figure-ground relation expressed by *between* is slightly different from that expressed by *in between*; the latter requires a sense of enclosure, so, for example, one can say that India is *between* Europe and Australia but not that India is *in between* Europe and Australia; one could say that India is *in between* Bangladesh and Pakistan.

This shows that the meaning component of interpolation that *between* carries can be replaced by the meaning component "containment" carried by *in*, and when *in* means "containment" it is by hypothesis a *p* element. Now, if *p* can be separately lexicalized, then obviously *between* does not have to move there, and this predicts that when *in* is present, *between* should be able to move by PlaceP movement to SpecDeixP and license a null KP. The prediction is fulfilled.

(35) a. The street was lined with trees. There were benches between *(them).
b. The street was lined with trees. There were benches in between (them).
c. We laid down sheets of pasta with sauce between *(them).
d. We laid down sheets of pasta with sauce in between (them).

Since the alternative *p* option for *between* is *in*, which resists measurement, Deg_{μ} is still impossible (*three meters in the house, *three meters between the trees).[14]

Another case that supports this approach is found in *near*. This word is unusual as it is also an adjective (*nearer, nearest*). However, as a preposition it combines with

right, and when it does so, it is not compatible with null KP, consistent with other bounded prepositions:

(36) a. I was very near (it).
b. I was right near *(it).

I suggested earlier that *beside* and *next to* contain a meaning component of closeness that corresponds to a value of the head Deg, preventing Deg_{μ} from being inserted there. This same value is plausibly shared by *near* in its prepositional use and is responsible for the impossibility of measure phrases with the prepositional use (*one inch near me). Needing to combine with Deg, on the assumptions outlined here, prevents *near* from undergoing PlaceP to DeixP movement, which prevents it from taking null KP. However, given what we saw for *in between*, if there were a way to allow *near* to lexicalize Deg directly, letting some other element lexicalize Place, then PlaceP movement to Deix would be possible, and in this case the other element is *by: Nearby*, like *in between*, allows the null KP:

(37) a. There is a bookstore in the middle of town. There is a café near *(it).
b. There is a bookstore in the middle of town. There is a café nearby.

The following minimal pair repackages (36) to illustrate the contrast between *near* and *nearby:*

(38) a. I was {very/*right} near.
b. I was {right/*very} nearby.

For some speakers, *nearby* is best with no overt ground, suggesting that, for those speakers, *by* does not carry additional content not already present in *near* and is inserted only when required by the movement of PlaceP. The deictic element *there* is fully acceptable, as predicted: There's a café nearby there.

In sum, projective prepositions and bounded prepositions differ in how much functional structure they spell out, in keeping with an approach to lexical variation that has been pursued in much recent work (see, for example, Cardinaletti and Starke 1999; Longobardi 2001; or Ramchand 2008). On an account in which they all correspond to single Place heads with different features, it is unclear how to capture the correlations between null KP, the distribution of *here* and *there*, measure phrases, and multipart *in between*.

2.6. Particles with Place

I have suggested that the central uses of the words *in* and *on* in English are expressions of *p* heads, perhaps with additional features; I do not discuss that use any further in this chapter. They also appear, apparently lower down, in expressions like *in front of* and *inside* (lower down, not *p*, since measure expressions are possible with these collocations). The same words are also used as so-called particles in expressions like "put the coat on" or "take the laundry in," so I treat them together with

particles here, along with *up, down, off*, and *out*. I also include some examples with *over*, which has particle uses, though it was not listed with the particles in (3).

All of these expressions can have locative meanings in simple PP constructions:

(39) a. The cat is up the tree.
b. The horse is down the hill.
c. The dog is out of the house.
d. The parrot is off its perch.
e. The monkey is on the roof.
f. The polar bear is in the wine cellar.

These expressions have much the same external distribution as other locative PPs (e.g., those headed by projective prepositions like *above*). Null complementation, degree modification, combination with other elements, and directional meanings are addressed in other sections.

Projective and bounded Place expressions like *in front of* and *between* do not generally combine easily with each other:

(40) a. *the boat behind in front of the rock
b. *the cabin inside behind the mast
c. *the rudder above beyond the porthole
d. *the clouds beyond above the skylight

On the other hand, particles like *up, down on, off*, and so on combine more freely with Place expressions:

(41) a. The boat drifted from **back** behind the hill.
b. The boat drifted from **down** inside the cave.
c. The boat drifted from **off** below the bridge.
d. The boat drifted from **out** beyond the city limits.
e. The boat drifted from **over** in front of the palace.
f. The boat drifted from **up** above the dam.

Particles that modify locative PPs do not restrict the space denoted by the PP. Instead, particles introduce viewpoint for the space, generally as a presupposition. To determine whether a figure, say someone's stray reindeer, is *inside the cave*, it is sufficient to examine the location of the reindeer and the spatial extent of the cave. If the reindeer occupies the space bounded by the cave, then it is inside. In evaluating an assertion that a reindeer is *down inside the cave*, the truth conditions are essentially the same, but it is presupposed that the region bounded by the cave is lower than some logophoric center (e.g., the speaker or the subject is above the cave or imagines being at the mouth of the cave, looking downward).

Similarly, looking down from a mountaintop at a boat in the upper part of a dammed river, one can describe the boat as *above the dam* but not *up above the dam* without invoking the perspective of someone below the dam. The vector space for *above the dam* is calculated by considering the dam as a region and projecting vectors upward from it. If the boat is in that space, it is *above the dam*. In principle, then,

the hiker on the mountaintop could call attention to it as *that boat down above the dam*. Similarly, divers could refer to something (for example, their clothes) as *up below the bridge*, though these situations are of course unusual. Far more common is a strengthening effect with a supportive particle: *down below, up above, out beyond, back behind*.

The point is further illustrated in (42):

(42) a. A plane flew low (up) above the treetops.
b. A bee flew low (#up) above the clover.

In (42), the particle most naturally suggests that the event is occurring at some place that is 'up' from the speaker's point of view, making it absurd in (42b) unless the speaker is shorter than the clover. In fact, it seems just possible to say "The bee flew low down above the clover," though examples in which the particle matches the Place expression tend to sound more natural.

These examples show that the particles in locative PPs with Place expressions do not take the PlaceP as their complement (cf. also Hendrick 1976 and Van Riemsdijk 1978 for insightful observations about headedness in complex PPs).

The ground of *up* in (42) is not the PlaceP "above the treetops"; rather, it is a logophoric space, generally understood from context, often the space that the speaker is in. The external argument that they locate is, however, the same figure as that predicated by the preposition as a whole. Therefore, it is plausible that they are adjoined at the *p* level, the level at which the figure is introduced.

Consistent with this, they precede bounded prepositions, which by assumption are spelled out at the level of *p* or Deg, depending on the preposition.[15]

(43) a. I left my spear down between the floorboards.
b. I saw a wolverine out beside the fish-drying racks.

I return to particles below in sections 3 and 4.

2.7. Lexical versus functional heads

Den Dikken (this volume), building on Koopman (2000), proposes the following structure for analogous constructions in Dutch:

(44) C_{place} – Deg_{Place} – Place – P_{loc} – DP

For Den Dikken, P_{loc} is the lexical locus of prepositions including (locative uses of) *naast* 'beside', *in* 'in', *onder* 'under', *over* 'over', *op* 'on', and *achter* 'behind', while Place simply provides a landing site for moved elements including the locative pronoun *er*. Similarly, C_{Place} seems to be used mainly as a landing site. I am using the label Loc for a head that denotes a function from regions to vector spaces, and I am assuming that in some cases the complement of Loc is an AxPart, which is a function from regions to regions; its complement K is a function from DP denotations to regions. I have also adopted Koopman's Deg and postulated layers *p* and Deix.[16]

(45) *p* – Deg – Deix – Loc – AxPart – K – DP

It seems to me that the most important difference is that, on my account, the content material of spatial adpositions is distributed over a series of functional heads; for example, *between* combines a sense of interpolation in *p* with a sense of bifurcation in AxPart (presumably), contrasting with *among,* with the same sense of interpolation in *p* but a sense of compositeness rather than bifurcation lower down. Similarly, *near* expresses closeness in Deg, as does *beside*, but *beside* has distinct AxPart content. On the assumption that rich "encyclopedic" or conceptual content can be associated with vocabulary items that are inserted under functional heads, there is no need for a special lexical root at the bottom of a sequence of functional heads.[17]

To a certain extent my account resembles one in which P is part of the extended projection of N, as in Grimshaw (1991). Apart from this difference between the present model and those of Koopman (2000) and Den Dikken (this volume), my analysis of English looks very much like their analyses of Dutch in the richness of the functional structure postulated, an encouraging convergence as the accounts were developed on the basis of rather different data.

3. Paths

The canonical Paths are goal (*to*) and source (*from*); I have repeatedly used the distribution of *to* and *from* together with locative expressions in earlier examples. A goal Path is one in which the locative expression names the final point in a path of motion (Kracht's 2002 cofinal mode), and a source Path is one in which the locative expression names the initial point (Kracht's 2002 coinitial mode).

As noted in section 2, English so commonly allows the goal interpretation with locative expressions (e.g., "The twins raced under the bridge to get out of the rain") that it is useful to posit a null *to*, licensed under certain syntactic restrictions (e.g., adjacency to a motion verb; cf. Gruber 1967; Bennett 1975; Son and Svenonius 2008).

In addition, PPs built around the preposition *to* generally cannot express a static location; they are not good after *from* and not good as complements of verbs like *remain*.[18]

(46) a. *The boat drifted from to the edge.
b. *The boat drifted from onto the shoals.
c. *The boat remained to the edge.
d. *The boat remained up to the cave.

As a restrictive modifier of common nouns, prepositional phrases with *to* may denote a route or path of travel:

(47) a. the boat to Narvik
b. the tracks into the cave
c. the path up to the summit

If these readings are not available, then *to* phrases are bad as noun modifiers.

(48) a. *The cat to the edge was incautious.
b. *The butter onto the knife was soft

Thus, at least three elements in English fairly freely select PlacePs: *from, to*, and a null variant of *to* that is licensed by verbs of motion. They can be assumed to project PathPs that indicate where an expressed or implied movement begins or ends.[19]

3.1. Extended path places

I point out in section 2 that examples with projective prepositions, like (7) (repeated here as (49)), are most naturally interpreted as locative even when appearing with motion verbs:

(49) a. The plane flew **behind** the trees.
b. The rabbit jumped **inside** the cage.
c. The submarine sailed **below** the ice.
d. The marathoners ran **beyond** the city limits.
e. The revelers danced **in front of** the palace.
f. The mountaineers climbed **above** the dam.

There is another series of prepositional elements in English with equally rich spatial content for which the most natural interpretation in these same contexts is directional. These prepositions, illustrated in (50), were introduced under the label "extended" in the table in (3) (Zwarts 2005 groups them together with uncontroversial Path prepositions *to* and *from*):

(50) a. The plane flew **around** the trees.
b. The rabbit jumped **through** the cage.
c. The boat sailed **under** the bridge.
d. The marathoners ran **along** the river.
e. The revelers danced **across** the palace.
f. The mountaineers climbed **over** the dam.

A difference between the prepositions in (49) and those in (50) is that on the directional reading, those in (49) can be paraphrased with *to* ("to behind the trees," etc.), while those in (50) cannot (i.e., the path meaning of "through the trees" does not mean "to through the trees"). The two classes behave differently with (nonpath and nonvehicular) nominals:

(51) a. The climb above the dam was arduous.
b. The climb over the dam was arduous.
c. A dive below the bridge would be refreshing.
d. A dive under the bridge would be refreshing.
e. Kari's flip in front of the mat brought applause.
f. Kari's flip across the mat brought applause.

The examples with projective prepositions (here, *above, below*, and *in front*) are (nearly) obligatorily interpreted as locative, while the directional reading is favored in the examples with the extended prepositions (*over, under*, and *across*).

The normal interpretation for (51a), for example, would be that the event of climbing took place above the dam, a locative reading; the normal interpretation for (51b) would be that the event took the climbers from one side of the dam to the other, a directional reading.

This contrast can be accentuated by adding context:

(52) a. A dive below the bridge would allow us to see its foundations.
b. ??A dive below the bridge would get us to Canada.
c. A dive under the bridge would get us to Canada.

The extended prepositions include a Path component in their meaning, whereas projective and bounded prepositions must combine with *to* or some other Path element in order to appear as Path expressions.

Like projective and bounded prepositions, extended prepositions have rich descriptive content regarding a spatial configuration based on the topological or physical properties of a ground object; for example, *through* is based on the identification of the outer limits of a three-dimensional ground, *across* requires a two-dimensional ground, and *along* requires an elongated or "ribbonal" ground; *around* makes reference to the perimeter of a ground, and *over* and *under* pick out the regions above and below the ground in much the same way as *above* and *below* do. Thus, on the decompositional approach to prepositional meaning, we can assume that these prepositions lexicalize one or more of the lower heads in the extended projection of P (e.g., Place or AxPart) in addition to having a Path component.

On the assumptions outlined in section 2, a locative expression (specifically, a DegP) denotes a region, a contiguous set of points; a figure introduced by *p* is understood to be located at any one or more of the points in that region.

Extended prepositions, on the other hand, typically do not pick out points but arrangements of points (i.e., "paths"). *Through* and *across* pick out paths that connect opposing edges of the ground, *along* picks out paths that run parallel to the ground, and on their extended use, *over* and *under* pick out paths that cross the ground in the relevant dimension (unlike *above* and *below*).

This is seen most clearly in the static, locative senses of extended prepositions; in order to determine whether a log is *across* a stream, it is necessary to consider whether the stream is bisected by the log (i.e., whether the log occupies one of the sets of contiguous arrangements of points that connect one side of the stream with the other). Similarly, it is quite clear that to evaluate whether something is *around* or *through* something else, it will not be sufficient to identify a region and assert that the figure occupies some point in that region.

For concreteness I continue to assume that Ps that combine two or more categorial features spell out complexes created by head movement; thus, an extended preposition involves movement of Place to Path (that is, a roll-up of whichever of *p*, Deg, Deix, Loc, AxPart, and K are present). This correctly predicts that they should not co-occur with each other or with other prepositions expressing Place or

other categories in between Path and Place (**across in front of, *through behind*, etc.).

Furthermore, it is predicted that extended prepositions do not easily co-occur with *to* or *from* if those are morphological expressions of Path heads (as discussed later).

At first this seems to be false: One can say, for example, "They came from across the sea," but notice that this means that their starting point was a point on the other side of the sea (i.e., a point that you would have to cross the sea to get to). I call this a G-location for reasons explained in the next section. To anticipate the analysis, it means that there is a recursion of P structure in "from across the sea."

3.2. G-Locations

It is clear that Paths contain Places, as observed by Jackendoff (1983) and as I have repeatedly mentioned in this chapter, but there is also evidence that Places can sometimes be formed from Paths, which may lead to recursion. Cresswell (1978) investigated examples like that in (53):

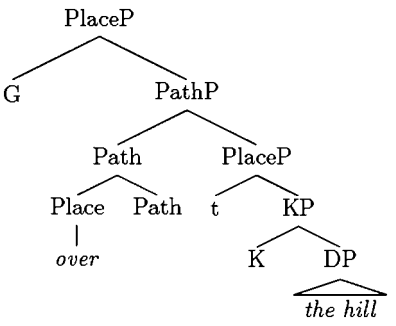
(53) Across a meadow a band is playing excerpts from *H.M.S. Pinafore.*

There is a locational interpretation of *across*, in which the band is stretched out in a line from one end of the meadow to the other, certainly not the most salient reading. The more natural reading is that the band is located in a space on the other side of the meadow from some point of view (e.g., the speaker's). Cresswell defines a function G, which handles the natural locative interpretation of *across* in this case, which he paraphrases as "at the end of a journey across the meadow." The start point of the hypothetical journey is generally logophorically determined or can be made explicit by use of a *from* phrase, as illustrated in (54):

(54) a. The library is very noisy. There's a sawmill right over the hill.
b. The sawmill is over the hill from the library.

Cresswell did not suggest a syntactic manifestation of G, but I do: G is like Place in what it projects, but with the special property that it selects a Path complement, meaning something like Cresswell's "at the end of a journey."

(55)



The function G, in placing Place above Path, disrupts what has otherwise been a highly consistent cartographic functional hierarchy of projections. A hierarchy could be preserved by decomposing the Path-to-Place expression, so that G includes an entire functional sequence below Place. There is some evidence for internal structure in G; for example, time expressions can be used to measure G-locations (e.g., "Fredrik's house is fifteen minutes through those trees" means that Fredrik's house is at the end of a fifteen-minute trip through those trees).

An option, then, would be to structurally represent G-locations as involving a null noun (corresponding to Cresswell's "end of a journey") that in turn takes the path-denoting PathP as its complement.

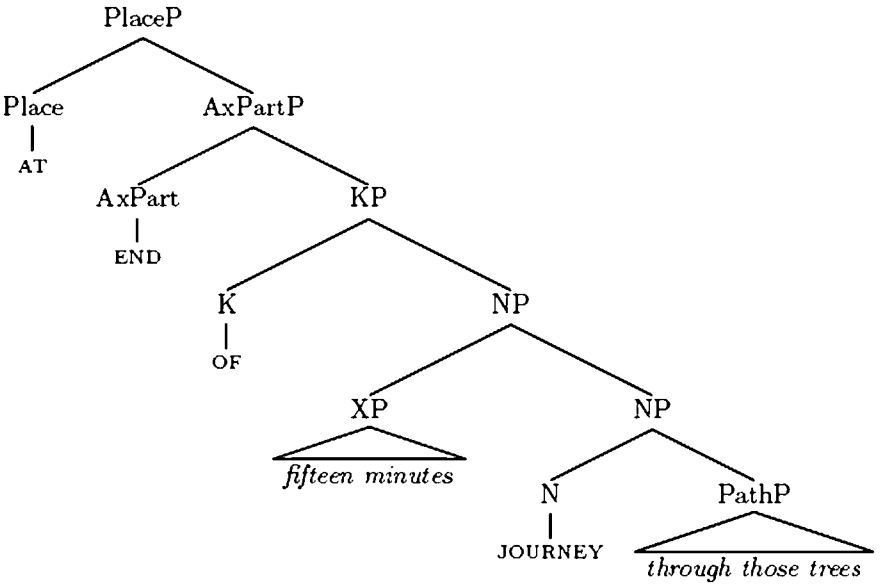


FIGURE 4.11

The obligatory plural on "fifteen minutes" here is unexplained, however (cf. "a fifteen-minute trip" vs. *"fifteen-minute through those trees"), and I do not resolve the problem in this chapter.

Something that becomes important later in conjunction with a full understanding of particles is a constraint on the Path-to-Place function G, namely that it does not operate on all paths:

(57) a. A band is playing from the town hall.
b. A band is playing into the town hall.

While these sentences are grammatical, neither one has the meaning expected if the G function could apply to goal or source Paths, for example, "A band is playing at the end of a journey from the town hall" (which could perhaps be anywhere). Compare these with the following sentences:

(58) a. A band is playing sixty yards from the town hall.
b. A band is playing sixty yards into the woods.

Here, the interpretation is clearly locative in the intended sense and roughly true to the paraphrase "at the end of a sixty-yard walk from the town hall," and so on. It seems that the Path-to-Place operator cannot operate on goal or source Paths in the absence of a measurement.

Compare the following set as well; in (59), no Path-to-Place reading is possible, while in (60), such readings are readily available:

(59) a. A band is playing beside the town hall.
b. A band is playing between the trees.

(60) a. A band is playing past the town hall.
b. A band is playing through the trees.

Recall that the bounded prepositions like *beside* and *between*, though they may form Paths with null *to*, do not permit measure expressions because (I suggest) they do not provide simple vector structures for measure expressions to limit; rather, they stipulate closeness and interpolation, respectively, as part of their spatial meaning. Here, the contrast with the extended prepositions *past* and *through* shows that they are also inappropriate complements for the G function.

I suggest that these different observations can be unified if what the G function requires is a scalar structure (on scalar structures in adjectives, cf. Kennedy 1999; Hay, Kennedy, and Levin 1999), and nonmeasured goal and source paths are not scalar in the relevant sense (cf. Fong 1997 for a nonscalar analysis of goal and source Paths; on this view, the measurable path in "Fran ran one hundred yards to the car" is introduced by the verb, not by the preposition).

Paths constructed from *between* and *beside* are goal Paths (with null *to*) and so provide no scalar structure; hence, they are incompatible with G. Extended prepositions provide scales as part of their meaning (even *past*, which has minimal Place content, meaning something like "via" or "by").

To see where the measure comes from in extended prepositions, consider the other locative interpretation that they provide, already mentioned briefly. The other locative interpretation is paraphrasable as "occupying the whole of a path." For example, a pencil that is poking through a cushion occupies the whole of the path that goes through the cushion, and similarly for the other examples in (61). Call it the "extended location" use.

(61) a. The pencil is all the way through the cushion.
b. There is a fence around the house.
c. We found a log across the stream.
d. The cloth lay over the table.

The extended location meaning is also not available for goal and source Paths (not even with measures). In this use, the scalar structure made available by the extended

preposition is mapped onto the extent of the figure, which must be extended in space (cf. Gawron 2006 on noncanonical mappings of paths to scales other than time). Thus, extended location meanings are syntactically PathPs, even though they denote locations.

To sum up, there are two different ways to get a locative meaning from an extended preposition. One is by the same mechanism that a bounded or projective prepositional phrase gives a locative meaning: A bounded or projective prepositional phrase denotes a set of points, and the figure is asserted to occupy one or more of those points. An extended preposition denotes a set of paths, and the figure can be asserted to occupy one or more of those paths. That is the extended location reading.

The second way to get a locative meaning from an extended preposition is to apply the G function, a Path-to-Place function that combines with scalar paths and returns the location at the "end" of the path. Measure phrases can provide goal and source Paths with the necessary scalar structure to provide the input to G, but without measure phrases, goal and source Paths are not themselves scalar in the relevant way.

I provide additional evidence for these conclusions in section 4.

3.3. Path with particles

The same particles that combine with PlaceP (see section 2.6) also combine with PathP composed of Place and *from* or null or overt *to*, as shown in (62), (63), and (64), respectively.[20]

(62) a. The boat drifted **over** from behind the hill.
b. The boat drifted **off** from below the bend.
c. The boat drifted **in** from beyond the city limits.
d. The boat drifted **back** from in front of the palace.
e. The boat drifted **down** from above the dam.
f. The boat drifted **up** from inside the cave.

(63) a. The boat drifted **back** behind the hill.
b. The boat drifted **off** below the bend.
c. The boat drifted **out** beyond the city limits.
d. The boat drifted **over** in front of the palace.
e. The boat drifted **up** above the dam.
f. The boat drifted **down** inside the cave.

(64) a. The boat drifted **up** onto the shoals.
b. The boat drifted **down** to the edge.
c. The boat drifted **off** into the cave.

They may furthermore appear with the richer extended prepositions of (50), as shown in (65):

(65) a. The plane flew **out** around the trees.
b. The rabbit jumped **down** through the cage.
c. The boat sailed **back** under the bridge.

d. The revelers danced **in** across the palace.
e. The mountaineers climbed **up** over the dam.

The meanings here seem to restrict the Path denotations, in contrast to what was observed in section 2.6 for particles in PlacePs. That is, if "into the room" denotes the set of paths that end in the room, then "up into the room" denotes the subset of paths that are oriented upward. Thus, particles can serve a Path-to-Path function.

Apart from restitutive *back*, which can combine with other particles, there seems to be a limit of one per Place and one per Path. One particle in each of the two regions can be seen in (66):

(66) a. The boat drifted **out** from **over** behind the hill.
b. The boat drifted **off** from **down** below the bridge.
c. The boat drifted **in** from **off** beyond the city limits.
d. The boat drifted **over** from **up** in front of the palace.
e. The boat drifted **down** from **up** above the dam.
f. The boat drifted **down** from **back** inside the cave.

With null *to*, this gives sequences of two particles in a row:

(67) a. The boat drifted **out over** behind the hill.
b. The boat drifted **off down** below the bend.
c. The boat drifted **away off** beyond the city limits.
d. The boat drifted **up over** in front of the palace.
e. The boat drifted **along up** above the dam.
f. The boat drifted **down back** inside the cave.

In such sequences, I believe, the first particle always modifies the Path, and the second always has the deictic reading discussed in section 2.6. Therefore, it seems that particles cannot recursively modify Path, as might be expected if they were Path-to-Path functions that attach as adjuncts. This might motivate assigning them to a distinct category, Dir[ectional], which dominates Path. I discuss particles further in the next section.

4. Particles

4.1. The importance of overt grounds for locative readings

I suggested earlier that Path prepositions in English include *from, to*, and a null *to* licensed by verbs of motion. The overt heads, at least, do not easily license null PlaceP complements.

(68) a. *The boat drifted from.
b. *The boat drifted to.

However, particles quite freely express Path without any overt Path preposition, as already illustrated in (63) in the previous section and in fact also freely express Path without any overt PlaceP:

(69) a. The boat drifted **over**.
b. The boat drifted **off**.
c. The boat drifted **in**.
d. The boat drifted **back**.
e. The boat drifted **down**.
f. The boat drifted **up**.

The implicit ground can correspond to a suitable location:

(70) a. They slid off (the boat).
b. They jumped on (the back).
c. They rolled down (the drainpipe).
d. They bounced up (the wall).
e. They ran away (from the rhinoceros).
f. They spilled over (the lip of the bucket).

The implicit ground in these examples is freely contextualizable, as illustrated in (71):

(71) a. What a high fence! A cow could never jump **over** (it).
b. Listen to the glacier! A chunk is about to break **off** (it).
c. Watch the ice hole! A seal is about to pop **out** (of it).
d. Smell the well! I think an opossum must have fallen **in** (it).
e. Keep away from the hill! There's a lot of snow ready to slide **down** (it).
f. That ladder looks too wobbly for anybody to climb **up** (it).

This is not true of particles when used as locative expressions. Although locatives allow particles as modifying elements (cf. section 2.6), particles cannot typically be the sole overt element in a locative PP (taking the complement of *from* in (72b) to be a locative PlaceP):

(72) a. What a high fence! I wonder what is **over** *(it).
b. Look at the glacier! I bet all these ice chunks came from **off** *(it).
c. Look at the seal! It looks like it has a bite **out** *(of it).
d. Smell the well! I think there must be a dead opossum **in** *(it).
e. Smell the well! I think there must be a dead opossum **down** *(it).
f. That ladder looks too wobbly for anybody to stay **up** *(it).

There are idiosyncratic, stative meanings associated with most of the particles, but there is no simple locative meaning (except perhaps with *on*). The idiosyncratic meanings are often different for animates and inanimates:

(73) a. She's off (*off work*; or *mistaken*)
b. He's up (*awake*)
c. He's down (*depressed*; or *prone*; or *(lying) on the ground*; not *downstairs*)
d. She's in/out (*of the house* or *office*)
e. We're away (*from home*)

f. We're on (*performing*; not easily, e.g., *on a boat*)
g. She's over (*visiting me*)

(74) a. It's off (of an electric appliance or motor; or, *spoiled*; or, *canceled*)
b. It's on (of a motor or an electric appliance)
c. It's up/down (*in an up or down position*, e.g., of a switch or a signpost)
d. It's in (*fashionable*)
e. It's away (*launched*)
f. It's over (*ended*)

Although these idiosyncratic meanings are also available in dynamic contexts, the unavailability of simple Place meanings for bare particles stands in stark contrast to Path contexts, which systematically license a vague meaning for particles (in which Place can easily be understood as any suitable location, with a little bit of context).

My solution to the pattern noted here assumes that the locative uses of particles are derived by the G-function (the Path-to-Place function inspired by Cresswell 1978, introduced in section 3.2). This distinguishes the particles from simple Place prepositions like *above*, which can express locations easily, with or without complements. This means that "The pirates are up the ladder" means something like "The pirates are at the end of a journey up the ladder," and "My orangutan is out of his cage" means roughly "My orangutan is at the end of a journey out of his cage."

Recall that the G-function does not apply freely to all PPs. Specifically, I suggested in section 3.2 that it can apply only to those that have a measured scalar structure. This was provided either by a measure expression with a goal Path or source Path (in the case of "six feet from the wall" or "sixty meters into the woods") or else by an extended preposition together with a ground, as in the case of "across the meadow," "over the hill," and so on. In those cases, the measure is provided directly by the ground; the extent of the meadow or the hill measures the path (in what I called the "extended location" reading). In the next section I show how this account extends to particles.

4.2. Degree with particles

Degree expressions are freely combinable with particles, with or without overt grounds.

(75) a. They slid two centimeters off (the center of the picture).
b. They jumped way off (the back).
c. They rolled twenty feet down (the drainpipe).
d. They bounced partway up (the wall).
e. They ran miles away (from the rhinoceros).
f. They flew twenty meters out (of the yard).

Strikingly, measure expressions enable locative readings with particles, even in the absence of an overt ground.

(76) a. They were two centimeters off (the center of the picture).
b. They were way off (the back).
c. They were twenty feet down (the drainpipe).

d. They were partway up (the wall).
e. They were miles away (from the rhinoceros).
f. They were twenty meters out (of the yard).

The measure expressions are necessary in the absence of a ground, for a general locative reading. In the absence of both the overt ground and the overt measure expression, each of these sentences takes on a narrower meaning that is less contextually dependent and more like the idiosyncratic meanings of the particles discussed earlier; because of this, examples like "They were off" are perfectly grammatical but have a completely different meaning. Therefore, the bad examples must be shown in context:

(77) I threw a dart at the target with my eyes closed, and when I opened them . . .
a. * . . . the dart was off.
b. . . . the dart was off the target.
c. . . . the dart was one inch off.
d. . . . the dart was one inch off the target.
e. * . . . the dart was right off.

(78) We lost a boomerang in the wind. We looked all over for it at the top of the hill, but we finally found it . . .
a. * . . . down.
b. . . . down the hill.
c. . . . sixty yards down.
d. . . . sixty yards down the hill.
e. * . . . right down.

As indicated, the Degree expression *right* does not facilitate locative readings. Since *on* implies contact and is therefore incompatible with measurement of distance, *on* cannot have a contextually specified locative meaning without an overt ground:

(79) I bumped the table hard, but when I looked . . .
a. * . . . all the glasses were still (right) on.
b. . . . all the glasses were still (right) on the table.
c. * . . . all the glasses were still ten centimeters on (the table).

The pattern here recalls the connection, discussed in sections 2.3 and 2.4, between the omissibility of the ground and the measurability of distance in PlaceP, as illustrated in (80) (cf. also (18) in section 2.3):

(80) a. We were (*six feet) against/among/upon/beside the trees.
b. We were against/among/upon/beside *(them).
c. They were (six feet) below/above/inside/beyond/in front of the cave.
d. They were below/above/inside/beyond/in front of (it).

There seem to be three classes of elements. One, the projective elements like *above* allow null ground freely, with locative meanings. Another, the bounded elements

like *against* do not allow null ground at all. The third class, including both the extended prepositions and the particles, allow a null ground freely only in their directional use; with a locative meaning, they require either an overt ground or an overt measure expression.

Recall that the particles have their locative meanings only in conjunction with G, as I suggested earlier, unlike Place prepositions like *above* and *in front*, which are basically locative, picking out simple vector spaces. Recall, too, that G requires a measured scalar structure to operate on: either through an overt measure expression or an extended preposition like *across* or *through*, which by assumption have internal structure. If we combine these two observations, the mysterious distribution of the particle's null complement seems to be explained if we can show that the DP complement to a particle provides a measured scalar structure.

This seems to be the case most clearly with particles like *up* and *down*, which combine only with DPs that describe the ground traversed; thus, one can go up a hall, a ladder, a staircase, or a hill but not up a table or a house unless the table or house is actually climbed (as in "the mouse climbed up the table"). I suggested earlier that particles basically perform a Path-to-Path function; essentially, a particle combines with a DP only when the DP itself can be construed as a Path (similarly, a DP that can be construed as a Path can be the complement of a verb like *walk*, as in "I walked the Appalachian Trail"; cf. Ramchand 2008).

5. Conclusion

I have proposed a structure for a rather rich class of locative expressions in English. I have used different labels for the various subtypes, using distributional evidence as my chief criterion but noting that the semantic interpretation of the members of each class shares important features. In the end, I postulated a category K, for functional prepositions and case markers; a category AxPart, for shape characteristics of the ground; a category Loc for mapping grounds to vector spaces; a category Deix for introducing deictic information about proximity to a contextual center; a category Deg for constructing regions on the basis of vector spaces; a category *p* for expressing the configurational relation between the figure and the space; a category Path for prepositions like *to* and *from*; and a category Dir for the particles, which I analyze as primarily Path-to-Path functions but which also appear in several other roles, notably as Place modifiers. These heads appear to be fairly rigidly ordered in a hierarchical way, recalling much recent work on the architecture of other categories.

There are some indications that the order might not be entirely rigid. Importantly, there is the possibility of recursion. However, even apart from that, it appears that degree expressions and measures and possibly also particles may attach to projections either of Path or of Place (see in particular Den Dikken this volume on Deg in Path).

Another recurring complication is the fact that many elements appear to be multiply ambiguous. It is a very interesting question to what extent this reflects homophony, polysemy, or the possibility of inserting the same morpheme into different parts of a functional structure.

The complications of recursion and polysemy aside, within each group of adpositional elements, the consistency of certain aspects of the semantic contribution of the constituent components raises the hope that the various complex co-occurrence restrictions could be completely derived from a proper understanding of the semantics of these elements. If that is the case, then it might be expected that some of the elements here could occur in different locations in the hierarchy, the hierarchy itself being epiphenomenal.

Notes

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1. These terms, along with many of the background assumptions, are the result of the pathbreaking work of Talmy (2000) inter alia.

2. "Extended" prepositions were referred to as PathPlaces in earlier versions of this work.

3. In that case *side* in *inside, outside*, and *alongside* is a contentful morpheme. Of a person standing in a box one can say "She is in the box" even if the box is not large enough to contain her. This is possible because of the encyclopedic associations we have with boxes and the way they are used to carry things. However, one cannot say "She is inside the box" in the same situation because *inside* invokes the space as defined using the sides of the box; furthermore, a bird can be *in the air* but not *inside the air* because the air has no sides.

4. Sometimes it is suggested that prefixal components like *be-* in *behind* represent distinct heads, but I have been unable to identify any common component shared by *behind, between, beside, beneath*, and *before* that distinguishes them from *in back of, among, next to, underneath*, and *after*. I therefore assume that if *behind* is bimorphemic, the parts are idiomatically and not compositionally combined.

5. I present both options to illustrate a complication with the vector-based analysis: If the vectors project at angles and the measure expression gives their length, then *one meter above the window* picks out an arc, but this does not conform to intuition. If vectors project at angles and a line is picked out, as in the diagram to the right in (14), then the measure expression does not directly measure the vectors. The simplest analysis would seem to be that the vectors project directly upward, as in the diagram to the left in (14), and any sense that something diagonally above is "above" is due to vagueness. The horizontal line picked out by the vectors would be salient and extensible in a way that would mimic the effect of the diagram to the right.

6. Wunderlich (1991, 598) suggests that the eigenplace function (my K) is never expressed overtly, but I assume that genitive case in many languages is an overt expression of K; see Svenonius 2006.

7. The exterior and interior of a ground object may also be picked out by an AxPart expression and possibly also other spaces related to the part structure of the ground even if they are not conventional parts of it (for example, its edges, perimeter, or possibly even its "aura" or proximity).

8. For example, cf. Clark's (1973) example, "There's a fly two inches above your knee," of a girl lying on the beach, where intrinsic reference would mean "above with respect to the girl's intrinsic axis," thus two inches toward the girl's head, while relative or absolute reference would mean "above from the observer's (or the world's) perspective," meaning two inches toward the sky.

9. The expression *right* may also be a realization of a Deg head, as suggested by Koopman (2000); this would explain why it cannot co-occur with measure expressions. However, *right*

has a much wider distribution than measure phrases, also appearing with Path expressions, for example, and so it seems there are multiple places in which it can be introduced, as noted by Koopman (2000) and Den Dikken (this volume). Therefore, something else needs to be said to ensure that it does not co-occur with measure phrases.

10. Other assumptions could also be made to work, for example, a version of Borer's (2005) model, in which lexical items may be forced to move from one head position to another according to the features they are specified with, or Brody's (2000) model. The general question of how to associate vocabulary items with nontrivial syntactic structures is a major concern of work exploring the nanosyntax hypothesis, which originated with my colleague Michal Starke and is being pursued by several of us at CASTL in Tromsø. See various papers in Bašić et al. (2007).

11. However, this is not true of, for example, ?*above here*, which means "above this place," not "here, above something." Interestingly, this seems to correlate at least somewhat with reduced acceptability, as indicated.

12. The same correlation is found in Serbian; see Bašić (2007) for discussion and analysis.

13. For a suitable context of use, imagine that you have misplaced your scaling knife in a large kitchen, and somebody produces it from under a fish, which in the distal case would be distant from the speaker (for example, across the kitchen). Thanks to Maria Polinsky (personal communication May 4, 2007) for verifying that these are possible words in Tsez and for providing attested examples.

14. Some speakers have reported to me that they can use *in among the trees* but not **in among.* On the account outlined here, if *in* occupies *p* in "in among the trees," then the null ground should be licensed. It is possible that the string *in among the trees* is possible only when *in* is understood as a modifying particle (cf. §2.6), as in *down among the trees* and *out among the trees;* this is also an alternative parse for *in between the trees.* If this is right, then the reason that only *in between* allows the null ground is that *between*, unlike *among*, can appear with *in* in *p*.

15. Notice that measure expressions can combine with these particles:

(i) a. I left my spear four inches down between the floorboards.
b. I saw a wolverine twenty feet out beside the fish-drying racks.

In these examples the spear would be four inches down, the wolverine twenty feet out; thus, the particle can support a Deg phrase, and these examples do not suggest that the particle is attached below Deg.

16. Recall that I have been using Place somewhat loosely for whatever collection of functional heads is present in a locative adpositional structure.

17. Botwinik-Rotem (2004) argues for a lexical projection as part of a decomposition of spatial P on the basis of its predicative properties. Here I assume that the figure is introduced by *p*, much as an applicative or possessive head, though functional, would be assumed to introduce a thematic argument.

18. Exceptions include constructions with *next to* and *to the right of* and so on, interesting facts that I am unable to analyze here.

19. Following Jackendoff (1983), there may also be a Path head meaning *via* in order to allow "He ran between the trees" on the reading where the endpoint is beyond the space between the trees or "We'll have to crawl under the fence to get out" (Kracht's 2002 transitory mode). This head would indicate that some noninitial, nonfinal point along the path of movement was at the location specified.

20. In addition to its directional meaning, there is a reversative use of *back* that can occur in PathP, optionally co-occurring with particles:

(i) a. She went back to the city where she was born.
b. They swam back down to the wreckage.

This use implies a return to an earlier location. This is not necessarily the case for the uses of *back* as a particle, as illustrated in (62) and (63).

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5

MÁIRE NOONAN

À to *Zu*

1. Motion events

Talmy (1985) has proposed different lexicalization patterns for motion events. In particular, he argued that Germanic languages such as English or German conflate motion and manner in the verb root, while Romance and Japanese-type languages conflate motion and path in the verb root.

(1) a. The girl danced into the room.
b. La fille est entrée dans la pièce en dansant.
the girl aux entered in the room by dancing
'The girl entered the room dancingly.'

Since Talmy's seminal generalizations, a number of studies have addressed this area of variation in a variety of ways. A case in point is Higginbotham (2000), who argues for a semantic approach. He proposes that English has "accomplishment" prepositions (prepositions with two event positions) (*into, onto*) and that English permits telic pair formation with locational Ps ("it floated under the bridge"), while Spanish, Italian, Japanese and so on lack both of these objects/processes. This approach is expanded in Folli (2002), who first observes that Italian and French do have some accomplishment prepositions (e.g., Italian *fino a . . .* ; French *jusqu'*). Furthermore, she maintains, contra Higginbotham, that English does *not* permit telic pair formation with purely locational Ps (e.g., *in*), whereas Italian *does* permit telic pair formation with (some) locational prepositions and some verbs. This claim is motivated by the following contrast:

(2) a. Gianni è corso nel bosco. → directional
b. John ran in the forest. → not directional

English prepositions such as *under* and *over*, contrary to *in* and *on*, are ambiguously locative and directional, which is why they are compatible with a directional interpretation:

(3) John ran under the bridge.

The conjecture that languages may vary with respect to semantic operations such as telic pair formation seems to go against the attempt to restrict variation to lexical and functional items. Furthermore, postulating that some languages possess "accomplishment prepositions" while others lack them works against the thesis that languages have a universal lexical-functional hierarchy and is thus not desirable as an initial working hypothesis. I return to Folli's (2002; also Folli and Ramchand's 2001) proposal in section 8.

An approach more amenable to the framework outlined in the introduction is Inagaki (2002), who provides a Hale and Keyserian account of the variation in terms of lexical relational structures (LRS), specifically proposing that motion events are universally composed of Rel_{Path} > Path > Place > $N_{RelPlace}$ and that English directional prepositions incorporate into Rel_{Path} and Path, while Japanese (but not English) verbs conflate (incorporate) Rel_{Path} and Path. Furthermore, Japanese has one adposition (*-made* 'up to') that incorporates Path. This proposal is similar to what I argue here, differing in details concerning the postulated categories and the precise manner of licensing.

Here I propose that directed motion events cross-linguistically involve identical categories, specifically:[1]

(4) $V_{DIR} > R_{PATH} > (Mod_{PATH}) >$ Path $> P_{LOC} > R_{PLACE} > (Mod_{PLACE}) >$ Place > DP

Languages vary in whether or not each of these categories is pronounced, with the stipulation that an unpronounced category must be licensed in one of the following ways: (i) by being selected by a pronounced head, (ii) by moving to the specifier of a pronounced head, or (iii) by attracting a pronounced category to its specifier (cf. Kayne 2000a, 2005; Koopman 1997). The variation in motion events is tied to a process of licensing abstract V_{DIR} *GO* by attracting $P_{LOC}P$ (whose head or specifier is pronounced) to its specifier. This movement does not occur in Romance languages, with the result that the occurrence of *GO* is much more restricted (it is restricted to those verbs that can select V_{DIR}).

The theory proposed here situates language variation within functional and lexical items. In other words, I assume (following Borer 1984 and Chomsky 1995) that languages as such do not vary, but functional and lexical items do. Such an approach is outlined in its strongest form in Kayne (2005), who argues that variation results from parameters associated with individual functional categories, each expressing at most one feature and each associated with (ideally) at most one parameter, in addition to a pronunciation versus nonpronunciation parameter. I will show that we can account for the variation observed with respect to motion events along these lines, thus adopting the strongest position according to which the core hierarchy of the

identified categories is universal (see Cinque 1999, 2002). I also assume that there is no need to postulate any computational distinction between the traditionally labeled modules of morphology and syntax; both operations occur in the same computational space, subject to the same elementary operations, merge and move, and related constraints.

My study of directional PPs in the three languages arrives at the conclusion that the adpositions *to* (E), *zu* (G), and à (F) each lexicalize P_{LOC}. Given the facts in (5), this claim is uncontroversial for French but surprising for English *to* and German *zu*:

(5) a. Marie est à la porte.
'Marie is at the door.'
b. *Marie is to the door.
c. *Marie ist zur Tür.[2]

2. Locational PPs

In Noonan (2006) I argue, based on an extensive investigation of spatial adpositional constructions in colloquial German, that place adpositions, even if morphologically simple, involve an abstract nominal category, Place as well as a predicative head, P_{LOC}, which is a function that locates a figure argument (the external argument) in "space." Place expresses the "region" (Wunderlich 1991) of the location.[3] The ground argument (object of the preposition) is a possessor argument of the place noun in an inalienable possessor-possessum relation with Place. The proposal amounts to saying that a construction such as *auf dem Tisch*/*on the table* is abstractly represented as follows (p_{LOC} introduces the external argument, mostly ignored here, except where relevant):

(6) English: *on* = AT TOP (of) *the table*
in = AT INTERIOR (of) *house*
under = AT BENEATH (of) *bed*
. . .

(7) $[_{pLOCP}$ DP_{EXT} $[_{PLOCP}$ AT $[_{PlaceP}$ TOP [the table]]]]

This structure, which has conceptual appeal, is attested morphologically in a wide variety of languages. The examples in (8) are from Spanish, Turkish, and Japanese:

(8) a. en **cima** de la mesa (lit., at top of the table)
b. Kitab - ı masa-n-ın üst - ün - de tut - ar.[4]
book-ACC table-GEN top–POSS-LOC keep-TNS-∅(3s)
Lit., 'She/he keeps the book at the table's top.'

c. Taro-ga hon-wo teeburu-no ue-ni oi-ta.[5]
Taro-NOM book-Acc table-GEN TOP-LOC put-PAST

While the proposed structural complexity is not audible in simple adpositions such as German and English *auf/on* or *in*, under specific conditions colloquial German reveals the additional structure in a doubling phenomenon:

(9) a. Er sitzt **auf** dem Tisch dr**auf**.
he sits on the$_{DAT}$ table DR-on
b. Sie ist **in** der Kiste dr**in**.
she is in the$_{DAT}$ box DR-in
c. Es hängt **am** Ast dr**an**.
it hangs on-the$_{DAT}$ branch DR-on
d. Sie steckt **unter** der Decke dr**unter**.
she is under the blanket DR-under

I analyze the complex postpositional doubles as the undeleted trace of the displaced preposition, referring to them as "shadow Ps" (inspired by Perlmutter's term *shadow pronoun* for resumptive pronouns). The pronounced adposition originates inside PlaceP, which moves to the specifier of P_{LOC}, an abstract (silent) locative (*AT*). When the head of an intervening projection is pronounced, the trace is not deleted, and we get double pronunciation.

(10) $[_{PLOCP}\ [_{PlaceP}\ \textbf{\textit{auf}}\ DP] \ldots [_{PlaceP}\ \textbf{\textit{-auf}}\ \sout{\textbf{\textit{DP}}}]]$

What prevents deletion of the original copy is the affixal element *dr-*. I analyze this element as associated with a determiner-like category for PlaceP, which I term $R_{PLACE}P$ (*d-*, as English *th-* is a definiteness marker).[6] I furthermore assume that the possessor DP is assigned dative case by P_{LOC} (through Agree).[7] Here is the first pass of a sample derivation of *in der Kiste drin* 'in the$_{dat}$ box DR-in' (to be revised later):

(11) (i) $[_{PlaceP}$ in der Kiste] merge R_{Place}; merge P_{LOC}; move PlaceP →
(ii) $[_{PLOCP}\ [_{PlaceP}\ \textbf{\textit{in der Kiste}}]_i\ AT\ [_{RPlaceP}\ \textbf{\textit{dr-}}\ [_{PlaceP}\ \textbf{\textit{in}}\ \sout{\text{der Kiste}}]_i]]]$

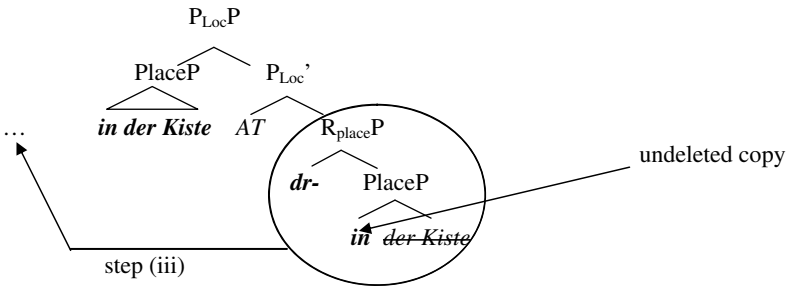
The constituent $R_{place}P$ can split out and move into the verbal domain (it has the typical distribution of verbal particles; I remain unsure of the precise position), leaving a remnant constituent that contains the string [in der Kiste $t_{RPlaceP}$], which can be scrambled or topicalized, as in example (12a). As (12b) shows, pied-piping *drin* is not ungrammatical, though slightly dispreferred:

(iii) $[_{FP}\ [_{RPlaceP}\ \textbf{dr}\ [_{PlaceP}\ \textbf{in} \ldots]]\ V] \ldots [_{PLOCP}\ [_{PlaceP}\ \textbf{in} \ldots] [_{KP}\ \textbf{der Kiste}\ K\ t_{RPlaceP}]]$

(12) a. **In dieser Kiste** sitzt mein Kater immer am liebsten **drin**.
in this$_{DAT}$ box sits my tomcat always with preference DR-in
b. **In dieser Kiste drin** sitzt mein Kater immer am liebsten.
in this$_{DAT}$ box DR-in sits my tomcat always with preference

At transfer to spell-out, the original copy of Place does not delete as it is needed for morphophonological support for *dr-* ("stranded affix filter"). Example (13) illustrates the derivation as a tree diagram:

(13)



Interpretive issues

The presence of the determiner-like category *dr-* (and shadow P) has certain interpretive effects that are best understood through examples where the shadow P is impossible. These are idiomatic or figurative uses of PPs (see (14)) and cases where a place adposition is used spatially but with more of a default locative interpretation, lacking a precise place specification, for example, the preposition *in* used with place names (examples in (15–16)):

(14) a. Er hängt an dem Tisch.
he hangs on the$_{DAT}$ table
i. idiomatic: He is attached to the table.
ii. spatial: He is hanging on/off the table.
b. Er hängt an dem Tisch dran. → only ii. (spatial)
he hangs on the$_{DAT}$ table D-R-on

(15) a. Das Gift ist in der Luft (*drin).
the toxin is in the$_{DAT}$ air (*DR-in)
b. Der See ist im Wald (?*drin).
the lake is in-the$_{DAT}$ forest (?*DR-in)

(16) a. Luisa ist in Frankfurt (*drin). (improves in specific contexts)
b. Jack sitzt auf dem Sofa (?*drauf). (okay but has a particular
Jack sits on the$_{DAT}$ sofa D-R-auf interpretation)

The effect in the case of *in* is to entail and emphasize that the location is a container-like space. With *on* it is to entail and emphasize that the location is at the highest point of the possessor. Thus, in (16b), the interpretive effect of the shadow P *drauf* has Jack perched on the back of a sofa rather than sitting normally on it.

In English, we get a very similar, if not identical, effect with certain complex prepositions: When the Place noun is pronounced, it is interpreted in a way parallel

to the German examples with shadow Ps, that is, entailing a literal and specific place specification. I conclude that an R_{PLACE} is present in English (but unpronounced here), when the Place noun is pronounced. When place adpositions are used with place names, large open areas, and "functional" spaces, pronouncing the Place noun is ill formed or requires a special context.

(17) a. It is inside the box *vs*. in the box.
b. It is on top of the cupboard.
c. It is outside of the box.

(18) a. *I am inside Montreal.

(19) a. I am in the park *vs*. inside the park.
b. We are in the woods *vs*. inside the woods.
c. Emma is in school *vs*. Emma is inside the school.
d. Tom is in the kitchen *vs*. inside the kitchen.

(20) a. Jack is sitting on the sofa/chair.
b. Jack is sitting on top of the sofa/armchair. → changes meaning

The English cases raise questions about the precise nature of *in, on*, and so on: Since evidently an overt nominal Place head (*-side, top*) co-occurs with these elements, it appears that they do not themselves pronounce Place. This conclusion, I believe, is correct. On the other hand, I do not propose that *in, on*, and so on (that is, place prepositions) are lexicalizations of P_{LOC}, for this would weaken my central proposal of decomposing the meaning of *in, on*, and so on. Instead, I adopt an idea put forth by Terzi (2006 and this volume), according to which place adpositions are modifiers of a silent Place noun. The following two complex prepositions rather transparently contain a locative element (*be-* 'at') and an adjectival element: *beneath*,[8] *below.*

I therefore propose that, in both English and German, simple place adpositions are modifiers of a silent Place noun. Most of these modifiers are not independently attested as nominal modifiers (contrary to Greek; see Terzi 2006 and this volume). Note, however, that many of them can be used as a modifier if they have a suffix:

(21) a. the inner space, the interior space
b. the outer space
c. the area underneath
d. the space above
e. the lower/upper half

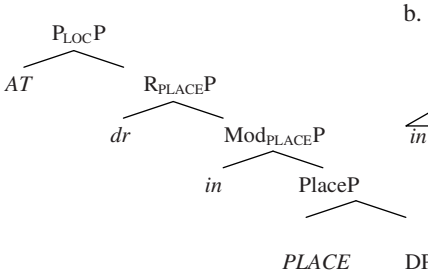
The same can be shown for German:

(22) a. der innere Bereich 'the inner area'
b. die äussere Seite 'the outer side'
c. der untere/obere Bereich 'the lower/upper area'

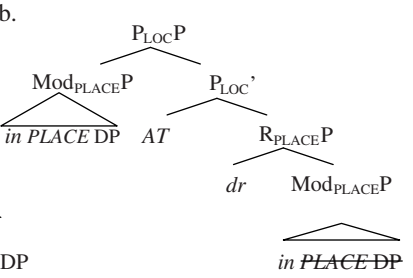
Assuming that the suffix involves additional structure, the structure necessary for an adjective to modify a "full-fledged" noun (meaning a noun with its usual extended

projections), we can surmise that when the adjective modifies a "small" noun (a bare NP), it is also stripped of any further functional projections and thus becomes a reduced, or simply bare, AP. In effect, what this proposal reduces to is that the modifier-noun complex constitutes a compound, which, given the approach taken here, involves merging bare lexical phrases (rather than functional phrases, corresponding to what is normally understood by phrasal syntax). I call the pronounced locative $\text{Mod(ifier)}_{\text{PLACE}}$. The structure and derivation underlying place adpositions such as *in, on, under*, and so on is thus revised as follows:

(23) a.



b.



The phrase *in-PLACE* is interpreted as interior, which can mean that the possessor is a container but can also have the less specific interpretation of a vaguely enclosed space.

We can now describe the difference between English and colloquial German (CG) as follows: In CG [+def]-R_{PLACE} is overt, but Place is always silent *PLACE*. In English, Place can be pronounced (e.g., as *-side*), and when it is, R_{PLACE} is [+def], but R_{PLACE} is always silent. Returning to languages such as Turkish and Spanish, the default locative elements *en/-dE*, respectively, can receive interpretations akin to *in, on, under*, and so on:

(24) a. en la mesa lit., at the table
b. Kitab - ı masa-da koyar.
book-ACC table-LOC put-TNS-∅(3s)
lit., at the table

} interpreted as 'on the table'

It seems implausible to postulate a silent modifier of silent Place in these cases. Presumably we want to restrict the silent category in such a way that it must be licensed by overt material. Since the locative is generally interpreted as vague, its interpretation appears to be determined pragmatically by the spatial properties of the ground DP and its "canonical region" (see also the discussion in Terzi, this volume). I propose that $\text{Mod}_{\text{PLACE}}$ is lacking from the lexicon in these types of languages. When Place is overt, it surfaces as a noun and comes with a full-fledged functional structure of DP, including a possessive phrase (overtly marked in Turkish), a position for genitive case for the possessor argument, and so on.

Presumably all languages have silent PLACE in constructions involving the default locative, such as *at the statue*, which means 'at the statue's "SPACE." ' The adposition in this case pronounces P_{LOC}. The abstract noun PLACE is roughly interpreted as AREA or SPACE of DP. This analysis captures the meaning 'X is located in the vicinity of the statue, in its *area*'. In other words, while in the case of place adposition Place (or it modifier) is lexicalized (pronounced) and P_{LOC} is abstract, in these cases, the opposite holds. This analysis has the advantage that P_{LOC} consistently selects a PlaceP (or $R_{PLACE}P$) and that the internal argument DP is always the possessor of a place noun, in this case an abstract one. Example (25) illustrates the structure:

(25) $[_{PLOCP}$ bei $[_{PlaceP}$ AREA der Statue]]
at the$_{DAT}$ statue

The preceding sketch leaves us, so far, with the following picture about the cross-linguistic realizations of P_{LOC}, Mod_{place} Place, and R_{PLACE}:

(26) a. **P_{LOC}**
Pronounced: Turkish: *-dE*; Spanish: *en*; English *at*; German *bei*; French *à*
Silent: English/German/French, when licensed by overt Place or overt Mod_{PLACE} moving to its specifier

b. **Place**
Pronounced: a nominal head that usually (but not always) involves projecting some nominal, extended categories, including (usually or often) genitive case
Silent: (i) selected by overt Mod_{PLACE} or (ii) moves to Spec of overt P_{LOC}
(In German spatial PPs, Place is generally silent.[9])

c. **Mod_{PLACE}**
Pronounced: English (*in, on, under*, . . .), German (*in, auf, unter*, . . .), French (*dans, sur, sous*, . . .), Greek (*epano, piso*, . . .) (see Terzi this volume), and so on
Silent: ???
Turkish, Japanese . . . : lacking from lexicon

d. **R_{PLACE}**
Pronounced: German: *dr-*[10]
Silent: English, French, Greek . . .

3. Directional PPs in German

Like locational PPs, German directional PPs are also accompanied by postpositional elements, which at first sight resemble the shadow Ps discussed in the preceding section. One immediate difference, however, is that the postpositional element can apparently be prefixed either by *dr-* or by *r-* (a shortened form of the deictic element *her* from more formal varieties of German). In fact, both types of postpositions can occur (this is restricted to *um* 'around'). In this case, the surface order is strictly *dr*-P > *r*-P (29a). As (29b) shows, the two postpositional elements act as a complex particle in that, like the single *dr*-Ps discussed in the preceding section, they can split away from the prepositional PP.

(28) a. Sie ist auf den Tisch {drauf/rauf} gesprungen.
she is on the$_{ACC}$ table DR-on/R-on jumped
'She jumped onto the table.'
b. Sie ist unter den Schrank {drunter/runter} gekrabbelt.
she is under the$_{ACC}$ wardrobe DR-under/R-under crawled
'She crawled under the wardrobe.'

(29) a. Sie sind um den Tisch drum rum getanzt. → ***rum drum**
they are around the$_{ACC}$ table DR-around R-around danced.
b. Um den Tisch sind sie drum rum getanzt. → complex particle
around the$_{ACC}$ table are they DR-around R-around danced.

These data suggest that directional PPs involve additional structure on top of locative PPs, a common assumption (see Koopman 1997; Den Dikken 2003; Van Riemsdijk 1990; Huybregts and Van Riemsdijk 2001; and others). I assume that the *r*-P (in contrast to dr-P) is not the result of an undeleted trace but is merged as an independent lexical item (see Den Dikken 2003). This is supported by the fact that the directional particle can be an entirely different lexical item (see Huybregts and Van Riemsdijk 2001) and that in at least one case, namely the adposition *in*, the postpositional element differs phonologically from the preposition (/ajn/ versus /in/):

(30) a. Sie ist unter dem Zaun **drunter (hin) durch** gekrochen.
she aux under the$_{DAT}$ fence DR-unter R through crawled.
'She crawled through under the fence.'
b. Die Schnecke ist **auf** das Dach r**unter** geklettert.
the snail aux on theacc roof r-under climbed
'The snail climbed down onto the roof.' (Huybregts and Van Riemsdijk 2001)
c. Sie ist **in** die Kiste r**ein**/*r**in** gesprungen.
she is in the$_{ACC}$ box R-/ajn/ jumped
'She jumped in the box.'

An important difference between locational and directional PPs concerns case: While the object of P occurs in the dative in locational PPs, in directional PPs it generally occurs in the accusative.[11] I propose that the accusative case is licensed by a verbal head, V_{DIR}, an abstract verb *GO*.[12] The postpositional directional element is a lexicalization of Path, a nominal head, comparable to Place in the locational domain. Again here, I propose that the Path noun is abstract and that the pronounced element represents Mod_{PATH}. The structure of a directional PP is thus as follows ('>' here indicates basic hierarchical order, not linear order):

(31) $V_{DIR} > R_{PATH} > Mod_{PATH} > Path > P_{LOC}P/p_{LOC}$ . . .

Path selects (i) P_{LOC} or (ii) p_{LOC}. It can also select DP directly, which corresponds to the case of (33a).[13] In the first case, P_{LOC} lacks an external argument. I propose that the absence of an external argument gives rise to a Burzio's generalization effect:

Thus, P_{LOC} does not provide a Case feature, so that V_{DIR} Case licenses the ground DP (by Agree). In case (ii), p_{LOC} merges with the figure argument (DP_{EXT}), and it represents a strong phase. The DP is thus not accessible for any Agree operation with a higher head. I furthermore suggest that Path, just like Place, can be associated with a determiner-like category, R_{PATH}, with similar interpretive consequences. In addition, $P_{LOC}P$ (or $p_{LOC}P$, containing a dative DP) moves to $SpecV_{DIR}$ (*GO*). This derives the postpositional behavior of Path. Furthermore, $R_{PLACE}P$ moves to $SpecR_{PATH}$, resulting in the order *drum rum* (in addition to yielding the interpretive properties of R_{PATH}; see Noonan 2005 and the remarks in section 8). Moreover, $R_{PATH}P$, like $R_{PLACE}P$, displays "particle behavior," meaning it splits out of PP and moves into the verbal domain (pied-piping $R_{PLACE}P$ in its specifier). I illustrate each of these cases after addressing the question of case in more detail.

Accusative case

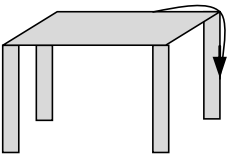
As mentioned earlier, the generalization that the object of P occurs in the accusative in directional PPs must be relativized: When $P_{LOC}P$ represents the endpoint of the directed motion (P = *in, an, auf, unter, über, hinter* . . .), the ground DP (the possessor of Place) is in the accusative. When $P_{LOC}P$ locates the (otherwise) directed motion, the Ground DP is in the dative case (see (30a)). There are basically three cases, summarized in the following table:

(32)

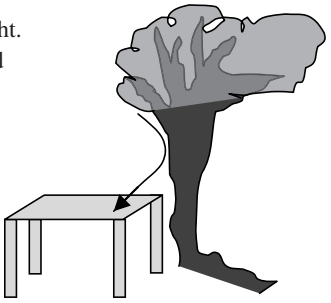
	Semantic function of DP	*Case*	*Word Order*
i.	"ground" of V_{DIR}/Path	accusative	postpositional
ii.	"ground" of P_{LOC}/Place **and telos of V_{DIR}/Path**	accusative	circumpositional
iii.	"ground" of P_{LOC}/Place	dative	circumpositional

The three cases are illustrated with the minimally contrasting examples (33a-c), whose meaning is explained through drawings:

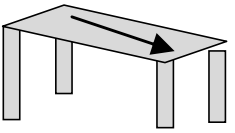
(33) a. Sie ist den Tisch runter gerutscht.[14]
she AUX the$_{ACC}$ table R-under slid
'She slid down the table.'



b. Sie ist auf den Tisch runter gerutscht.
she AUX on the$_{ACC}$ table R-under slid
'She slid down onto the table.'



c. Sie ist auf dem Tisch runter gerutscht.
she AUX on the$_{DAT}$ table R-under slid
'She slid down on the table.' (e.g., a slanted table)



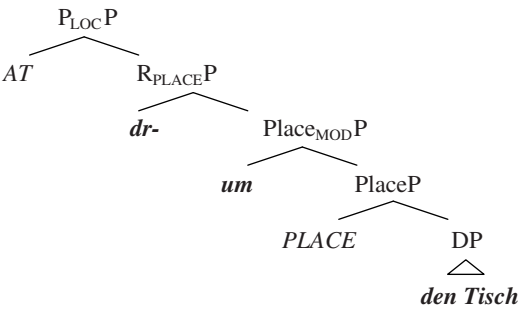
In case (i), example (33a), the object of the adposition does not represent the endpoint of the motion but the ground against which the motion takes place. In case (ii) the DP (or PlaceP) represents the endpoint of the motion. In case (iii), the dative PP expresses the location where the directed motion is occurring. We can now formulate the following generalization:

(34) When DP-PLACE "measures out" V_{DIR}/Path, then it is marked with accusative case.

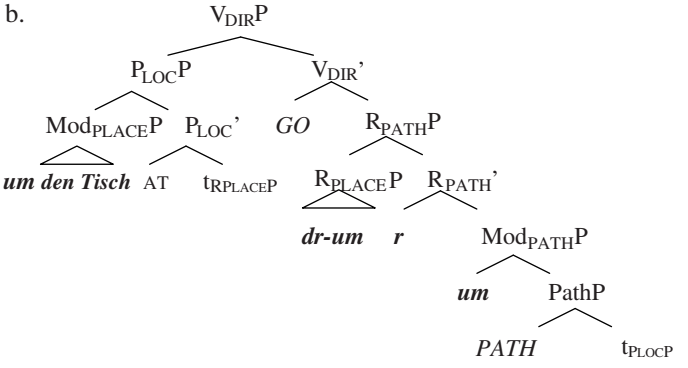
Specifically, DP measures out V_{DIR}/Path when it represents the endpoint (telos) of the directed motion (case b) or when it itself measures out the action in a way similar to the event function of direct objects of verbs (such as 'eat the apple'). It is thus plausible to establish a relation between the morphological realization of accusative in directional PPs to accusative case in verbal domains, where the accusative has often been argued to play an important role in establishing telicity. (See Tenny 1987; Travis 1994; Borer 1998; and much related subsequent work.) Dative, on the other hand, is a "locating" case and does not induce any telicity.[15]

The following is a derivation for the example with two postpositional elements (example (29a)):[16]

(35) a.



b.



The step-by-step derivation for (29) *(um den Tisch drum rum)* is as follows:

i. $[_{ModPLACEP}$ um $[_{PlaceP}$ PLACE den Tisch]] merge R_{PLACE} and P_{LOC}, move $Mod_{PLACE}P \rightarrow$

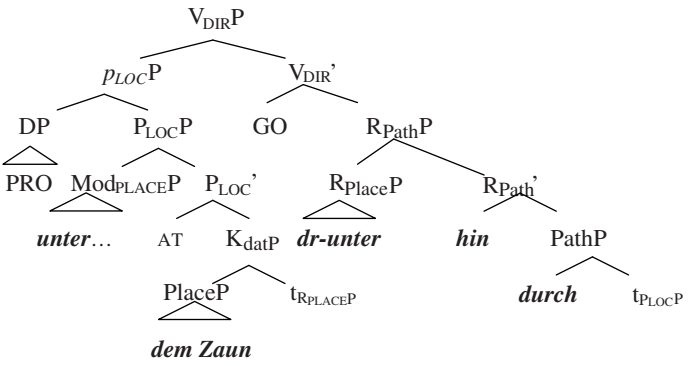
ii. $[_{PLOCP}$ $[_{ModPLACEP}$ um $[_{PlaceP}$ PLACE den Tisch]] *AT* $[_{RPLACEP}$ dr $[_{ModPLACEP}$ um . . .]]] merge Path, Mod_{PATH}, and R_{PATH}, move Rplace →

iv. $[_{Rpath}$ $[_{RPLACEP}$ dr-um . . .] r $[_{ModPATHP}$ um $[_{PathP}$ *path* $[_{PLOCP}[_{ModPLACEP}$ um $[_{PlaceP}$ *place* den Tisch]] *AT* $t_{RPLACEP}]]]] \rightarrow$ merge V_{DIR}, move $P_{LOC}P$

v. $[_{VDIRP}$ $[_{PLOCP}$ $[_{ModPLACEP}$ ***um den Tisch***] *AT*] *GO* $[_{Rpath}$ $[_{RPLACEP}$ ***dr-um*** . . .] ***r*** $[_{ModPATHP}$ ***um*** $[_{PathP}$ *PATH* $t_{PLOCP}]]]]$

In the following tree for example (30a), there is no Agree relation between V_{DIR} and DP: DP is case licensed by p_{LOC}:[17]

(36)



4. *Zu*

With this structure in mind, we can now turn to directional PPs involving the preposition *zu* 'to'. The first thing to observe is that although *zu* mainly (almost exclusively) occurs in directional constructions (i.e., $V_{DIR}P$), it licenses the dative case:

(37) Sie ist zum Laden (hin) gelaufen.
she is to-the$_{DAT}$ store prt run.

Older uses of *zu* are locational; *zu* was the locative preposition used with place names (see (38)). This locational interpretation survives in contemporary German in the expression *zu Hause* 'at home':

(38) zu Berlin, zu Göttingen, zu Paris . . . (archaic)

(39) Sie ist zu Hause.
'She is at home.'

As the examples in (40) illustrate, the PP headed by *zu* can occur with the postpositional Path elements (prefixed by R_{PATH}; *r-*):

(40) a. Guck mal, da geht er zum Laden rein!
Look! there goes he to-the$_{DAT}$ store R-in
'Look! He is going into the store.'
b. Er ist zum Gipfel rauf geklettert.
he aux to-the$_{DAT}$ peak R-up climbed
'He climbed up to the peak.'
c. Das Zebra guckt zum Fenster rein.
the zebra looks to-the$_{DAT}$ window R-in
'The zebra looks in at the window.'
d. Er kam zur Tür rein.
he came to-the$_{DAT}$ door R-in
'He came in at the door/through the door.'[18]

It can furthermore occur with *her/hin*, the postpositional deictic particles that encode motion toward *(her)* or motion away from *(hin)* the speaker's reference point:

(41) a. Er läuft zum Laden hin.
he runs to-the$_{DAT}$ store HIN
'He is running to the store.'
b. Komm zu mir her.
come to me$_{DAT}$ HER
'Come to me.'

Her is the source of the CG shortened *r-* in the directional postpositional particles (*r-* lost the interpretive dimension of 'toward the reference point'; see McIntyre 2001). I therefore propose to analyze *hin* and *her* as R_{PATH} heads, that is, as free morphemes in contrast to bound *r-*. While compatible with postpositional Path and/or R_{PATH}, *zu* seems to be incompatible with prepositional locational Ps (elements that are here analyzed as P_{LOC}); for example, no combination of *zu* and *in* is possible:[19]

(42) a. *Er geht in den/dem Laden zu.
he goes in the$_{ACC/DAT}$ store to
b. *Er geht zu in den Laden.
c. *Er geht in zu den/dem Laden.

The patterns in which *zu* occurs, that is, the fact that it is prepositional (not postpositional), that it licenses the dative case, and that it co-occurs with deictic and Path postpositions, suggest that it is structurally parallel to *bei* 'at'. In other words, it favors an analysis according to which *zu* is a lexicalization of P_{LOC}. The central difference from *bei* is that (except for archaic forms and the frozen form *zu Hause* 'at home') it must either be interpreted as directional or (as in 40c/d) occur in a directional context (to be made more precise later). I therefore propose to treat *zu* as a positional variant of *bei*, determined as follows: P_{LOC} is pronounced as *zu* when

selected by Path and elsewhere as *bei*. Movement of $P_{LOC}P$ to Spec,V_{DIR} predicts its co-occurrence with postpositional *r*-elements.

This proposal also accounts for the interpretation of *zu* in examples (40c–d): Here *zu* by itself is not directional but locative. The object of *zu* is the location of a directed motion (metaphorical motion in (40c)), not the goal itself; hence, the appropriate English translation of *zu* in (40c–d) is *at*. The analysis naturally predicts the presence of dative case (parallel to the cases (30a/33c), where the dative $P_{LOC}P$ locates the motion, without providing a 'telos'). Note, however, that the examples (40c–d) are both telic; there is an implicit endpoint of the motion: the interior of a house/room. Interestingly, this location cannot be expressed overtly in the presence of the *zu* phrase:

(43) b. Das Zebra guckt (*in das Zimmer) zum Fenster (?*in das Zimmer) rein.[20]
the zebra looks (*into the room) to-the$_{DAT}$ window (*into the room) R-in
'The zebra looks in to the room at/through the window.'

d. Er kam (*in das Haus) zur Tür (*in das Haus) rein.
he came (into the house) to-the$_{DAT}$ door (*into the house) R-in
'He came into the house at the door/through the door.'

In examples (37), (40a–b), and (41) the object of *zu* necessarily corresponds to the telos. There is, however, something different about these examples. In fact, (40a) is not acceptable to all speakers; some reject it in favor of (44), discussed in section 3:

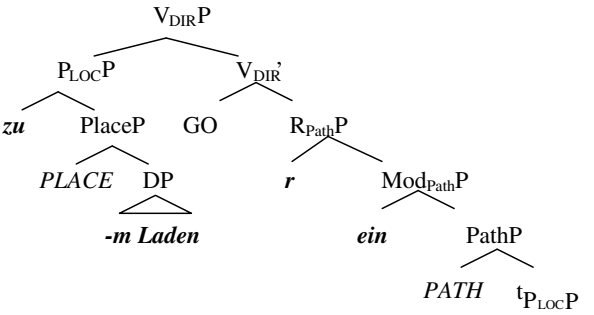
(44) Da geht er in den Laden rein.
there goes he in the$_{ACC}$ store R-in
'He is going into the store.'

Even for those speakers who accept (40a), there is something special about its interpretation: Although the sentence entails the person being inside the store as a result of the action, using *zu* instead of *in* seems to background this entailment and foreground the (outside of the) store as the actual (observed) point of entry. (In fact, it is the discourse context set up by using the exclamation "Look!" that makes the construction entirely natural to me; in a different, more neutral, context I would favor (44).)

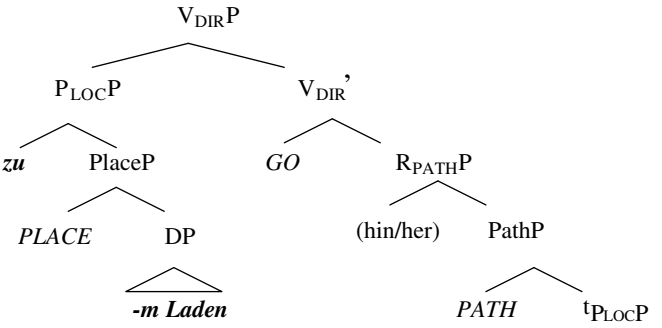
I propose that, first, *zu* obligatorily merges an external argument that accounts for its licensing of the dative case (omitted from (45) for expository reasons),[21] and, second, that $P_{LOC}P$, headed by *zu*, selected by Path and moving to SpecV_{DIR}, is generally interpreted as the endpoint of the motion. Since, however, the ground DP (i.e., the possessor of silent Place) is not case licensed by V_{DIR}, the construction permits a more flexible interpretation that allows either the DP itself (as in (37), (40a–b), and (41)) or some space defined through the ground DP (e.g., the interior space (room/house), which the door/window spatially (or functionally) sets up to function as the endpoint of the motion.

The structures representing the cases in (40–41) are as follows:

(45) a.



b.



5. *À*

Let us now turn to French *à*. This adposition can clearly receive a locational interpretation, as the following examples illustrate:

(46) a. Marie est à la gare.
Marie is at the station
b. Gaëlle est à Londres.
Gaëlle is in London
c. Le banc à l'arbre est rouge.
the bench at the tree is red

However, as the following examples show, *à* is also compatible with a dynamic (directional) interpretation:

(47) a. Nora est allée à la piscine.
Nora AUX gone *à* the swimming pool
b. J'ai couru au parc. (ambiguous)
I AUX run *à*-the park
'I ran in the park.' or 'I ran to the park.'

It thus seems that French, in contrast to German (and English, as we shall see later), does not distinguish between P_{LOC}, which has a DIR feature (i.e., that moves to $Spec V_{DIR}$), and P_{LOC} that does not; P_{LOC} is pronounced as *à* in either case.

The directional reading, however, is restricted to the complement of *aller* 'go' and a small set of verbs (*run, roll, jump* . . . , with varying acceptance for some speakers). It is generally unavailable with most verbs of manner of motion:

(48) a. *Jim a nagé à la rive gauche. (locational only)
Jim has swum *à* the left bank
b. *Elle a dansé à la cuisine.
she has danced *à* the kitchen

This mirrors the interpretive possibilities of place adpositions, as in the following examples:

(49) a. Elle a couru sous le pont (afin de se mettre à l'abris).
she has run under the bridge (in order to find shelter)
'She ran under the bridge.'
b. Elle a couru dans la cuisine pour chercher de la glace.
she has run in the kitchen to get some ice
c. *Elle a nagé sous le pont. (locational only)
she has swum under the bridge
d. *Elle a dansé dans la cuisine. (locational only)

How to restrict the distribution of directional reading in motion event? I wish to pursue an analysis that locates the language variation in the manner of licensing the abstract V_{DIR}. Specifically, I propose that Path is generally selected by V_{DIR}, either by overt V_{DIR}, *aller* 'go' or by silent V_{DIR}, *GO*. Where French V_{DIR} differs from German V_{DIR} is that French (and languages that pattern with it) lacks the movement of $P_{LOC}P$ to $Spec V_{DIR}$. This has as a consequence that when V_{DIR} is silent, it cannot be licensed by the movement of a pronounced $P_{LOC}P$ to its specifier and therefore must be licensed in a different way.[22]

This can be accomplished in one of two ways: (i) by an overt affixal Path noun incorporating into it (producing verbs such as *entrer* 'enter', *monter* 'go up', *descendre* 'go down') or (ii) by itself incorporating into a verb of manner that has a DIR feature (e.g., *courir*).[23] This results in directional PP (goal of motion events) having a much more limited distribution in Romance than in Germanic languages. In German, since V_{DIR} is simply licensed by any $P_{LOC}P$ moving to its specifier, we find directed motion events co-occurring with virtually any verb of motion.[24]

The proposed approach in effect recasts Talmy's observation that languages such as French express direction in the verb, while others are "satellite languages." Translated into the current framework, French-type languages incorporate Path to V_{DIR} (cf. Inagaki 2002), in English-type languages Path is a free lexical item, and V_{DIR} is licensed through $P_{LOC}P$ movement. French also possesses a number of "path nouns," as illustrated in the following examples. These are (or can be) selected by the preposition *à* and occur in motion events:

(50) a. Il a couru à travers le parc.
he has run at across/through the park

b. Il a couru autour du chateau.
he has run at-the-circumference of-the castle
c. Il a couru le long de la clôture.
he has run the length of the fence

If these nouns are analyzed as the head of PathP, and if *à* heads P_{LOC}P, as is argued here, the question arises as to whether these do not instantiate a case of (remnant) P_{LOC}P rising to SpecV_{DIR}, thus contradicting the earlier hypothesis about Path and the licensing of silent V_{DIR}. There are reasons, however, to doubt that this is the correct analysis of the constructions. First, for some speakers these constructions do not have the telicity expected if they correspond to directed motion events:

(51) a. Il a couru à travers le parc (% en dix minutes).
he has run at across the park in ten minutes
b. Il a couru autour du chateau (% en dix minutes).
he has run at-the circumference of the castle (in ten minutes)
c. Il a couru le long de la clôture (% en dix minutes).
he has run the length of the fence (in ten minutes)

Rather, these expressions seem to "locate" the motion expressed by the verb. The interpretation is thus locational: *à travers, le long*, and *autour* specify the location of the motion and not the endpoint.[25] This suggests that what superficially looks like Path expressions are really Place nouns: *À travers* is structurally identical to *à coté* 'beside', lit., 'at side', where *à* is the head of P_{LOC}, and the following noun is the head of Place.[26]

The following data from Italian tally well with the French facts: the expression "attraverso" is incompatible with auxiliary *esssere* and thus with a change of location interpretation:[27]

(52) Gianni ha/*è corso attraverso il parco.
Gianni has/is run across the park

This interpretive difference from English and German is also, I believe, responsible for the following striking contrast:

(53) a. Die Basilica ist durch den Park (durch). / The basilica is through the park.
b. Der Laden ist um die Ecke (rum). / The store is around the corner.

(54) a. *La basilique est à travers le parc.
b. *Le magasin est autour du coin.

If *travers* and *-tour* are not Path expressions in French, we do not expect (54) to be possible with the relevant reading (i.e., location at the endpoint of a path as in German and English).

6. English directional PPs

English resembles German in that practically any locative PP can receive a directional reading with any type of motion verb:

(55) a. They danced under the bridge.
b. John walked behind the shed.
c. The snake slid in front of the door.

This suggests that in English, as in German, silent V_{DIR} can be licensed through $P_{LOC}P$ moving to its specifier. However, contrary to German (and Dutch), this movement is not obvious from the order in PPs that contain both a locational and a Path adposition; rather than showing postpositional order, the Path element obligatorily precedes the locational PP. The linear order is always $P_{PATH} > P_{LOC} > DP$:

(56) a. They ran up behind the shed. / *behind the shed up
b. John walked down under the bridge. / *under the bridge down

Similarly, in PPs that contain only a path adposition (and no $P_{LOC}P$), we always observe prepositional order, never postpositional order, as in German (cf. example (33a)):

(57) a. She ran up/down the hill.
b. *She ran the hill up/down.[28]

This order suggests that $P_{LOC}P$ movement pied-pipes $Mod_{PATH}P$ to the specifier of V_{DIR}.[29] I return to a derivation of English directional constructions after discussing English *to*.

The ability of languages like German and English to license a silent V_{DIR} by moving $P_{LOC}P$ to its specifier is in essence a syntactic recasting of Higginbotham's semantic approach to language: Some languages permit telic pair formation (English), whereas others lack it (Japanese, French, etc.). Telic pair formation allows a language to construct a telic event from a verb of motion and a locational PP. As mentioned in section 1, this approach conflicts with the one adopted here, which restricts language variation to properties of lexical and functional items. There are also empirical problems with Higginbotham's proposal, which have been pointed out in Folli (2002). Folli observes that telic pair formation would wrongly predict that the following constructions should be ambiguous under a locational and a directional interpretation; in fact, these sentences are unambiguously locational:

(58) a. Paul ran in the forest.
b. They danced in the room.

Folli (see also Folli and Ramchand 2001) concludes from these facts that English does not, in fact, permit telic pair formation (while Italian does, as it permits sentences such as *John ran in the forest* under a directional interpretation [see example 2a] on a par with French).[30] However, Folli's claim is not without empirical problems since the verb *run* (though not *dance*) can be construed with *in* in a directional event in other circumstances:

(59) a. John ran in the room.
b. He jumped/fell in the pool.

What this suggests is that the situation is more complicated: The choice of motion verb *and* the choice of ground argument appear to have an impact on the possibility of a directional reading. I return to an analysis of these facts in section 8 after addressing English *to*.

7. *To*

English *to* is consistently interpreted as directional and has therefore been analyzed as a Path element (see, e.g., Jackendoff [1990], who proposes that *to* lexicalizes the conceptional category Path, and Koopman [1997], who places *to* as the head of PathP in an articulated structure of PPs). According to this view, the complex directional forms *into* and *onto* are derived through Place incorporating to Path (Koopman 1997). This analysis could be easily adapted to the current system by claiming that the word order of *into*/*onto* reflects remnant movement of $P_{LOC}P$ to the left of Path. The derivation would proceed something along the lines of (60a) or (60b) (in the former, DP is case licensed inside $P_{LOC}P$, and remnant $Mod_{PLACE}P$ moves first to $SpecP_{LOC}$ and then on to $SpecV_{DIR}$; in the latter, DP moves out of $P_{LOC}P$ for case licensing, and remnant $P_{LOC}P$ moves to $SpecV_{DIR}$).[31] (I do not choose between the alternatives since I reject this underlying structure.)

(60) a. $[_{V_{DIR}}\ [_{Mod_{PLACE}P}\ \textbf{\textit{in}}\ t_i]\ GO\ [_{PathP}\ \textbf{\textit{to}}\ [_{P_{LOC}P}\ t'_{Mod_{PLACE}P}\ AT\ [_{KP}\ \textbf{\textit{the pool}}_i\ t_{Mod_{PLACE}P}]]]]$

b. $[_{V_{DIR}}\ [_{P_{LOC}P}\ [_{Mod_{PLACE}P}\ \textbf{\textit{in}}\ t_i]\ AT\ t_{Mod_{PLACE}P}]\ \textbf{\textit{to}}\ [_{KP}\ \textbf{\textit{the pool}}_i\ t_{P_{LOC}P}]]$

Either of these analyses, however, leaves unresolved a number of questions about *to* and *into/onto*. I will go through one problem the analysis raises, propose an alternative account, and then show that the alternative account sheds light on a number of other properties of these items that otherwise remain mysterious or more arbitrary. One problem concerns the observation that *to* does not have an intransitive use,[32] whereas *in* does:

(61) a. She fell in (the pool).
b. She ran to *(the tree).

One may simply state that *to* (similar to certain verbs) obligatorily selects a pronounced complement, while prepositions such as *in* (and many others) permit their complement to remain implicit (again, similar to certain verbs). Either of the analyses sketched out earlier run into problems here since it is not clear how to prevent the following form:

(62) a. *She jumped/ran into.
b. *It fell into.

As *in* can occur without an overt complement and *to* can select a PP headed by *in*, preventing (62) would somehow imply that *to* determines the complement domain of *in*, which violates locality of selection. There is an alternative way to resolve this dilemma in. *In* is compatible with implicit objects only when used directionally but not when used locationally:

(63) a. He jumped in (the pool).
a. He is in *(the house/the pool/the kitchen/ . . .).[33]

Since the *in* in the form *into* is the locational one (under the hypotheses in (60)), we therefore would not expect it to be used intransitively. This would solve the problem of (62). Note that this explanation invokes the presence of two different types of *in*, one directional and one locational, each with different properties. I believe that this assumption is indeed correct. According to the architecture proposed here, this translates to *in* being either a Place element or a Path element. The problem is that, contrary to German, both types of *in* are pronounced the same way and are thus hard to distinguish. This problem, of course, also persists in the correct analysis of *into* (and by comparison *onto*): Acknowledging that there are two homophonous instances of English *in*, how do we know whether *in* in the complex form *into* is the locational *in* (as in the derivations in (60)) or the Path *in?*

I believe that we can make a case for the latter analysis, namely that *in* in *into* is indeed Path *in*, thus making the analysis of English *to* parallel to what I argue for German *zu* in section 5, namely, that it is merged as P_{LOC}. This would now trivially relate the impossibility of (62) to that of (61b). I wish to adopt this analysis of *into/onto*, assuming that the structure of *into* is indeed identical to the German example (40a), repeated here for convenience:

(40) a. Er lief zum Laden rein. / ?Er lief rein zum Laden.
he ran to-the$_{DAT}$ shop in

The difference from German is that in English Mod_{PATH} is pied-piped by P_{LOC}P movement, as section 6 proposes.[34] This implies that *to* corresponds directly to German *zu* and French *à* in terms of where it is merged in the structural hierarchy; that is, *to* is P_{LOC}. Like (contemporary) German *zu*, it has an obligatory directional feature, so that P_{LOC}P selected by V_{DIR}/Path is pronounced as *to* and must be licensed in SpecV_{DIR}. The following is a sample derivation of the PP "into the box."[35]

(64) i. $[_{PLOCP}$ ***to*** $[_{PlaceP}$ *PLACE* ***the box***$]]$ merge Path and Mod_{PATH} →
ii. $[_{ModPATHP}$ ***in*** $[_{PathP}$ *PATH* $[_{PLOCP}$ ***to*** $[_{PlaceP}$ *PLACE* ***the box***$]]]]$ merge V_{DIR}, pied-pipe Mod_{PATH}P →
iii. $[_{VDIRP}$ $[_{ModPATHP}$ ***in*** $[_{PathP}$ *PATH* $[_{PLOCP}$ ***to*** $[_{PlaceP}$ *PLACE* ***the box***$]]]]$ $t_{ModPATHP}$]

We can now solve our problem in the following way: *To* (and *into*/*onto*) is never used intransitively because it is P_{LOC}, and intransitive prepositions (particles) are restricted to Path elements that involve an abstract (silent) P_{LOC}P (see Noonan 2005).[36]

A number of further properties follow, or receive different accounts, under such an analysis of *into/onto*. The first concerns the selectional properties of the verb *put*, illustrated in the following paradigm:

(65) a. She put the boxes by (?? at) the tree.
b. *She put the boxes to the tree.

(66) a. She put them down/up.
b. Put them in.
c. She put the book into the box/onto the wardrobe.

Paradigm (65) suggests that *put* directly selects a $P_{LOC}P$ headed by locative *by* (for some reason *at* is marginal) and not V_{DIR}. The examples in (66a–c), on the other hand, show that *put* is also compatible with a path expression. Interestingly, *put* is perfectly naturally followed by the complex forms *into* and *onto.* If the underlying structure of these were [*to* [*in* . . .], this fact would be surprising since (65b) shows that *put* **cannot** select *to.* Again, it would result in a violation of locality of selection, as *put* would have to be able to "see" the complement domain of *to.* If *into/onto* are composed of a path element *in* and *on* (which in turn select the phrase headed by *to*), the facts fall out more easily.[37]

A further advantage of the proposed analysis of *into* and *onto* concerns the absence of forms like **underto, *overto*, **behindto*, and so on, analogous with *into* and *onto.*[38] If *in* and *on* in these complex forms are not incorporated Place adpositions but Path elements, then the absence of these forms follows trivially since *under, over, behind*, and so on are not Path-modifiers in English. Other Path modifiers are *up* and *down*, but they co-occur with *to: down to, up to.*[39] A second consequence is the absence of a complex preposition **atto* since *at* and *to* are positional variants competing for P_{LOC}. We also expect, analogous to overt *at*, for *to* to be silent *(TO)* when Place is pronounced, which is what we find in the normal case: P_{LOC} is unpronounced *(TO)* when Mod_{PLACE} is pronounced ($Mod_{PLACE}P$ moves to $SpecP_{LOC}$).[40]

(67) a. She ran behind the shed. → $[_{V_{DIR}P}\ [_{P_{LOC}P}\ [_{Mod_{PLACE}P}$ behind the shed] *TO t*] . . .]
b. The bottle floated under the bridge.
c. She crawled beneath the blankets.

This raises the question of how *in* and *on* differ from *behind, under*, and so on as they are restricted to the complement domain of certain verbs in order to receive a directional reading; the following sentences can be interpreted only as locational:

(68) a. She danced in the room.
b. The snail slid on the table.
c. The child crawled in the room.

I would like to suggest that English *to/TO* are incompatible with Mod_{PLACE} *in* and *on.* In other words, overt Mod_{PLACE} *in* and *on* occur only in locational PPs, where P_{LOC} is *AT.*[41] This means that pronounced *in* and *on* in directional PPs (involving P_{LOC} as *to/TO*) are **always** Path adpositions.[42] It follows that V_{DIR} *GO* in (68) is not licensed properly, as there is no pronounced $P_{LOC}P$ moving to its specifier (see details in section 8). A situation parallel to the one in Romance languages now arises (where $P_{LOC}P$ never moves to $specV_{DIR}$); that is, *GO* must be licensed in a different way. This can occur through selection by a verb of motion that has a directional feature (e.g., *run, roll*, *jump*), overlapping with the class of verbs that permit a directional reading in French and Italian). The following verbs are correspondingly acceptable with a

directional reading.[43] However, in the absence of such a verb, a directional reading is excluded, as is the case with the preceding verbs:

(69) a. She ran in the room.[44]
d. He jumped/fell in the pool.

The following observation about *into/onto* is also puzzling. *Up to* can generally have an aspectual interpretation without implying an upward path motion. This means, for example, that the "crawling event" continued up to a certain location but stopped there:

(70) a. She walked up to the barrier and stopped.
b. ??The small animal crawled up to under the bed, and then it died.
c. ??You must run up to behind the shed and come back.
e. ??She hopped up to inside the room on one leg.

Note that this reading is impossible for *into* and *onto:*

(71) a. She ran up into the attic.
b. It crawled up onto the table.

In (71), *up* can receive only an (upward) path interpretation. If *into* were underlyingly *to* > *in* with the surface order derived by moving *in* to the left of *to* (that is, the standard assumption about these forms and the one corresponding to the straw man hypotheses in (60)), examples (71) should be able to have the aspectual reading "She ran up to in the room" and "It crawled up to on the table," which they do not (not even marginally). If, on the other hand, the *in/on* part of *into/onto* lexicalizes Path, then the impossibility reduces to the fact that the *up to* reading is possible (albeit marginally so) only if followed by a locational PP but is excluded if followed by directional PPs, as the following example further illustrates:[45]

(72) *She ran up to down to the river.

These facts provide further support for an analysis of *into* in terms of Path *in* (rather than locational *in*).[46]

Note, on the side, that if *in* in *into* expresses Path, (71a–b) must have two Path expressions. We might assume that Path is a recursive category. A more likely analysis, however, is that this is a covert coordination structure:

(73) She ran up AND into the room.

The reason is found—again—in German: While German does allow several particles to combine to a complex postpositional particle (see (74)), this postpositional complex can contain no more than one Path expression. Thus, the only permitted orders are in (75), where the *rein* 'in' remains with the directional PP, and only the

rauf 'up' part behaves as a particle. Putting both in positions comparable to the post-positional complex in (74), as is done in (76), results in severe ungrammaticality. German therefore provides clear evidence that two path expressions can exist in a coordination structure only where the coordination can (somewhat marginally) remain silent.[47]

(74) a. Weil sie unter dem Zaun **drunter hin durch** hat krabbeln wollen.
because she under the$_{DAT}$ fence DR-under PRT through has crawl wanted
b. Weil sie unter dem Zaun hat **drunter hin durch** krabbeln wollen.

(75) a. Sie läuft **rauf** ?(und) ins Zimmer **rein**.
she runs R-up ?(and) in-the$_{ACC}$ room R-in
b. ?Weil sie ins Zimmer **rein** hat **rauf** laufen wollen.

(76) a. **Sie läuft ins Zimmer **rein rauf**.
b. **Weil sie ins Zimmer hat **rein rauf/rauf rein** laufen wollen.
c. *Weil sie ins Zimmer hat **rein und rauf/rauf und rein** laufen wollen.

8. Italian/French versus English

Let us now return to Folli's observed contrast between Italian and English with respect to the following examples (taken from Folli 2002, 148):

(77) John ran in the woods. → no directional reading possible

(78) Gianni è corso nel bosco. → directional

Folli (2002) and Folli and Ramchand (2001), expanding on an approach outlined in Higginbotham (2000) argue that the contrast can be explained by assuming that English does not permit telic pair formation, whereas Italian does. English, according to them, derives telic motion events through telic adjunction of accomplishment PPs (using their approach, prepositions like *under* are lexically ambiguous under a simple locative version and an accomplishment version).[48] Italian, on the other hand, has only a very restricted set of accomplishment prepositions (*fino . . . a* 'up to', *attraverso* 'across', but see note 45 and the comment on French *à travers* at the end of section 5)). Other prepositions, such as the Italian counterparts to *in, under, over*, and so on are all unambiguously locative. As a result, they cannot by themselves create a telic event. However, in the complement of a restricted set of verbs such as *run* and *roll*, verbs that are able to lexically license a result phrase (RP), they can specify the result and therefore occur as goal of motion events.

The main empirical problem with this approach is that roughly the same set of manner of motion verbs that does permit telic pair formation in Italian (that is, a directional interpretation with PPs) is also to be amenable to a directional reading with simple *in* and *on* in English, at least in some cases. This suggests that these verbs, presumably due to their meaning, share some special property in Italian and English and that the possibility of constructing a goal of motion event in

these cases is tied to this property rather than to a different process of constructing goal of motion events cross-linguistically. As section 7 explains, I propose that these verbs select V_{DIR} and thus license a silent V_{DIR} (*GO*) in Italian and French.[49] This approach is similar to the proposal of Folli and Ramchand (2001), who suggest that in Italian these verbs lexically license a result projection (as inner aspect). Where my approach differs is that I assume the same to hold in English (and other languages[50]).

A careful look at the data reveals that both the selecting verb and the nature of the ground argument (the object of P) play a role. While it is true that example (77) is unambiguously locational for most English speakers, the following examples can all be interpreted as directional (examples c–g were found on Google):

(79) a. John ran in the kitchen.
b. Nora jumped in the pool.
c. 'The SUV rolled in the ditch.'
d. 'The bus hit a car, rolled in a ditch having a depth of ≈ 0.8 m . . .'
e. 'As I rolled in the ditch my own bike ran over me.'
f. 'He was our child from the moment we walked in that room . . .'
g. 'I walked in my room and noticed my rat was laying [*sic*] in its cage having trouble breathing.'

Recall that my analysis of directional PPs involving *into* or *in* assumes 'in' to be the lexicalization of Mod_{PATH}/Path (locative *in* being excluded in the domain of *to/TO*). This 'in' is the same element as the 'in' we find in particle constructions such as those in (80):

(80) a. She ran in.
b. He jumped in.
c. It rolled in.

Crucially, the sentences in (80) imply a location that corresponds to a container (e.g., a room, a house), while an implied location such as a forest or park is impossible. In other words, (80) cannot mean she ran into the forest. Interestingly, the same is true when we look at German: Example (81), just like (80a) has an implied container-like location:

(81) Sie lief rein. (the implied location must be container-like)

Next I sketch an account of this observation, which in turn also accounts for the impossibility of a directional reading of (77).

McIntyre (2001) observes that "double particles" (in my terminology, particles involving R_{PATH}) are generally interpreted as implying a referential token location (see McIntyre's (2001) landmark referentiality generalization for the relevant concept). This contrasts with bare particles, which have a generic, nonspecific (and possibly nonspatial) interpretation. The contrast between "R-particles" and bare particles is illustrated in the following examples:

(82) a. Sie warf den Brief **ein**.
she threw the letter in 'He mailed the letter.'
b. Sie setzte den roten Hut **auf**.
she put the red hat on
c. Sie sind **aus**gegangen.
'They went out.' (social reading)

(83) a. Sie warf den Brief **rein**.
she threw the letter **R**-in
'She threw the letter in' (into some container, not in the sense of mailed)
b. Sie setzte den roten Hut r**auf**.
she put the red hat R-on
'She puts the red hat on something' (not in the sense of wearing it)
c. Sie sind **raus** gegangen.
they are R-out gone
'They went outside.' (nonsocial reading)

In Noonan (2005) I derived this generalization from the fact that R_{PATH} attracts R_{PLACE} to its specifier (see section 3, derivation (35)). Since R_{PLACE} entails a specific spatial interpretation (section 2), R_{PATH} through agreement "inherits" this specific spatial interpretation. I argue that English particles, although not marking the difference overtly (R_{PLACE}/R_{PATH} are abstract), are also to be analyzed as bare versus complex particles.

Bare particles

(84) a. The news slowly sank **in**.
b. I'll tuck you **in**.
c. She put a red hat **on**.
d. I want to put a record **on**.
e. He went **under**.
f. We went **out** last night.

} * in/on/under/out from **where**?

R-particles

(85) a. She jumped R-**in**. → in where?
b. He let the cat R-**out**. → out of where?
c. The insect crawled R-**up**. → up where?
d She went R-**out**, banging the door. → out from where?

Returning to the examples in (80), "in_{Path}" is in fact "R-in_{Path}," that is, corresponding to German *rein*, along with its interpretation. This in turn corresponds to the interpretation in German in the presence of shadow Ps. Recall that shadow Ps were anomalous in cases such as the following, where the ground argument does not refer to a container and place therefore cannot be specific:

(86) a. Sie ist im Wald (??drin).
she is in the woods (??dr-in)
'?*She is inside the woods.
b. 'Sie ist im Park (*?drin).
c. Sie ist in Paris (*?drin).

The interpretive entailment of a container-like enclosure in (80) is thus accounted for.

We can now address Folli's (2002) example in (77): If "in_{Path}" here is for some reason analogous to the intransitive "R-in_{Path}" of (80), it equally follows here that the ground argument, the possessor of Place, must refer to a container-like location. Since a forest or a woods does not qualify for this semantic requirement, the only interpretation possible is nondirectional.

This interpretive requirement seems to be linked to the fact that neither the head of P_{LOC} nor its specifier is pronounced (there is no Mod_{PLACE}): In examples where P_{LOC} is pronounced as *to*, the same interpretive requirement is not observed. In the case of particles with an implicit ground and in cases like example (77), it holds. The existence of a $P_{LOC}P$ with no pronounced element is surprising to begin with, as the usual pattern we observe is that either P_{LOC} or Mod_{PLACE} is pronounced. In other words, how are abstract P_{LOC} and *PLACE*, respectively, licensed in this case?

There is an additional observation about the directional PPs that involve *in* (as opposed to *into*), which is that extraction (P-stranding) seems to be considerably harder and, for some speakers, impossible:[51]

(87) a. She was late, but she ran in the room at 3 PM.
b. *?What room did she run in at 3 PM?
c. *?That's the room she ran in at 3 PM.

This extraction effect should fall out from an analysis of directional *in/on* (see note 35).

I propose the following analysis of the observed facts. The silent P_{LOC} head must be licensed, which normally occurs by moving pronounced Mod_{PLACE}/Place to its specifier. We can think of this requirement as being composed of both a phonetic (formal) licensing requirement and an interpretive, identificational one (recalling Rizzi's (1990) dual licensing requirement of silent categories). While P_{LOC} headed by *at*/*to* is compatible with a "generic space" (silent PLACE and its possessor, the ground argument), silent P_{LOC} must be identified by a more specific region, usually accomplished by modified Place. Here, such an element is not available in its domain. However, silent P_{LOC} itself is in the domain of a modified Path, and it is that category that is instrumental in the identificational licensing of P_{LOC}.[52] Here is an illustration of the derivation of a construction involving P_{LOC} in the absence of Mod_{PLACE} in examples such as (79): The only "pronounced" element in the domain of P_{LOC} is the DP, which is in $Spec R_{PLACE}$ (see note 35). P_{LOC} thus attracts $R_{PLACE}P$ to its specifier.

(88) $[_{PLOCP}\ [_{RPLACEP}\ [_{PlaceP}$ PLACE DP] *DR* $t_{PlaceP}]$ *AT* $t_{RPLACEP}]$.

However, neither $R_{PLACE}P$ nor *PLACE* nor DP_{GROUND} in its specifier is able to satisfy the interpretive identification licensing of P_{LOC}. For this it needs to agree with Mod_{PATH}. I propose that this is accomplished by $R_{PLACE}P$ pied-piping $P_{LOC}P$ to $SpecR_{PATH}P$. A condition for this is that P_{LOC} has a specific R_{PLACE}, that is, an R_{PLACE} with the specific container-like interpretation in its specifier. We can thus derive the interpretive condition that distinguishes the possible directional readings of the examples in (79) from cases such as (77), where a directional reading is either entirely absent or extremely hard to obtain.

Moreover, since Mod_{PATH} cannot be stranded in English, it is also pied-piped to $SpecR_{PATH}$.[53] As a result, we get the attested prepositional word order and the freezing of the DP, which account for the facts in (87).

(89) $[_{RPathP}\ [_{ModPathP}\ \textbf{\textit{in}}\ [_{PathP}\text{path}\ [_{PLOCP}[_{RPLACEP}[_{PlaceP}\text{place DP}]\ DR\ t_{PlaceP}]\ AT\ t_{RPLACEP}]]]\ R_{PATH}\ t_{ModPathP}]$

When V_{DIR} is merged, silent $P_{LOC}P$, being itself licensed in $SpecR_{PATH}$, is no longer able to move and license it. Hence, V_{DIR} must be licensed independently by selection by an appropriate verb type (analogous to the directed motion events licit in French and Italian).

In summary, by paying careful attention to all of the participants in a spatial construction, we arrive at the following conclusion: It is not that Italian and English differ fundamentally in how they construct directed motion events. Rather, they differ in what parts of the structural hierarchy they pronounce or leave unpronounced. Italian (lacking free Path morphemes such as German *(r)ein* and English *(R)in)* pronounces locative *in* in example (78). As a result, there is no interpretive condition of the ground argument such as the one that we observe in English (and German *r-ein*).

9. Conclusion

In this chapter I have investigated the properties of directional PPs from a comparative perspective. The proposal, embedded within a cartographic approach, is that directional PPs possess the following categories: $V_{DIR} > R_{PATH} > (Mod_{PATH}) >$ Path $> P_{LOC} > R_{PLACE} > (Mod_{PLACE}) >$ Place. I take this syntactic architecture to be invariant (following the general framework outlined in Cinque 1999, Kayne 2005, and other work). The proposal furthermore adopts Kayne's (2005 and other) proposal to tie much of cross-linguistic variation to the pronunciation versus nonpronunciation of various functional categories and the particular licensing requirements that underlie nonpronounced elements.[54]

Moreover, P_{LOC} is a functional locative adposition; when lexicalized (i.e., pronounced), Mod_{PLACE}/Place is silent; when silent, it is licensed through the movement of pronounced Mod_{PLACE}/Place to its specifier. In addition, V_{DIR} is an abstract functional verb that can be licensed in a number of ways: (i) through selection by a pronounced verb (restricted to a small set of verbs with a directionality feature), (ii) by incorporating affixal Path, or (iii) by attracting a pronounced $P_{LOC}P$ to its specifier. I have

proposed that language variation in the distribution of directional PPs can be tied to the manner of licensing of this functional head: In those languages that freely permit directional PPs as the complement to manner of motion verbs, as well as nouns (as is the case in Germanic), I have proposed that silent V_{DIR} *(GO)* can be licensed through (pronounced) $P_{LOC}P$ movement to its specifier. This movement is apparent in German (and Dutch) circumpositional constructions but obscured in English (through obligatory pied-piping of the "picture of who" type of $Mod_{PATH}P$). Languages that are severely restricted in permitting goal of motion events lack this way of licensing *GO*. Here we find goal of motion constructions only with overt *go*, with overt Path incorporated into V_{DIR}, or with a lexically specified set of selecting verbs that are able to license *GO*, essentially verbs that possess an intrinsic directionality, such as *run* and *jump*. This set of verbs overlaps cross-linguistically, suggesting that this property is related to a meaning component. The proposed theory brings to light a number of surprising facts about English motion events involving the simple prepositions *in* and *on,* for which I offer a novel account.

Emerging from this investigation is the somewhat surprising conclusion that the three adpositions German *zu*, English *to* and French (and Italian) *à* all lexicalize the locative functional head P_{LOC} (rather than a directional head such as Path). English and German display the following allomorphy: When P_{LOC} is selected by Path, it is pronounced as *to* and *zu*, respectively, elsewhere as *at* and *bei*, respectively. French (like Italian), on the other hand, makes no phonetic distinction between locational P_{LOC} and P_{LOC} embedded in a directional context. This lack of allomorphic dependency is likely tied to the lack of $P_{LOC}P$-to-SpecV_{DIR} movement in French (and Italian).

Notes

This work has been presented in various parts, stages, and versions at the Workshop on the Internal Structure of PPs (University of Venice), the Comparative Germanic Syntax Workshop in Santa Cruz, the Edges Conference in Cyprus, at McGill University, and at UCLA. I thank the respective audiences for their valuable input. My thanks go to Guglielmo Cinque for helpful feedback and to Michal Starke for helpful discussion of certain parts of this work. All errors and shortcomings are mine.

1. The hypothesis of an articulated structure inside adpositional phrases, in particular of postulating Path and (nominal) Place projections, shares basic similarities with much recent work. See Van Riemsdijk (1990), Koopman (1997), Den Dikken (2003), Svenonius (2004b), Terzi (2006), Pantcheva (2007), and many others (including chapters in this volume).

2. These types of examples can be good: for example, Marie ist zum Laden 'Marie is to the store'. However, this is a result of German permitting silent verbs (see Riemsdjik 2003).

3. See also Svenonius (2004b) for an explicit characterization of the semantics of this category.

4. Thanks to Öner Özçelik for providing example (8b).

5. Thanks to Yumiko Ishikawa for providing example (8c).

6. See Noonan (2006) for a detailed discussion of *dr-*. There I argue in favor of further decomposition of *dr-*, a part of the analysis I am simplifying here for expository purposes.

7. In an earlier version I postulated a case-related argument shift of DP to the specifier of $K_{DAT}P$, followed by remnant movement of $Mod_{PLACE}P$ to Spec P_{LOC}. The advantage of the analysis

adopted here is that we can make sense of the lack of P-stranding in German: Since DP is pied-piped by $Mod_{PLACE}P$, it is frozen in place and cannot be subsequently subextracted. (See Noonan forthcoming for an account of P-stranding with r-pronouns.)

8. According to Collins dictionary, *-neath* derives from OE *neothan* 'low'.

9. Some exceptions are *anstatt/an stelle* 'in stead of', *zugunsten, mittels* 'by means of', *trotz* 'in spite of'. They are used mainly or exclusively in a nonspatial sense. All license genitive case (instead of the locative dative).

10. There is more to say about pronounced R_{PLACE}; in Noonan (2006, 2007) I argue that R_{PLACE} is where locative pronouns are born (at least in some languages). I leave this issue aside for the purpose of this chapter.

11. This generalization must be relativized in very precise ways (see, for example, (30a), where the DP occurs in the dative), to which I return presently.

12. This has the advantage of relating morphological case to the categorial domain (see Abraham 2003 for a similar proposal):

genitive: nominal case (e.g., *à* [$_{NP}$ *côté de la table*], *on* [$_{NP}$ *top of the cupboard*])
dative: prepositional case (e.g., [$_{PLOCP}$ *auf dem Tisch*])
accusative: verbal case (e.g., [$_{VDIRP}$ *auf den Tisch . . .*])

13. These cases are left aside here but discussed in more detail in Noonan (2006).

14. The case (i), in German, is restricted to the adpositions *auf* and *unter*; obligatorily prefixed with *r-* (or *her/hin;* see later discussion) when postpositional. In Dutch, we find postpositional order more generally (as discussed in Den Dikken 2003; Koopman 1997; Noonan 2006).

15. Guglielmo Cinque (personal communication) suggests considering the verb to be something along the lines of *REACH* to avoid postulating an unaccusative verb as responsible for accusative case. Assuming V_{DIR} = *REACH* is, however, problematic for the case (i), example (32a), since here the object of the adposition does not correspond to a "reached" location. Note that according to my analysis, *GO* has an external argument and is therefore not unaccusative. We must thus distinguish between *GO* and (overt) *go*. Perhaps overt *go* always involves two verbs: a manner verb + V_{DIR} (*GO*) and the upper verb is unaccusative, whereas *GO* is not. I leave these important aspects of my proposal for further work (perhaps erroneously so).

16. The fact that we find *drum rum* suggests that the adposition *um* is an element that can be merged as Place and as Path. It is not, however, always possible to merge it in Place: *Drum* is excluded if the PP refers to a place that is attained as a result of going in an "around path" but where the around path does not also define the region itself (examples are given in i–ii). See Noonan (2006) for a more thorough discussion.

(i) Sie ist um die Ecke (*drum) rum gelaufen.
she is around the$_{ACC}$ corner (*DR-around) R-around run.
'She ran around the corner.'

(ii) Der Laden ist gleich um die Ecke (*drum) rum.
The store is just around the$_{ACC}$ corner (*DR-around) R-around run.
'The store is just around the corner.'

17. R_{PATH}, as usual, can separate, deriving, for example,

(i) unter dem Zaun ist sie **drunter (hin) durch** gekrochen.
under the$_{DAT}$ fence aux she DR-unter R through crawled.

18. Note that *zu* is translated as 'at' in the c–d cases. I return to this presently.

19. There is one case where *zu* does occur as a postposition in combination with adposition *auf* 'on'; see (i). It does not, however, have the meaning *zu* + *auf* in the sense of 'onto', but it means 'toward'.

(i) Marie ging auf ihn (hin) zu.
Marie walked on him$_{ACC}$ (prt) to. 'Marie walked toward him.'

In this case, it looks like *zu* does lexicalize Path. I leave this construction aside here.

20. If 'in das Fenster' after the *zu* phrase is acceptable at all (I find it very marginal), then my intuition is that it modifies the DP 'das Fenster', which to my ears is also only very marginally possible:

(i) *?Das Fenster ins Schlafzimmer ist offen.
the window in$_{ACC}$ the bedroom is open

21. One could account for this fact by postulating that *zu* lexicalizes p_{LOC}P, although this is not much less stipulative. Ideally the necessity of an external argument (deriving the obligatory dative case) relates to some interpretive property of *zu.* Michal Starke (personal communication) suggests that a more appropriate analysis of *zu* might be an additional directional category intervening between Path and P_{LOC}. This suggestion might be exploited for an alternative account of the obligatory dative case. For the time being I will stay with the simpler structure and leave the question of the obligatory external argument open, that is, stipulate it.

22. We might thus also tie the invariant pronunciation of P_{LOC}—there is no context-sensitive allomorphy in P_{LOC} comparable to German *bei* versus *zu* (and English *at* vs. *to)*—to the lack of P_{LOC}P-to-SpecV_{DIR} movement in French (and Italian).

23. This is reminiscent of a suggestion in Koopman (1997): In order to restrict the distribution of prepositional directional PPs in Dutch, she postulates that silent Path incorporates to a motion verb (what she calls Path corresponds more closely to my V_{DIR}). Den Dikken (2003) points out that only certain motion verbs (roughly those that tend to also allow directional readings with PPs in French) permit prepositional PPs (see the discussion in Noonan 2006).

24. I do not assume that German possesses overt V_{DIR} (GO). The verb *gehen* (which would be the candidate) is at the same time a verb of manner of motion (it means 'to walk'). In German, V_{DIR} is always silent and always licensed through P_{LOC}P-to-SpecV_{DIR} movement.

25. I thank Dominique Sportiche (personal communication) for clarifying the precise interpretation of these examples.

26. Those speakers who permit the time frame adverbial 'in ten minutes' presumably construe the telicity on pragmatic grounds, similar to "He ran up the hill in two minutes" and "He ran up the hill for two minutes" (see Noonan 2006).

27. Thanks to Guglielmo Cinque (personal communication) for pointing out these examples to me.

28. These cases are not to be confounded with variable-order particle constructions such as *throw the ball down/throw down the ball.* Here, the adpositional element (Mod_{PATH}/Path) is used intransitively; the DP 'the ball' is not its complement but its external argument.

29. Pied-piping of the "picture of who" type; (see Cinque 2005 for further discussion of this marked option).

30. In contrast to French, however, Italian requires *essere* as an auxiliary in the directional reading.

31. Another possibility, not readily compatible with the present assumptions about the structure of PP, would be head movement: *In* incorporates to P_{LOC} and then to Path.

32. An exception is the frozen idiomatic expression *to come to.*

33. Again, there is an exception as in "The doctor is in."

34. The other difference is that English disallows counterparts of examples such as (40c–d), discussed earlier. In other words, there is an interpretive difference: The object of *into* obligatorily designates the precise endpoint of the motion, so that the English counterparts to (40c–d) would have the interpretation of the person entering the door/window instead of the interior space defined by it. Note that English lacks the counterpart of German (44):

(i) *He went in in the store.

The fact that English permits fewer options may lead to this interpretive difference. Let us assume that the DP is case licensed by V_{DIR} (accusative), thus resulting in an interpretation akin to the German (44) (rather than (40a)).

Note that one might relate the ill-formedness of (i) to the fact that English Path, contrary to German Path, is not postpositional by invoking an OCP effect (see, e.g., Golston 1995, cited in Nunes 2004, and Bošković 2002 on Romanian *ce ce).

35. The derivation shown in the text leaves out R_{PLACE} and R_{PATH} and also ignores another important difference between German and English: English allows for P-stranding, which German prohibits. In work in progress, I capture this difference by arguing for a different derivation for English PPs, specifically, by suggesting that in English, but not in German, DP moves to $SpecR_{PLACE}$. This difference leads to the extractability of DP (really R_{PLACE}/R_{PATH}P) in English. In German the DP remains inside Mod_{PLACE}P, from which it cannot subextract once Mod_{PLACE}P pied-pipes to $SpecP_{LOC}$P. In both English and German R_{PLACE} (or R_{PATH}, in directional PPs) can move. However, it contains different specifiers, which determines differences in landing sites of the movement. The following is a more precise derivation for example (64). I ignore these issues here in the text for reasons of exposition and space limitation:

(i)

i. $[_{PlaceP}$ *PLACE* ***the box***$]$ merge R_{PLACE}, move DP →

ii. $[_{RPLACEP}$ ***the box***$_i$ *DR* $[_{PlaceP}$ *PLACE* $t_i]]$ merge P_{LOC} →

iii. $[_{PLOCP}$ ***to*** $[_{RPLACEP}$ ***the box***$_i$ *DR* $[_{PlaceP}$ *PLACE* $t_i]]]$ merge Path, Mod_{PATH}, and R_{PATH}, move R_{PLACE}P →

iv. $[_{RPATHP}$ $[_{RPLACEP}$ ***the box***$_i$ . . .$]$ *R* $[_{ModPATHP}$ ***in*** $[_{PathP}$ *PATH* $[_{PLOCP}$ ***to*** $t_{RPLACEP}]]]]$ merge V_{DIR}, pied-pipe Mod_{PATH}P →

v. $[_{VDIRP}$ $[_{ModPATHP}$ ***in*** $[_{PathP}$ *PATH* $[_{PLOCP}$ ***to*** $t_{RPLACEP}]]]$ *GO* $[_{RPATHP}$ $[_{RPLACEP}$ ***the box***$_i$ *DR* $[_{PlaceP}$ *PLACE* $t_i]]$ *R*$_{PATH}$ $t_{ModPATHP}]]$

36. Svenonius (2004) points out that a subset of locational place adpositions permits null anaphoric objects (ground arguments); see (i). He furthermore remarks that the possibility of a null object correlates with that of taking *there* as a ground argument and proposes to tie this correlation to the selection of an optionally null KP.

(i) As the group approached the final summit, Espen stayed behind (them). (Svenonius 2004b)

(ii) a. Get behind/inside/below/beyond/in front of/above there. (Svenonius 2004b)

b. *Get among/upon/between/beside/next to there. (Svenonius 2004b)

However, certain adpositions permit *there* while disallowing a null object:

(iii) a. Get under the blanket. It'll be warm under *(there).

b. It is in *(there).

Note that all of the adpositions in (iib) that allow null *there* have a nominal root. A more complex condition may thus be involved.

37. Some facts about the selectional restriction of *put* remain puzzling under the present analysis: (i) Why can it not select $V_{DIR}P$ without a pronounced Path/Mod_{PATH}? And in (ii), why are "She put them up to the attic/down to the cellar" not well formed? I leave these aside here.

38. The common explanation is a phonological restriction that only monosyllabic *in* and *on* satisfy. If this is the right explanation in diachronic terms, I would argue that the incorporated forms *in* and *on* were subsequently reanalyzed as path expressions. The synchronic facts around *into* and *onto* seem to me to favor this contention.

39. Contrary to *into* and *onto*, these complex forms are not "listed"; their unlisted character presumably relates to the difference in orthography. There is no discernable phonological difference between *into/onto* and, for example, *up to.*

40. There is an asymmetry between *at* and *to*: While the former is completely impossible with a pronounced Place modifier, *to* can marginally co-occur with pronounced Place (examples taken from Svenonius 2004b, 5):

(i) a. The boat drifted (?to) behind the hill.

b. The boat drifted (?to) inside the cave.

c. The boat drifted (?to) below the bridge.

In fact, in (i), a and c even involve a pronounced P_{LOC} *(be-).* If *to* is P_{LOC} and *behind, under*, and so on pronounce Mod_{PLACE}, we expect these examples to be completely impossible. A solution would be to assume that the phrases headed by *behind*, and so on are modifiers of an unpronounced structure, paraphrasable as "The boat drifted to a place/point (that is) behind the hill." Intuitively this captures the meaning of the examples in (i) quite well.

41. At this point this remains a stipulative restriction that does not seem to follow from anything.

42. The opposite holds for adpositions such as *under, over*, and so on, which English lexicalizes only in Place, while German also has a Path version. Note that the proposal in the text accounts for the lack of examples such as "*She jumped in in the box" (parallel to German 'Sie sprang in die Kiste rein'), alluded to in note 32. If *TO* is incompatible with overt Mod_{PLACE} *in*, this gap follows.

43. There seems to be variation among speakers with respect to their tolerance for attaining a directional reading within various contexts. This must be determined lexically, that is, whether or not a given verb of motion has an intrinsic directional feature and can license silent V_{DIR}. In general, it seems that North American English is more permissive, while European varieties of English prefer the complex forms *into/onto* in directional contexts. Presumably, register also plays a part, with *into/onto* representing the more formal forms.

44. There is more to be said, given the problem of Folli's example "She ran in the forest." I return to the lack of a directional interpretation in this case in section 8.

45. What I am omitting here is an analysis of the aspectual "up to" reading. In a nutshell, I believe that this aspectual reading of *up to* selects an event as the external argument. In other words, "Mary ran up to the fence (and no farther)" should be paraphrased as "Mary's running finished (was 'up') at the fence." Here, the DP (Mary) is not the external argument of *up to* . . . (V_{DIR}), but the event of Mary's running is. This point is clearly relevant in the current context, especially in view of claims that Italian and Japanese have at least one "accomplishment" prep-

osition: Italian *fino . . a* (French *jusqu'*) as suggested by Folli (2002), and Japanese *–made* as suggested by Inagaki (2002). I leave the details of this issue unresolved for further research.

46. There are number of expressions for which it is hard to argue in favor of an inward path expression:

(i) a. The vase broke into pieces (thanks to Peter Svenonius [personal communication] for this example)
b. He burst into tears.

I am not convinced that these pose a serious enough problem to abandon the analysis of *into* argued for here since the *in* here may constitute an idiomatic particle. German, once again, is a good indicator, as it has idiomatic expressions with Path *ein* (e.g., einschlafen 'fall asleep'). The clue is that in these cases the particle is bare (not preceded by *r-*), which I contend is the same in the English examples in (i) (see Noonan 2005). (In other words, *into* in *into the room* is really *r-in-to* but not in (i).)

47. It remains to be seen why leaving the coordination unpronounced is not marginal in English.

48. Being an accomplishment prepositions for them means to license a R(esult)P.

49. Furthermore, in Dutch a certain set of verbs, again, it seems, overlapping, allows for prepositional order in goal of motion events, which in other contexts are obligatorily postpositional. See Noonan (2006) for an account of these.

50. However, my approach does not necessarily hold universally; there is always the possibility of very subtle meaning differences in seemingly synonymous verbs across languages (unaccusative mismatches such as the unergative English *blush* versus the unaccusative Italian *arrossire* are an example; see McClure [1990], as discussed in Levin and Rappaport Hovav [1995])

51. The tendency for the directional reading to be harder to obtain holds for all of the speakers I consulted and who otherwise accept directional readings with *in.* For some it is impossible, whereas for some it is merely more difficult but not impossible, depending on context and pragmatic factors.

52. This requires delaying, but since P_{LOC} in these types of directional cases is not a phase, this is not a problem.

53. Basically, this is pied-piping of the "with whose friend" type.

54. My proposal differs from Kayne's framework in that it does not strictly obey the "closeness-driven" approach to movement that he adopts (see Kayne 2005, 54), but it is more amenable (at least in part) to a feature-driven movement approach (Chomsky 1995, 2001, and other work within the minimalist program).

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6

ARHONTO TERZI

Locative Prepositions and Place

1. Introduction

The purpose of this chapter is to investigate the behavior of locative P(preposition)s and offer an account of their not yet fully understood syntactic properties. Locatives are those prepositions that pose various problems for treating all Ps alike along the functional vs. lexical dimension and, in particular, for considering all Ps to be functional elements (Grimshaw 1991; Baker 2003; Botwinik-Rotem 2004). It comes as no surprise, therefore, that Van Riemsdijk (1990, 1998) considers locative Ps to be semifunctional. On the other hand, for Den Dikken (2003) and Svenonius (2004), locative (and directional) Ps—in English, Dutch, and German at least—are lexical heads associated with a number of functional projections on a par with verbs and nouns. Finally, some proposals hinge on the lexical nature of locative Ps in a different manner, namely, by considering them to be nominals of some type; see Bresnan (1994) for English, Marácz (1984) for Hungarian, Collins (2004) for N|uu, and Aboh (this volume) for Gbe. What seems to follow from the above, therefore, is that, although it is difficult to pin down the exact status of locatives, general trends emerge nonetheless: First, while there is a tendency to consider locatives lexical elements, it has been difficult to deny their functional component. Furthermore, when it comes to their lexical status, various similarities between locatives and nouns have been pointed out not only within what we tend to think of as exotic languages but also within languages of Europe. The account I propose here sheds light on these issues and offers a new analysis of the behavior and the syntactic structure of locative Ps.

Based initially on empirical evidence from Greek, I argue that locatives indeed have a lexical component, stemming from the fact that they are the modifiers of a lexical element, in particular, of a nonphonologically realized noun that I call Place

and whose presence in the syntactic structure gives locatives a nominal flavor. Although it is beyond the scope of this chapter to investigate the semantic content of Place, it appears to denote the physical space surrounding the reference landmark (i.e., what is considered the ground argument of the locative). This physical space becomes narrower when Place is modified by the locative, while it remains less precise when a locative modifier of Place is missing. I further claim that the DP containing Place is the complement of a functional head, P_{Loc}, and that the latter is what contributes the functional makeup of locatives and hence their overall oscillating status along the functional/lexical dimension.

My intention, of course, is to demonstrate that the structures I propose and justify for Greek hold for other languages as well, and for this reason I investigate Spanish and English locative Ps. I demonstrate that Spanish is a language whose locatives behave very similarly to those of Greek. When English enters the picture, it complicates things, while at the same time it poses interesting questions with respect to the relationship locatives have with their complements. Naturally, this is the issue I subsequently address. It follows from the claims outlined earlier that what appears to be the object of locative Ps is the possessor of the unpronounced noun Place, an outcome that I elaborate in this work. English presents a more complicated picture than Greek and Spanish in this respect and raises questions as to whether the object of the locative participates in a possession or in a partitive relation with Place. I explore this question and conclude that there is no sufficient and convincing evidence to support the latter idea.

In the second section of the chapter I present the empirical evidence from Greek on which my claims are based. I demonstrate that locatives share the distribution of adjectives and propose a nominal structure that contains them (in which structure locatives modify the unpronounced noun Place) and is the complement of a P functional head. In the same section I present instances in which Place is not modified by a locative element (with the consequence that location is conveyed in a less precise manner). The third section discusses locatives in Spanish and demonstrates how the current proposal is preferable to previous accounts at both the empirical and the conceptual levels. Section 4 discusses English and dedicates a subsection to the relation of locatives with their complements. The fifth section presents my conclusions.

2. Greek locative Ps

Greek locative Ps are encountered in two syntactic frames, which constitute the empirical bulk of this study. In the first frame, locatives are followed by a smaller P, which is referred to here as "light P" and introduces the object of locatives with accusative case. There are two such light Ps, *se* and *apo*, and they are both encountered in a number of other environments on their own as well.[1] This frame is often referred to as a *complex preposition* in the Greek literature (Theophanopoulou-Kontou 1992), a term that I also employ here.

(1) a. Stathika piso apo ti Maria.
stood-1s behind *apo* the Mary-acc
'I stood behind Mary.'

b. Kathomun epano ston Petro.
was-sitting-1s on *se*-the Peter-acc
'I was sitting on John.'

In the other syntactic frame, locatives are followed directly by their complement, which now carries genitive case, however, and can appear only as a clitic. In other words, a full DP as the immediate complement of locatives is not allowed, as is illustrated in (2).

(2) a. Stathika piso tis/*tis Marias.
stood-1s behind she-cl-gen/the Mary-gen
'I stood behind her/Mary.'
b. Kathomun epano tu/*tu Petru.
was-sitting-1s on he-cl-gen/the Peter-gen
'I was sitting on him/Peter.'

For a third frame, one can potentially consider the one in which locatives are not followed by a complement; see (3). Because of the existence of this frame, locatives are also referred to as intransitives prepositions and/or as adverbs in the traditional Greek literature (Tzartzanos 1945/1996).[2]

(3) a. Stathika piso.
stood-1s behind.
'I stood behind.'
b. Kathomun epano.
was-sitting-1s on
'I was sitting on.'

In what follows I start with the second frame in which locatives are encountered, as it reveals more about their structure.

2.1. (Genitive) clitic complements: Locatives and the nominal domain

The fact that the clitic complement of locatives carries genitive case (2) and that genitive is the case associated exclusively with complements of nominals in Modern Greek constitutes the first indication that Greek locatives may be part of some nominal structure.[3] The construal of locatives with genitive complements does not mean that the locative per se is some type of noun, however, and it is precisely this point in which the present account differs from previous accounts that attribute nominal properties to locative Ps. To anticipate the central claim of this section, I argue that locatives are the modifiers of nouns (of some special type, as we will see) by virtue of the fact that their distribution is similar to that of adjectives in the nominal domain (see also Terzi 2007).

The similarities in distribution between locatives and adjectives emerge once we compare the distribution of complements of locatives (either clitics or full DPs) with the complements of nouns (possessor clitics or full DPs) in the presence of an adjective. In Greek, possessors can be found in two positions in the nominal domain in the presence of an adjective: The possessor can either follow the noun, in the form of a clitic or as a full DP, (4a), or it can follow the adjective, but only in the form of a clitic (4b):

(4) a. To oreo spiti tu/tu Petru.
the nice house he-cl-gen/the-gen Peter-gen
b. To oreo tu/*tu Petru spiti.
the nice he-cl-gen/the-gen Peter-gen house
'His/Peter's nice house.'

The ungrammatical second part of (4b) was grammatical in earlier stages of Greek; see (5). Furthermore, during the same (earlier) stages of the language, locatives could be followed by a genitive DP as well, (6), whereas only a genitive clitic can immediately follow them in contemporary Greek, as is illustrated in (2a–b), repeated here:

(5) To proton tis tragodias meros.
the first the-gen tragedy-gen part 'The first part of the tragedy.'
(Aristophanes, *Frogs* 1120)

(6) estratopedefsanso ekso tis poleos . . .
camped-3p outside the-gen city-gen 'They camped outside the city.'
(Xenophon, *Hellenica* 5.2.25)

(2) a. Stathika piso tis/*tis Marias.
stood-1s behind she-cl-gen/the Mary-gen
'I stood behind her/*Mary.'
b. Kathomun epano tu/tu Petru.
was-sitting-1s on he-cl-gen/the Peter-gen
'I was sitting on him/Peter.'

The similarity between the two domains continues in the sense that the genitive DP complements of locatives ceased to exist during the same period in which DP possessors ceased to occur after an adjective in the nominal domain, namely, from around the twelfth to the sixteenth centuries (see Alexiadou 2005 and Theophanopoulou-Kontou 2000 respectively).

I propose that we can make sense of the synchronic and diachronic distributional similarities between locatives and the extended nominal domain if we consider locatives to be part of a structure similar to that of nominals. Rather than considering locatives to be nouns, however, I am claiming that they are modifiers of nouns and, in particular, of a very specific type of noun. Their status as modifiers follows from the fact that they share the distribution of (attributive) adjectives, that is, of elements that are typical modifiers of nouns.[4] I propose therefore that locatives modify a noun

that is not phonologically realized, one that I call Place. This noun is the head noun of a DP with an empty determiner, as seen in (7). The small clause we also see in (7) is the structure I tentatively adopt for nominal possession; see Den Dikken (1998, 1999) since I hold that what surfaces as the complement of the locative is the possessor of Place:[5]

(7) . . . [$_{SC}$ [$_{DP}$ ø [$_{XP}$ epano [$_{X}$ [$_{NP}$ Place]]]] [$_{PP}$ ø [$_{DP}$ tu]]]

Remember from (4) that the possessive clitic may surface in two positions in the nominal domain, namely, following either the adjective or the noun. Ideally, one would expect the same to hold for locatives if we adopt (7) as their structure. It is not necessarily the case that the situation should be identical in the domain of locatives, however, since, when following the noun (i.e., Place), clitics would have to cliticize on a nonphonologically realized element, but the latter is not a legitimate host for clitics.[6] I propose therefore that the genitive clitic in (7) obligatorily moves from the position after Place to the position after the locative. Once we hold that the position at which clitics surface when they follow locatives is the one after the locative rather than the one after Place, we can account for additional similarities between the clitic complements of locatives and the possessors of mainstream DPs in further support of the proposed structure in (7). We have no reason to assume movement of the possessive clitic from the postnominal to the postadjectival position in the DP domain since clitics can appear either after the noun, as in (4a), or after the adjective, as in (4b). Moreover, each of these positions in the DP is associated with different properties with respect to animacy restrictions imposed on clitics, as we will see shortly.

One of the advantages of considering clitics that follow locatives to surface at the position after the locative rather than after Place, namely, at a position counterpart to the postadjectival position in the DP, is that a full DP complement of locatives is not expected to be possible, as in (2) (just as a possessor full DP cannot replace a possessive clitic after the adjective in the nominal domain, (4b)).

Moreover, if we consider clitics that follow locatives to be the counterparts of clitics that follow adjectives, we can account for one more property exhibited by clitics in this position. Alexiadou and Stavrou (1999) have observed that, when possessive clitics follow the adjective, they can refer only to an animate entity, in contrast to the possessive clitics that follow the noun, (8a) vs. (8b). The authors associate animacy with higher positions for clitics in the DP structure:

(8) a. O trelos tu odigos
the crazy his driver
'his crazy driver'

b. O trelos odigos tu
the crazy driver his
'his/its crazy driver'

As (9) demonstrates, clitics that follow locatives are also subject to animacy restrictions. Hence, the clitic in (9a) cannot refer to 'the church,' although the context is entirely appropriate. On the other hand, the full pronoun, associated with the complex preposition frame, is perfectly acceptable when referring to 'the church,' (9b). This finding indicates that clitics following locatives are also placed in a higher position in the structure, in line with my claim that they occupy the position after the locative rather than the position after Place.

(9) a. *I Eleni perimene brosta apo tin eklisia$_i$ ke i Maria mesa tis$_i$.
the Eleni was-waiting in-front of the church and the Mary inside she-cl-gen

b. I Eleni perimene brosta apo tin eklisia$_i$ ke i Maria mesa se afti$_i$.
the Eleni was-waiting in-front of the church and the M. inside *se* she-pron.-acc
'Eleni was waiting in front of the church, and Mary inside it.'

A word of clarification is in order at this point: A number of Greek speakers, although agreeing with the judgments in (9), can accept clitics construed with prepositions even when they refer to an inanimate entity, especially in contexts such as in (10b):

(10) a. Ides tin efimerida?
saw-2s the newspaper 'Did you see the newspaper?'
b. Ne, kathome epano tis.
yes, sit-1s on it-cl-gen 'Yes, I am sitting on it.'

I believe that the mixed judgments with respect to the animacy of the clitics reflect precisely the steps of the analysis I am advocating. If we assume that there are two positions for possessive clitics in the nominal domain, a higher one that is associated with animacy restrictions and a lower one that is not (Alexiadou and Stavrou 1999), it is plausible that, when a clitic moves from the lower to the higher position, it demonstrates behavior which reflects the different properties of each of the two positions with respect to animacy. Since no comparable mixed behavior is demonstrated in the nominal domain with respect to animacy, it is possible that both positions for clitics are base generated in nominals. On the other hand, the obligatory movement of the clitic from the lower to the higher position in the domain of locatives follows from the fact that clitics cannot be hosted by a nonphonologically realized element such as Place7.

To summarize, in this section I have accumulated empirical evidence in favor of the claim that the syntactic structure of Greek locatives involves some type of nominal, in particular, that it parallels in several ways the structure of a DP in the presence of an adjective that modifies its head noun. I have proposed that this parallelism suggests that locatives resemble adjectives in that they also modify a noun, the noun Place. The latter is a nonphonologically realized lexical element, and the DP in which

it is contained has a nonphonologically realized determiner as well. Moreover, what appears to be the complement of the locative is the possessor of Place. I do not address the semantics of Place in this chapter. I believe, however, that it follows naturally from the syntactic structure I have proposed, that Place denotes the physical space surrounding the ground (i.e., the landmark for location or else what appears to be the object of the locative). It also follows, I believe, that what locatives achieve by modifying the noun Place is to restrict the range of its reference and hence to restrict the physical space denoted by it to, let us say, the front, the back, and so on (of the ground argument). We will see the consequences of this modification in subsequent sections, when we investigate structures in which Place is not modified.

The similarities between locatives and adjectives are striking, especially in view of the fact that Greek locatives do not carry nominal/adjectival (or any other) inflectional morphology and do not derive from nouns historically (see Skopeteas 2002, 2006, for ancient Greek locatives). It is nevertheless a behavior consistent with the general cross-linguistic observation that locatives have some type of nominal flavor, an observation that is not always precisely articulated or correctly argued for, however.[7]

2.1.1. The P_{Loc} functional head

There are reasons to believe that considering (7) to be the full structure of Greek locatives is not sufficient. This is so because, if the structure of locatives were just that of an adjectival element modifying an (unpronounced) noun, locatives would not be modified by adverbs and degree phrases such as *akrivos* 'right/precisely' since these do not modify adjectives.

(11) *To vivlio ine akrivos kokino/megalo
the book is right red/big.

Nevertheless, *akrivos* can modify locatives, as the following example demonstrates:

(12) O Petros kathise akrivos dipla/brosta/piso mu.
the Peter sat right beside/in front/behind me

This modification possibility, which is available to locatives, leads me to propose that the nominal structure of which locatives are a part is in turn the complement of a (nonphonologically realized in this case) functional head, P_{Loc}:

(13) . . . $[_{PPLoc}\ [_{PLoc}\ \emptyset\ [_{SC}\ [_{DP}\ \emptyset\ [_{XP}$ piso $[$tis $[_{X}\ [_{NP}$ Place$]]]]]\ [_{PP}\ \emptyset\ [_{DP}$ ~~tis~~$]]]]]$
behind she-cl-gen

Hence, modifiers such as *akrivos* modify PP_{Loc} rather than the locative, conceivably occupying the specifier position of PP_{Loc}.

There is one more piece of empirical evidence in favor of taking the DP that contains Place to be the complement of P_{Loc}.[8] Let us consider an adverb such as *diametrika* 'diametrically,' which can modify adjectives:

(14) Exi diametrika anditheti apopsi.
have-3s diametrically opposed view
'She/he has a diametrically opposite view.'

If we modify the locative with *diametrika*, it has to follow rather than precede *akrivos:*

(15) a. Kathotan akrivos diametrika piso mu.
was-sitting right diametrically behind me
b. ??Kathotan diametrika akrivos piso mu.
was-sitting diametrically right behind me

The order of these adverbial modifiers and the fact that only *diametrika* can modify adjectives (hence locatives as well, according to my claims) is consistent with the structure in (13). In (13), a DP whose head noun is Place is the complement of the functional head P_{Loc}. Therefore, it is lower in the structure than P_{Loc}. As a result, the modifier of (the modifier of) Place appears lower in the structure than the modifier of P_{Loc}, and we get *akrivos* 'right' > *diametrika* 'diametrically' but not the reverse order.

In conclusion, what I have argued for so far and is subsumed under (13) is that there is both a lexical and a functional component to the structure of Greek locatives. The functional component is contributed by the head P_{Loc} that I proposed in this section, and the lexical component is contributed by the (unpronounced) noun Place. I believe that, if I am on the right track, the current proposal is in the spirit of Van Riemsdijk (1990, 1998), who considers locatives to be semilexical. One of the advantages of the proposed analysis is that it demystifies the notion "semilexical," suggesting that it reflects the simultaneous presence of both a lexical and a functional element. Greek instantiates both components via the morphosyntactic distributional evidence I have presented. An additional advantage of the proposed analysis, also made readily available via the empirical evidence from Greek, is that locatives are part of a nominal structure in a very specific way (i.e., not by being nouns but by modifying a noun). As a result, the current analysis also sheds light on the nominal flavor often associated with locatives.

Before closing this section let me also note that by considering the unpronounced noun Place as one of the core ingredients of my analysis, my proposal shares a number of similarities with recent views of Noonan (2005 and this volume) on the structure of locative and directional prepositions and particles, with particular reference to German. Noonan also proposes a silent PLACE and considers the complement of the locative preposition to be the possessor of PLACE in various instances. Although a valid comparison of the two views deserves more space than this chapter allows, let me direct to a couple of points with respect to which the two proposals differ: Although I do not assume any special structure between P_{Loc} and Place, Noonan takes PLACE to be associated with a special PlaceP projection, embedded in one more projection, $R_{Place}P$. The latter is what hosts *dr*-shadow Ps in German, one of whose properties is to contribute a specific spatial interpretation of the locative. As I demonstrate in subsequent sections, I consider specific spatial interpretation to result

directly from the locative's modification of Place. At the same time, I have not found evidence for the rich structure that surrounds PLACE in Noonan's proposal. It would be interesting to see, therefore, whether the simpler structure that I advocate is in a position to accommodate Noonan's facts in a satisfactory manner. This is a task undoubtedly worth considering in the future.

With this in mind, let us now turn to the other frame in which Greek locatives are encountered, the complex preposition structure.

2.2. The complex preposition structures

I mentioned in the introduction that, in the complex preposition frame, Greek locatives are followed by the prepositions *se* or *apo*, which are followed by the DP complement of the locative, now with accusative case.[9] Note that I use the term *complement of the locative* in a broad sense since, according to the proposed analysis, what is standardly taken to be the syntactic complement or the ground argument of the locative is considered the complement (or argument) of Place.

(1) a. Stathika piso apo ti Maria.
stood-1s behind *apo* the Mary-acc
'I stood behind Mary.'
b. Kathomoun epano ston Petro.
was-sitting-1s on *se*-the Peter-acc
'I was sitting on John.'

Some locatives are construed with either *se* or *apo* with no obvious difference in meaning, while others are construed only with *apo.*[10] Alternatively put, while all locatives are followed by *apo*, not all of them can be followed by *se.*

(16) a. *(e)pano se/apo* 'on'/'above,' b. *mesa se/apo* 'inside'/'from within,' c. *brosta se/apo* 'in front of,' d. *konda se/??apo* 'near,' e. *dipla se/apo* 'beside'

(17) a. *kato apo/*se* 'under,' b. *ekso apo/*se* 'outside,' c. *piso apo/*se* 'behind,' d. *makria apo/*se* 'away,' e. *aristera apo/*se* 'left,' f. *deksia apo/*se* 'right'

I propose that the structure of complex prepositions is not much different from that of the genitive clitic frame, (13) (see also Terzi 2007). In fact, it is essentially the same, with the difference that the empty P that heads the small clause is now lexicalized by one of the two light Ps:

(18) . . . $[_{PPLoc}\ [_{PLoc}\ 0\ [_{SC}\ [_{DP}\ \emptyset\ [_{NP}$ piso Place]] $[_{PP}$ apo/se $[_{DP}$ ti Maria]]]]]
behind *apo/se* the Mary-acc

It is not clear how (13) and (18) are related and whether they are indeed related transformationally. The idea that the complex preposition in (18) derives from the clitic structure in (13) via the process of predicate inversion (which would attribute *apo*

and *se* the status of linkers, a familiar concept in other languages; see Den Dikken and Singhapreecha 2004 for a recent thorough study) is not on the right track, as I have demonstrated in Terzi (2007).[11]

Botwinik-Rotem and Terzi (2008) propose that the light Ps following Greek (and Hebrew) locatives are responsible for checking the case feature of the DP complement of the locative. In Greek, this is a consequence of the fact that the locative, by virtue of being an XP modifier, is not able to check the genitive case of the DP (nor can the nonphonologically realized Place or its determiner).[12]

Consistent with this proposal is the observation that the light Ps do not have semantic content. Terzi (2007) demonstrates that *se* never has semantic content when following locatives, while *apo* carries semantic content only in two instances: when it follows *epano* (16a) and when in follows *mesa* (16b) (see also note 15). Interestingly, in precisely these two contexts *apo* cannot be omitted, as a result of which the genitive clitic frame is not available.

2.3. The Preposition se and the realization of P_{Loc}

At this point it is worth considering another syntactic frame in which the light P *se* occurs. In the following example *se* can be employed on its own to convey location:

(19) To vivlio ine sto grafio.
the book is *se*-the desk
'The book is on the desk.'

Thus, (19) is similar in meaning to (20):

(20) To vivlio ine epano sto grafio.
the book is on *se*-the desk
'The book is on the desk.'

Examples (19) and (20) are not identical in meaning, however: There is a literal interpretation of location in (20) that is missing in (19). In other words, while (19) can be true even if the book is *in* one of the drawers of the table, this cannot be the case in (20). Likewise, (21) is true even if Peter had been *at the balcony* of the house when the earthquake took place, while this is not the case in (22):

(21) O Petros itan sto spiti otan egine o sismos.
the Peter was *se*-the house when happened the earthquake
'Peter was in the house when the earthquake occurred' or
'Peter was at home when the earthquake occurred.'

(22) O Petros itan mesa sto spiti otan egine o sismos.
the Peter was in *se*-the house when happened the earthquake
'Peter was in the house when the earthquake occurred.'

I claim that the different interpretations of location in (19), (21), (20), and (22) reflect, first, a different syntactic status of *se.* While in the latter two sentences *se* simply checks the case of the complement DP, in the first two sentences *se* lexicalizes P_{Loc}.

In earlier stages of this work I held that the structure of (19) (and (21)) was as in (23), namely, that the P_{Loc} head, phonologically realized by *se*, was immediately followed by its DP complement:

(23) $[_{PPLoc}\ [_{PLoc}$ se $[_{DP}$ to trapezi]]]
se the table

A crucial difference between (23) and (13), therefore, is that the DP with Place as its head noun is not part of (23). By attributing the locative *se* of (19) and (21) the structure in (23) I aimed to capture two facts: first, the literal interpretation of location in (20) and (22), which I took to be related to the fact that its structure is as shown in (13) (namely, it includes Place). That is, I took the literal interpretation to be related to the presence of the unpronounced noun Place and its referential properties, and since no such noun was present in (23), the literal interpretation of location was missing from both (19) and (21). I also meant to account for the fact that those locatives whose structure contains Place do not have to have an overt complement (just as nouns do not have to be followed by their overt complements). Remember that the locatives in (20) and (22) are also able to occur without a complement, as is illustrated in (3) and (25), a possibility that is not available for *se*, (24):

(24) *O Petros itan se otan egine o sismos.
the Peter was *se* when happened the earthquake
'Peter was in when the earthquake occurred.'

(25) O Petros itan mesa otan egine o sismos.
the Peter was inside when happened the earthquake
'Peter was inside when the earthquake occurred.'

I now believe that this was not the right direction, however, for two reasons. First, it is not clear how the presence of Place (or else the presence of a noun and its associated referential properties alone) is able to explain the literal interpretation of location in (20) and (22) (in contrast to the more general interpretation in (19) and (21)). Moreover, it is not satisfactory to ascribe two different syntactic structures to locatives, one with Place and the other without, especially after having argued explicitly for the existence of such a (nonphonologically realized) noun and having claimed that the behavior of locative Ps derives to a large extent from the combination of this lexical element with a functional one.

What I propose instead is that, when the preposition *se* is used alone to convey location, it also takes a DP complement whose determiner is nonphonologically realized and whose head noun is Place. Hence, the structure of the locative PP in (19) and (21) is as in (26):

(26) . . . [$_{PPLoc}$ [$_{PLoc}$ se [$_{SC}$ [$_{DP}$ ø [$_{NP}$ Place]] [$_{PP}$ ø [$_{DP}$ to trapezi]]]]]
on/at the table

We find a number of welcome results if we replace (23) with (26). First, we obtain a uniform account of the structure of locatives, namely, that all locatives consist of a head P_{Loc} that takes as its complement a DP containing the nonphonologically realized noun Place. Moreover, associating (19) and (21) with the structure in (26), we end up in a better position to explain the literal interpretation of location in sentences such as those in (20) and (22). Location, as expressed in (20) and (22), is actually *narrower* or more *precise* (rather than more literal) than in (19) and (21) not because of the presence or absence of Place but because Place is modified in the first pair of sentences but not in the second. Following ideas of Chierchia and Turner (1988), as adopted by Baker (2003) in his discussion of adjectives, I consider (attributive) modification to be the conjunction of the predicate that corresponds to the noun (Place) and the predicate that corresponds to the adjective (locative). As a consequence, *mesa* (Place) 'inside,' for instance, is something that is both *mesa* 'inside' and Place. In other words, the reference of Place becomes more precise when modified by a locative by virtue of the fact that it is narrowed down since it is now the result of its intersection with the locative. In contrast, when location is expressed by *se* alone, as in (19) and (21), Place is not modified; hence, its interpretation (or else the physical space surrounding the ground) is not the result of intersection with some locative element and it is less narrow. It is conceivable that the interpretation of location in such cases is left to pragmatics or language use. Notice that *se* has a somehow different interpretation in (19) than in (21), presumably related to the fact that the ground is a desk in (19) but a house in (21).

The second issue, namely, that only the modifier-type locatives can stand without a complement, is more difficult to answer under the current proposal, and I leave it aside for the time being. A fact that is worth pointing out, however, is that not all modifier-type locatives are able to stand without a complement to the same extent and under identical conditions. Moreover, even locatives of the P_{Loc} type can occur without a complement: If we consider the English locative *in*, for instance, to be comparable to *se* in (24) in the sense of being a P_{Loc} head as well, as will emerge from the discussion of English in section 4, we see that it can be employed without an overt complement, (27), in contrast to Greek, (24):

(27) Peter was in when the earthquake occurred.

Moreover, there can also be morphophonological reasons that do not allow a locative to occur without a complement. Such is the case with the majority of Hebrew locatives, which are construct states, as Botwinik-Rotem and Terzi (2008) argue.

3. Spanish locative Ps

With the above in mind, let us now turn to Spanish, a language with locatives that share a number of properties with those of Greek. At the descriptive level at least, Spanish locatives have also been called intransitive Ps and even adverbials.[13]

Campos (1991) notices that Spanish locatives, to which he refers as *substantive prepositions*, can be stranded and wonders whether this is a manifestation of the P-stranding phenomenon of the Germanic languages:

(28) a. *De qué edificio*$_i$ está cerca t_i la facultad?
'What building is the school near (to)?'
b. La pastelería *de la cual*$_i$ vivo detrás t_i es buenísima
'The pastry shop behind which I live is excellent.'

He concludes that this is not so and also that, although structures like the preceding involve movement, it is comparable to movement of/from nominals, as in (29):

(29) a. *De qué libro*$_i$ no sabes por qué censuraron la reseña t_i?
of which book$_i$ don't you know why they censored the review t_i
b. *De cuál hija*$_i$ no sabes por qué está orgullosa t_i ?
of which daughter$_i$ you don't know why she is proud t_i

In order to support his arguments, Campos utilizes the claims of Plann (1985), who considers Spanish locatives *+N neutralized categories.* Plann notices similarities that locatives share with both nouns and adjectives, and since the common property of these two lexical categories is the binary distinctive feature +N (Chomsky 1970), she concludes that they are specified for +N *but only* for +N—hence, the term *+N neutralized categories.*

While I agree with Campos in that extractions such as those in (29), which are also possible in Greek, are not instances of P-stranding, I do not agree with the details of his analysis, nor do I find the term *neutralized categories* appealing. Apart from the fact that the latter term does not make much sense theoretically, it also follows from the wrong considerations, namely, from considering that Spanish locatives share similarities with nouns (in addition to adjectives). Such beliefs are based on misleading evidence, however, which may be justified if it predated the work on the full structure of DPs initiated by Abney (1987) and Szabolsci (1983). Examples such as the following ones, for instance, were considered by Plann (1985) as evidence that locatives share similarities with nouns. More precisely, the fact that the substantive *debajo* follows a preposition, such as *desde* in (30), on a par with nouns was considered as evidence that *debajo* shares the distribution of nouns. Likewise, the fact that *detrás* in (31) is followed by a possessive adjective, just like nouns are, was also taken as evidence that locatives behave like nouns:

(30) El gato me espiaba [$_P$ desde] [$_{SP}$ debajo de la mesa]
'The cat was spying on me from under the table.'

(31) Venía un hombre detrás mío.
was-coming a man behind mine
'A man was coming behind me.'

Within subsequent developments of syntactic theory on the structure of DP, however, unless one is able to argue convincingly that the complement of a preposition such as *desde* in (30) is a bare noun, we can safely assume that it is a full DP. If so, then *debajo* does not have to be the noun of this DP but can occupy any of a number of positions in the DP structure. Such a position is the position of the modifier of the empty noun Place that I have proposed on the basis of Greek locatives. Furthermore, it seems plausible to consider the locatives of examples such as (31) comparable to the Greek frame in (2), in which the locative is also followed directly by a possessive (although by a clitic rather than by a possessive adjective).

Therefore, I propose to extend the account developed on the basis of Greek locatives to Spanish and hence to consider the Spanish locatives under investigation to also be the modifiers of an unpronounced Place:

(32) . . . $[_{PPLoc}\ [_{PLoc}\ [_{DP}\ [\text{Place cerca}]_i\ [_{D}\ \text{de}\ [_{AgrP}\ \text{la pastelería}\ [_{QP/NP}\ t_i]]]]]]$
near de the pastry shop

In (32) I also consider the DP complement of the locative to be the possessor of Place, adopting and slightly simplifying the structure Bernstein (2005) proposes for possession in Spanish nominals. Bernstein believes that the possessum moves to SpecDP in Spanish and triggers the presence of *de* in D, most probably for case reasons, as she notes. Remember that the preposition *de*, which follows Spanish locatives, as in (28) and (33a), is also the preposition associated with the genitive of possession in the Spanish DP, (33b). It is interesting to also note that Chomsky (1988, 112), in a brief discussion of Spanish locatives, considers the *de* that follows them to be a genitive case marker on a par with the *de* in (33b):

(33) a. detrás de la casa
behind *de* the house
'behind the house'
b. el libro de Juan
the book *de* John
'John's book'

I also consider (32) to be the structure of Spanish locatives followed by a possessive adjective, as seen in (34), which is a modification of the proposal in Bernstein (2005), who attributes to this particular type of Spanish possessive the structure of a reduced relative clause (contrary to their counterparts in English or French, for instance; Bernstein and Tortora (2005)), explaining in this manner the nonappearance of the preposition *de* with possessive adjectives:

(34) . . . $[_{PPLoc}\ [_{PLoc}\ [_{DP}\ [\text{Place detrás}]_i\ [_{D}\ [_{AgrP}\ \text{suyo}\ [_{QP/NP}\ t_i]]]]]]$
behind his

There are several advantages in extending to Spanish locatives the proposals I have made on the basis of their Greek counterparts. First, as I have already pointed out, it

is not clear that Spanish locatives share similarities with nouns, contrary to what Plann (1985) has argued; therefore, the present account is empirically more accurate. Furthermore, one does not have to resort to the obscure notion of neutralized categories. Finally, one does not have to employ categorial features in order to explain the behavior of Spanish locatives, much in the spirit of Chomsky (2001).

Before closing this section I should point out that in Spanish as well there is a difference in interpretation between the locatives we have discussed, that is, what Campos (1991) and Plann (1985) identify as *substantives*, and a locative P such as *en* 'in/on'. While the former conveys a precise interpretation of location, the latter does not. The following examples are the counterparts of the Greek examples in (21) and (22), and the same considerations hold for them: In other words, (35) is true even if Pedro was at the balcony when the earthquake occurred, whereas (36) is not.

(35) Pedro estaba en su oficina cuando sucedió el terremoto.
Peter was *en* his office when happened the earthquake
'Peter was in/at his office when the earthquake took place.'

(36) Pedro estaba dentro de su oficina cuando sucedió el terremoto.
Peter was in inside de his office when happened the earthquake
'Peter was inside his office when the earthquake occurred.'

Just as with the Greek preposition *se*, I hold that the Spanish preposition *en* occupies P_{Loc}, taking as its complement a DP whose head noun is the unpronounced noun Place. That is, I consider the structure of (35) to be as in (37a). The fact that Place is not modified by some locative element in (37a) renders the interpretation of location in (35) less precise. In contrast, the structure of (36) is as in (37b), where we see Place modified by 'dentro':[14]

(37) a. . . . $[_{PPLoc}\ [_{PLoc}$ en $[_{DP}\ [_{D}$ ø $[_{AgrP}$ su oficina $[_{QP/NP}$ Place]]]]]]
at his office
b. . . . $[_{PPLoc}\ [_{PLoc}\ [_{DP}$ [Place dentro]$_i$ $[_{D}$ de $[_{AgrP}$ su oficina $[_{QP/NP}$ t_i]]]]]]
inside de his office

To summarize, I have demonstrated in this section that the locatives known as *substantives* in Spanish are very similar to their Greek counterparts; hence, they are also accommodated by the proposal according to which they are the modifiers of an unpronounced noun Place (which is part of a DP with an empty determiner, the complement of a functional head P_{Loc}). The complement of the locative is in a possession relation with Place, and the preposition *de*, which interferes, is probably involved in licensing the case of this complement. I have already laid out the advantages of the present account compared to previous ones of Spanish locatives. Finally, I have shown that Spanish also has locative PPs in which P_{Loc} is phonologically realized, but Place is not modified, with the consequence that the interpretation of location is not precise.

4. English locatives

English locatives appear to differ in various ways from those of Greek and Spanish, at least at first glance. They are not usually referred to as "adverbials" in the traditional literature (although they very often can appear without a complement, as we will see), nor have they been associated with nominal behavior in the sense discussed so far.[15]

It is, therefore, interesting that a small set of English locative elements has recently been associated, on independent grounds, with a nonphonologically realized noun very similar to Place. More precisely, Kayne (2004) proposes that 'here' and 'there' in English are demonstratives that modify a nonphonologically realized noun ('unpronounced PLACE' in his terminology). As he notes, in some dialects of English this unpronounced noun even has an overt counterpart:

(38) a. this here place
b. that there place

The Greek counterparts of 'here' and 'there'—*edo* and *eki*, respectively—resemble English in that they can also be construed with an overt Place, 'meros' (and, in contrast to English, are widely accepted):

(39) a. afto edo to meros
this here the place
'this here place'
b. ekino eki to meros
that there the place
'that there place'

What is more interesting, however, is that the Greek locative Ps we have been discussing can also be construed with an overt Place:

(40) a. to kato meros
the under place
b. to brosta meros
the in front place

The facts in (40) support my initial proposal concerning the structure of Greek locatives; hence, the examples in (40) should also be analyzed as DPs whose head noun, *meros* 'place,' and its determiner, *to* 'the,' are now overt. Presumably (40) is not embedded in a P_{Loc}, and this is confirmed by the fact that it cannot be modified by a degree phrase such as 'akrivos'; see (41). However, it can be modified by *poli* 'very,' as in (42), a standard modifier of adjectives.

(41) a. *to akrivos kato meros
the precisely under place
b. *to akrivos brosta meros
the precisely in front place

(42) a. to poli kato meros
the very under place
b. to poli brosta meros
the very in front place

The counterparts of (40) are ungrammatical in English; see (43). Therefore, it seems at first glance that the parallelism I had hoped to establish between English locative prepositions and locative elements such as 'here' and 'there' breaks down at this point.

(43) a. *this/the under place
b. *this/the in front place

However, it is not clear that the presence of a null Place in the structure depends on the availability of its overt manifestation, although the issue deserves further investigation. Here I assume that the ungrammaticality of (43) is neutral with respect to whether 'under' or 'in front' are able to modify a phonetically null Place in English. On the other hand, I consider the presence of an overt 'place' in (38), (39), and (40) to strengthen the independently motivated claims for the presence of an unpronounced counterpart of it in both Greek and English.[16]Furthermore, although (43b) is ungrammatical, (44) is not:

(44) the (very) front part/side

It seems, therefore, that 'front' is more like *brosta* 'front' of (40b) than what is revealed by (43b) in the sense that it can also be part of a nominal construction, modifying the nouns 'part' or 'side'.

This leads me to propose that 'in front' has a structure similar to that of Greek and Spanish, modifying the noun Place in a DP that is the complement of P_{Loc}, and what surfaces as the complement of 'in front' is the possessor of Place, (45). As for the structure of possession in English nominals, I adopt the proposals of Bernstein and Tortora (2005):

(45) . . . $[_{PPLoc}\ [_{PLoc}$ in $[_{DP}$ front $Place_i\ [_D$ of $[_{AgrP}$ the house $[_{QP/NP}\ t_i]]]]]]$

What (45) also tells us is that the P_{Loc} functional head is now phonologically realized by the preposition 'in'. I believe it is absolutely safe to assume that 'in back of' and other locatives of this type have the same syntactic structure.

A further similarity between 'in front (of)' and its counterparts in Greek and Spanish is that it can also be used intransitively, as in the following example from Svenonius (2004):

(46) I saw a line of soldiers. The one in front (of it) was talking on the phone.

A number of other locatives can also be used intransitively in English, as in the following examples, also from Svenonius (2004). See Huddleston and Pullum (2002) for a complete list.

(47) a. As the group approached the final summit, Espen stayed behind (them).
b. There was a box on the table. Inside (it) was fine Swiss chocolate.
c. We stood on a bridge. Below (it) we could see barges laden with port wine.
d. Nils looked over the snowdrift. The frozen fjord beyond (it) was dotted with seals.

As I mentioned when discussing Greek locatives in section 2, it is not entirely clear how the omission of the ground argument of locatives is to be evaluated. The purpose of the preceding examples therefore was to simply identify one more similarity between the two languages even in this domain (also shared by Spanish, as discussed by Campos 1991).[17] Let us now turn to another characteristic of locatives that also holds for all three languages, one for which I have already provided an explanation and wish to extend to English.

Just like in Greek and Spanish, along with complex prepositions denoting location, there is a parallel structure with a small P in English as well, which also conveys a less precise denotation of location than complex prepositions. In the following pair, for instance, (48a) is true even if the box is not large enough to contain Mary, but this is not the case in (48b). The Greek counterparts in (49) display the same properties:

(48) a. Mary is in the box.
b. Mary is inside the box.

(49) a. I Maria ine sto kuti.
the Mary is *se*-the box
'The Mary is in the box.'
b. I Maria ine mesa sto kuti.
the Mary is mesa *se*-the box
'Mary is inside the box.'

Svenonius (2004) attributes the precise interpretation of (48b) to the contribution of the containing *side.* I believe it is more accurate to say that the precise interpretation of the (b) sentences is due to the fact that Place is modified by 'inside'. Recall that the literal interpretation of the complex P is also present in the Greek locative *epano* 'on,' in (20) earlier, although no containing *side* is involved. Therefore, taking into account the similarities between Greek and English locatives discussed in this section, I propose that the structure of (48a) is as in (50a) and that the structure of (48b) is as in (50b). Notice that, as in the Spanish counterpart pair in (37), we do not consider Place to move to SpecDP in (50a), as we have neither evidence nor the necessity for such a movement. Furthermore, we consider that the P_{Loc} 'in' is responsible for the case of 'the house' in (50a):

(50) a. . . . $[_{PPLoc}\ [_{PLoc}$ in $[_{DP}\ [_{D}$ ø $[_{AgrP}$ the house $[_{QP/NP}$ Place]]]]]]
b. . . . $[_{PPLoc}\ [_{PLoc}$ in $[_{DP}$ [side Place]$_i$ $[_{D}$ (of) $[_{AgrP}$ the house $[_{QP/NP}$ t_i]]]]]]

One can imagine a number of objections to the preceding claims concerning English locatives, at least when it comes to locatives such as 'inside' or 'behind'. First, in contrast to 'in front' earlier, the preposition 'in' (which I believe occupies P_{Loc} in (50)) forms a compound with the modifiers of Place, that is, with the '-side' or

'-hind' parts of 'inside' or 'behind,' (50b). Therefore, one may wonder how it is possible that each part of the compound occupies a different syntactic position. I maintain that this compounding is the consequence of some morphophonological process that does not bear on my claims and the proposed structure in (50b) in any crucial manner.

Moreover, it is even plausible that this morphological compounding, at least as evidenced by English spelling, is able to make interesting predictions with respect to the case of the DP complement of locatives. At first inspection we notice that the locatives that keep the P head and the modifier locative apart require that 'of' precede their complement, (51a). Those that do not hold P_{Loc} and the modifier of Place apart (e.g., 'inside,' 'behind,' 'below,' 'beyond') not only do not require the presence of 'of' (51b) but may even disallow it (51c):

(51) a. in front/in back *(of) the house
b. inside (of) the house
c. below/beyond/behind (*of) the house

It is tempting to think that the pattern is surprisingly clean in the sense that the locatives in (51a) require 'of' because the modifier locative is not able to check the case features of its complement since it is a phrasal modifier. For the same reason, Botwinik-Rotem and Terzi (2008) claim that the modifier locatives in Greek cannot check the case of their DP complements, a role that is performed by the light Ps *se* or *apo*. On the other hand, it is plausible that the compounding process that forms 'below,' 'beyond,' and 'behind' in (51c) results in a new syntactic object that occupies P_{Loc} hence is able to check the case of a DP complement (therefore, 'of' is disallowed). As for the locative in (51b), it is reasonable to assume that it is at an intermediate or a transitional stage: If 'side' is phrasal, just like 'front' or 'back,' the presence of 'of' is required for the case of the DP complement. If, on the other hand, it forms with 'in' a compound that occupies P_{Loc}, it is able to check the case features of the DP complement, and 'of' is disallowed.

Another conceivable objection for analyzing locatives such as 'inside' or 'behind' as the modifiers of Place is the fact that the second part of 'inside' and 'behind,' that is, 'side' and 'hide' is a noun rather than an adjective. Therefore, one can perhaps argue that the locative is not the modifier but the phonological realization of Place in these instances (at least). An answer against this line of reasoning is twofold: First, certain conceptual reasons render it unlikely. These require further research on the nature of unpronounced elements in the sense of Kayne (2005a) in order to be complete, but here is the direction to take. Kayne (2005b, 15) proposes the following principle of compositionality:

(52) UG imposes a maximum of one interpretable syntactic feature per lexical or functional item.

If (52) is right, and if we maintain that Place denotes the physical space surrounding the ground argument of the locative, the locative modifying Place should carry the interpretable feature that corresponds to the position or interval in

this physical space (see Kayne's discussion of 'red COLOR car' in this respect). If, however, one considers the locative to be the phonological realization of Place, this lexical item would now carry both features, namely, one corresponding to the physical space surrounding the ground argument and the other corresponding to the position in this physical space. Therefore, it is not only inconsistent to assert that locatives sometimes modify and sometimes realize Place, but it is also against the principle in (52).

There are also empirical reasons that render this idea not an ideal alternative. Although there are indeed a number of English locatives whose second part is a noun rather than an adjective, there are also a number of locatives whose second part is clearly an adjective (either synchronically or diachronically) (i.e., 'below,' 'beneath,' 'underneath,' etc.). Hence, if we decide to pursue a uniform approach to the syntactic structure of English locatives, as I think we should, I cannot see any convincing reason to choose the noun rather than the adjective (i.e., modifier), on the basis of the morphological makeup of locatives, as the relevant evidence for their relation with Place. Furthermore, even if we want to take seriously the resemblance of some of these locatives to nouns, nouns can also modify nouns in English (e.g., 'a man of honor'). Finally, even a noun such as 'side,' present in the locative 'inside,' can modify other nouns, as in 'side dish.'

To conclude, this discussion suggests that considering (even some) English locatives to be the phonological realization of Place is not unproblematic. Therefore, given the account of locatives that I have developed on the basis of the much more transparent facts of Greek, also supported by their Spanish counterparts, the less clear facts of English can be accounted for by the same analysis. The available empirical evidence from English does not seem able to support a solid alternative proposal (at least along the lines that English locatives, rather than modifying Place, are the phonological realization of it), nor can it pose serious counterarguments.

4.1. The relation of locatives to their complements

I have assumed all along that the ground arguments of locatives enter into a possession relationship with the unpronounced noun Place present in their structure in the sense that they are the possessors of Place (which may or may not be modified by some locative). Maintaining that the complements of English locatives, along with those of Greek and Spanish, are the possessors of Place raises at least one question.

If we consider the preposition *of*, which follows a number of English locatives, as the counterpart of the genitive *of* encountered with possessed nominals (see Bernstein and Tortora (2005) for the latter), we notice that the two differ in that, when followed by a pronoun, the morphological case of the pronoun is accusative with locatives, (53a), in contrast to the familiar genitive of nominals, (53b):

(53) a. in front of him/*his
b. a book of his/*him

This contrast makes one wonder therefore whether it is correct to propose that the locative and its complement are part of a possession structure in (50). Needless to

say, this disturbing evidence dictates a more careful investigation of the Greek and Spanish counterpart structures as well.

A plausible alternative candidate structure that can conceivably emerge for (53a) is that of a partitive construction, and this is so for a number of reasons: First, English partitives also involve the preposition *of*, which, unlike the possessive *of* is followed by a pronoun/DP with morphological accusative case:

(54) I have met two of them.

Moreover, the preposition of Greek partitives is *apo* (Alexiadou and Stavrou 1999), namely, the same light P that follows locatives in complex prepositions (along with *se):*

(55) Exo sinandisi dio apo aftus.
have-1s met two *apo* they-acc
'I have met two of them.'

Similarly, Spanish partitives also employ the preposition *de*, which is encountered with locatives:

(56) Me gustan muchos de los cuadros que hay en el Prado.
me please-3p many *de* the paintings that are in the Prado
'I like many of the paintings in the Prado.' (from Vos 1999)

Most importantly, however, one may be able to detect a *part-whole* relation in locatives in the sense of a higher DP, which is a subset of a set denoted by the noun phrase in the second part of the construction. In other words, within the analysis I have proposed for locatives, it is conceivable to interpret *in front of John*, for instance, as one of the places, in particular, the *front Place*, of (all of) *John's Places*.[18] Unfortunately, the problem raised by (53a) remains because, even under this analysis, we expect the complement of the locative to also have genitive case, as it is now simply considered the possessor of Places (instead of the possessor of Place).[19]

Moreover, locatives fail a syntactic test that distinguishes partitives from possessives. Zamparelli (1998) points out that partitives differ from possessives in that the former can be split at the *of* PP (57a), whereas the latter cannot, (57b):

(57) a. Of those people, I have just met two.
b. *Of John's, I often encounter a good friend.

When applying this test to locatives with *of* PP, they pattern the behavior of possessives:

(58) *Of Mary, I usually sit in front.

I take the preceding to indicate that there is no convincing evidence that locatives (with Place) participate in a partitive relation with their complements. Therefore, I do not pursue any further the idea that the unpronounced Place present in the syntactic structure of locatives participates in a part-whole relation with its complements. Instead, I follow the view I held from the beginning, according to which what appears to be the object of the locative is the possessor of Place. For the same reasons, I also do not proceed with reexamining the structure of the Greek complex prepositions.[20] This is also rendered unnecessary if we take into account the several analyses that essentially consider the same structure to underlie both possessives and partitives; see Zamparelli (1998) for English and Alexiadou and Stavrou (1999) for Greek. Admittedly, the lack of the genitive morphological case on the pronoun that follows *of* in English examples such as that in (53a) remains a mystery.[21]

5. Conclusions

This chapter has two objectives: to provide a detailed account of the behavior of Greek locative prepositions and to use the evidence and insights they provide to better understand the properties and behavior of locatives cross-linguistically. My contribution to the latter objective is made possible via the study of Spanish and English locatives.

I propose that locative prepositions implicate a lexical and a functional component in their structure in a very specific manner. Namely, I argue that most locatives are the modifiers of a nonphonologically realized noun, Place, which is the head noun of a DP with a nonphonologically realized determiner. In turn, this DP is the complement of a functional head, P_{Loc}, which can also be phonologically realized, as in the case of *se* in Greek, *en* in Spanish, and *in* in English. When Place is not modified but is present, as indicated by the presence of a phonologically realized P_{Loc}, a less precise interpretation of location is conveyed (compared to when Place is modified by a locative).

I also investigate the relation of locatives with their complements and hold that what we see as complements of locatives are the possessors of the noun Place, hence the genitive case they often have. Greek and Spanish offer straightforward evidence to this effect, but English raises the question of whether there is a partitive relation that holds between Place and the complement of locatives instead. I explore this idea to a certain extent but do not find convincing evidence to support it; therefore, I abandon it for the time being.

Notes

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1. *Se* is always contracted on the definite determiner, but it can be found uncontracted in other environments; see (ia). It can also be used alone to indicate location, (ia), as I discuss in detail in section 2.3., or direction, (ib):

(i) a. Zo se mia megali poli.
live-1s *se* one big city
'I live in a big city.'

b. Pigeno stin Athina
go-1s *se*-the Athens
'I go to Athens.'

Apo is used in a number of other contexts as well: It is the by-phrase of passives, the preposition of partitives, and a directional/source P, (ii):

(ii) Epestrepsa apo to grafio noris.
returned-1s *apo* the office early
'I returned early from the office.'

Finally, *se* and *apo* are the prepositions of ditransitives (respectively, 'to' and 'from'; see Anagnostopoulou 2003, 2005).

2. In Terzi (2006) I demonstrate that locatives that are not followed by an overt complement should not be considered adverbs (in the sense of elements that lack a syntactic object). Looking at examples of ellipsis, (i), we see that the second conjunct can have a sloppy reading, an indication that there is a copy (with an internal structure) present after the second locative:

(i) I Maria stathike brosta apo tin karekla tis ke o Petros piso.
the Mary stood in-front *apo* the chair her and the Peter behind
'Mary stood in front of her chair, and Peter behind his/her chair.'

3. See Terzi (2005) for evidence as to why the case of the clitic that follows locatives is genitive rather than its homophonous dative in Modern Greek.

4. The direction of the argumentation should be kept in mind: I am not claiming that locatives are similar to adjectives because they are modifiers of a noun. Such a reasoning would not be right because adjectives are not the only modifiers of nouns; neither is the modification of nouns the characteristic property of adjectives (see Baker 2003, 4.2 for a thorough discussion of these issues). Instead, considering the empirical evidence according to which locatives share the distribution of (attributive) adjectives, I am claiming that they also modify nouns.

5. I say "tentatively adopt" because a small clause structure is not compatible with the idea that clitics that follow locatives move from the lower position indicated in (7) to the higher one unless one resorts to some version of sideward movement in the spirit of Nunes (2004). As I discuss shortly, one has to assume obligatory movement of clitics from the post-Place to the postlocative position because (a) clitics cannot be hosted by nonphonologically realized elements and (b) in order to explain the inconsistent judgments native speakers make with respect to the animacy restrictions on clitics following locatives. Here I have used a small clause structure to represent possession simply because it is the structure also adopted by Alexiadou and Stavrou (1999) for possession in Greek nominals

(but see Terzi 2008—which the present chapter predated—for a modification of this particular point).

An alternative, suggested to me by Tom Leu, is to consider a (phrasal) larger lower part of the structure to move higher, taking the clitic along, as in Noonan (2005 and this volume). This is certainly a possibility to investigate, although it is not clear that it would be consistent with the behavior of clitics with respect to animacy. In the present account clitics are considered to cliticize between the locative and Place, a position known to be associated with animacy restrictions in the nominal domain.

6. Since Place is not phonologically realized, it is not controversial to assume that its interaction with clitics is subject to principles similar to those that hold for clitics and other, well-established, nonphonologically realized elements such as traces and empty categories. These are not visible by phonology; hence, they cannot constitute hosts for phonologically weak elements such as clitics (see Selkirk 1986; Nespor and Vogel 1986).

7. Hence, the reactions to those accounts that consider locatives similar to nouns. Szabolcsi (1994), for instance, criticizes Marácz (1984), who considers Hungarian locatives to be nominals, on the grounds that, although they may derive from nouns and are similar to noun phrases, they also have differences that need to be understood.

On the other hand, Bresnan (1994), who considers English locatives in subject and object position to be nominals, proposes that they are the complements of nominals:

(i) $[_{NP}$ (A PLACE) $[_{PP}$ under the bed]] is a good hiding place.

Matsubara (2001) points out that such an account is problematic because it considers semantic, contextual, and pragmatic (rather than morphological) requirements to be accessible to syntax.

The analysis developed in this chapter does not suffer from the defects of these proposals. Furthermore, not only does it recognize the resemblance of locatives to nominals, but also sheds light on the source of this resemblance.

8. This argument resulted from a response to a comment by Marcel den Dikken, for which I would like to thank him.

9. There is also one more light P, *me*, which is construed only with the substantive *mazi* 'together.' It is not clear whether *mazi* is a locative, and hence, whether it should be accounted for by the analysis provided in this work. One may be able to adhere directly to the nominal properties of *mazi* in order to understand its genitive (clitic) complement by drawing on its historical origin from the noun *maza* 'mass' (see Babiniotis 1998). Pertinent at this point is the discussion of Longobardi (2001) for French *chez:*

(i) a. Piga (mazi) me ton Petro — 'I went with Peter.'
went-1s together me the Peter

b. Piga mazi tu/*tu Petru. — 'I went with him.'
went-1s with he-cl-gen/the Peter-gen

10. *Epano se* means 'on,' while *epano apo* means 'above.' *Mesa se* means 'inside,' while *mesa apo* means 'from inside,' and there are no genitive clitic frames for *epano apo* or *mesa apo:*

(i) a. *Petuse ikosi metra epano tu.
was-flying twenty meters on he-cl-gen
'(It) was flying twenty meters above him.'

b. *Den evgene foni mesa tis.
neg coming voice inside she-cl-gen
'No voice was coming out of her.'

Interestingly, there is a strategy for the clitic frame to be construed with these two locatives, one that utilizes the option that the light P *apo* has to (also) precede the locative (see Terzi 2007 for details). As I note there, the presence of *apo* before the locative is optional with all other locatives in the clitic frame, except for the following two:

(ii) a. Petuse ikosi metra *(apo) epano tu.
was-flying twenty meters *apo* on he-cl-gen
'(It) was flying twenty meters above him.'
b. Den evgene foni *(apo) mesa tis.
neg coming voice *apo* inside she-cl-gen
'No voice was coming out of her.'
c. Stathike pende metra (apo) piso tis.
stood five meters *apo* behind she-cl-gen
'He stood five meters behind her.'

This strategy is also in line with my idea that *apo* carries semantic content in these two instances, as a result of which, presumably, it cannot be omitted.

The optionality of the prelocative *apo* in all other contexts except those in example (ii), is also manifested in the complex preposition frame in (iii) (Terzi 2007). Note that the obligatory presence of the second *apo* in (iii) is due to different reasons, namely to the case-checking needs of the DP complement of the locative (Botwinik-Rotem and Terzi 2008):

(iii) a. Petuse ikosi metra (apo) epano *(apo) ton Petro.
was-flying twenty meters *apo* on *apo* the Peter
'(It) was flying twenty meters above Peter.'
b. Den evgene foni (apo) mesa *(apo) ti Maria.
neg coming voice *apo* inside *apo* the Mary
'No voice was coming out of Mary.'
c. tathike pende metra (apo) piso *(apo) ti Maria.
stood five meters *apo* behind *apo* the Mary
'He stood five meters behind Mary.'

11. If the complex preposition structure, that is, (18), were the result of predicate inversion from (13), the subsequent extraction of the light PP should be ungrammatical since the light PP that is the result of this process is not a constituent. Extraction of the light PP is fully grammatical, however, as (i) demonstrates:

(i) Se ti to evales epano?
se what it put-2s on
'What did you put it on?'

12. In Botwinik-Rotem and Terzi (2008) we further propose that the corresponding possessive clitics can check their case in the PF by virtue of fact that they are part of the same prosodic word with the locative.

13. Campos (1991, 741) reports that "traditional grammarians have not agreed on the status of these prepositions. Thus, although Bello (1847) classifies them as adverbs, Ramsey (1956) considers them complex prepositions when they are used transitively and adverbs when used intransitively." Chomsky (1988, 110) refers to Spanish substantives as intransitive prepositions but notices the difference between Spanish *alrededor* 'around' and English 'around' in terms of their ability to assign case to their DP complement.

14. Notice the difference with respect to the position of Place in the two structures. In (37b) we suppose that Place moves to SpecDP, just as in the standard nominal domain. An indication of this movement is the appearance of the preposition *de* in D, as argued by Bernstein (2005) for Spanish nominals. We have no reason to believe that a similar type of movement occurs in (37a), however, first of all because *de* is not present and also because it is reasonable to assume that the case requirements of the possessor DP (i.e., the complement of the locative) can now be satisfied by the P_{Loc} head *en.*

15. The exception is Bresnan (1994), who, however, looks at English locatives (and temporals) in subject and object position but does not investigate their internal structure. As already mentioned, she argues that locatives are the complements of a nominal, as in the following:

(i) $[_{NP}$ (A PLACE) $[_{PP}$ under the bed]] is a good hiding place.

Similar in spirit is the proposal of Davies and Dubinsky (2001), who postulate a DP shell in English in order to capture the presence of locatives in subject position, (iia), along with all other types of non-DP subjects, (iib)–(iic):

(ii) a. $[_{DP}$ $[_{D}$ ø] $[_{PP}$ under the bed]] is a good hiding place.
b. $[_{DP}$ $[_{D}$ ø] $[_{CP}$ that Shelby lost is]] is true.
c. $[_{DP}$ $[_{D}$ ø] $[_{AP}$ very tall]] is just how he likes his bodyguards.

16. Kayne's recent work on unpronounced elements shares this line of reasoning. It is demonstrated in Kayne (2005b), for instance, that an overt *-aine* is present in French, (i), while only the unpronounced counterpart of it is encountered in English, (ii):

(i) une vingtaine d'articlesa
a_{fem} twenty *-aine* of articles
(ii) hundred + -AINE + -s of articles

On the other hand, both an overt and an unpronounced PLACE may occur with English 'here' and 'there'. The examples in (41), repeated as (iii), constitute the overt option, while the (simplified) structure of 'here' and 'there,' argued to be as in (iv) in Kayne (2004), instantiates the unpronounced counterpart:

(iii) a. This here place
b. That there place
(ix) a. ø here PLACE
b. ø there PLACE

17. Svenonius (2004) also observes that the English locatives that are able to occur without an overt complement coincide with those that are able to take *there* as their ground argument:

(i) a. Go behind/inside/below/beyond/in front of/above there.
b. *Get among/upon/between/beside/next to there.

18. This idea does not present problems for the much discussed partitivity constraint, according to which the embedded DP/NP must be definite (Jackendoff 1977; see Hoop 1998 for an overview) since, even if one considers the lower DP to be essentially interpreted as "all Places," the universal quantifier *all* is one of those elements allowed in partitive constructions.

19. That is, locatives would presumably fall under the second type of standard partitives in the terminology adopted by Barker (1998), for example, "I saw two of John's friends."

20. I am referring to Greek complex Ps in particular because they are the ones that involve the light P *apo*, also present in partitives.

21. A last attempt would be to attribute this ungrammaticality to the presence of the unpronounced element, Place. For instance, one can say (ia) but not (ib) in English (considering (ia) and (ib) to also involve an empty Place, as in Kayne (2004)).

(i) a. I'm going to John's.
b. *I'm going to his

Nevertheless, one would then have to answer why (ii), by contrast to (ia), is also ungrammatical under the intended reading:

(ii) * . . . in front of John's

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ENOCH O. ABOH

The P Route

1. Introduction

The title of this chapter can be understood as the grammaticalization path of lexical elements into the category of P. While the discussion bears on this issue to some extent, the intended meaning of the title is that of a linguistic journey that started out in West Africa with the Kwa and Chadic languages, then crossed the Atlantic Ocean in the direction of Suriname (in the Caribbean) to investigate Sranan, and terminates in Europe with considerations of Germanic and Romance languages. Those who are familiar with West African history know that this corresponds to the triangular paths that sustained the Atlantic slave trade. The linguistic journey undertaken here, however, brings more hope about the knowledge of language (UG) specific to humankind.

Our point of departure is the observation that spatial expressions in many West African languages (e.g., Kwa, Chadic) involve complex structures, including two types of adpositions referred to here as P_1 and P_2. In the Gungbe (Gbe) example (1a), what appears to be the locative DP complement is sandwiched between P_1 and P_2. Accordingly, P_1 precedes P_2 linearly in this language.[1] Similarly, the Zina Kotoko (Chadic) example in (1b) indicates that this language is like Gungbe except that, in this case, the element that would qualify as P_2 immediately follows an element of the type P_1, and the two linearly precede the locative DP complement in the fixed order $P_1 > P_2 >$ DP:

(1) a. Kɔ̀jó zé gò lɔ́ ɖ**ó** [$_{DP}$ àkpótín lɔ́] **mè.** [Gungbe, Kwa]
Kojo take bottle Det P_1 box Det P_2
'Kojo put the bottle inside the box [lit., in the inner side of the box].'

b. Kàrtà dé **a** **gmá** táblə̀l. (Zina Kotoko, Chadic)
cards Det P_1 P_2 table

c. Kojo put the bottle **inside** the box/The cards are **on** the table.

Comparing these West African examples of spatial expressions to their English translations, repeated in (1c), one notes that English apparently requires a simple, though sometimes morphologically complex, preposition, whereas Gungbe and Zina Kotoko display complex or bipartite elements that may circumvent or precede the locative DP complement. One can further conclude from this that West African languages display an areal feature such that the equivalent of English-type simple prepositions are split in two. Therefore, the mismatches between the Gungbe complex *ɖó-mɛ̀* or Zina Kotoko *a gmá* and (modern) English simplex *inside*/*on* indicate that these languages differ radically in how they encode the category P. While such observations are found here and there in so-called African linguistics, the crucial question arises, why would these African languages choose the nonoptimal option of using two apparently independent syntactic elements to encode just one simple notion?

Various scenarios invoking grammaticalization or historical development could be imagined here. This chapter takes yet a different approach. Following my (Aboh 2005) discussion on locative P_1-XP-P_2 sequences in Gbe languages, I argue in section 2 that spatial expressions of the type in (1a) involve a complex predicate structure such as (1d), where P_1, which in Gungbe derives from verbs, encodes direction/path/goal. The element P_1 selects a locative phrase (i.e., ground), which appears as a truncated (possessive) predicate phrase labeled here as IP. The latter involves a DP that functions as *reference object* (henceforth $DP_{[RO]}$) and represents the subject (i.e., the possessor), while the portion expressing location (i.e., the possessum) is a part phrase (Talmy 2000, 196ff).[2] This part phrase is shown to be a bare noun phrase that functions as complement of the possessive or predicate phrase (IP).[3] The Gungbe data further show that the head of this noun phrase subsequently incorporates in the head of the predicate phrase I° and surfaces as P_2 in spatial expressions like (1a).

(1) d. $[_{P1P}\ [_{P1[Direction/goal/path]}\ [_{IP}\ DP_{[RO]}\ [_{I°}\ [_{NP\ [part\ expression]}]]]]]$

Under (1d), therefore, the reference object $DP_{[RO]}$ and the part NP expressing location are in a predicative relation mediated by I°, whose complement NP acts as predicate. The subject of this predicate (i.e., $DP_{[RO]}$) occupies [spec IP]. Following this line of argumentation, section 3 indicates that the combination or fusion of P_1 and P_2 as in (1b) gives the wrong impression that such languages (e.g., Chadic) involve complex prepositions representing PP shell structures (e.g., Holmberg 2002). Instead, it is shown that the distribution of P_1 and P_2 in these languages derives from the movement of P_2, head of the part phrase, past the reference object ($DP_{[RO]}$), as a consequence of predicate (head) inversion (Kayne 1994; Den Dikken 1998, 2006; Corver 2004, 2006).[4] Section 4 extends this analysis to morphologically complex prepositions in Germanic languages (1c) and to certain locative expressions in Romance languages (e.g., *à côté de* [French], *accanto a* [Italian]). It is argued there that these

locative expressions involve the structure in (1d) and display predicate (head) inversion just as in the Chadic languages. The only difference is that, in some cases (e.g., Germanic) the result of this inversion is a fused form that superficially obscures the underlying syntax of such complex spatial phrases. Section 5 concludes the chapter.

2. Distinguishing between P_1 and P_2 in Gbe

As mentioned in the previous paragraph, Gbe languages (and more generally Kwa) involve two types of adpositions: P_1 and P_2. Elements of type P_1 generally express source, direction, or goal and may occur on their own as in example (2a). The category P_2, on the other hand, generally encodes location as shown in (2b). Similarly to example (1a), the sentence in (2c) further indicates that P_1 must precede P_2 in Gbe:

(2) a. Kɔ̀jó zé àkwɛ́ **xlán** Kwésí.
Kojo take money P_1 Kwesi
'Kojo sent money to Kwesi.'

b. Kɔ̀jó xɛ́ távò lɔ́ **jí.**
Kojo climb table Det P_2
'Kojo climbed on top of the table (lit., on top/surface of the table).'

c. Kpònɔ̀n lɛ́ nyì àgbàn cè **xlán** gbó **jí**.
police Numb throw luggage Poss P_1 trash P_2
'The policemen threw my luggage on/to the Dumpster (lit., at the top of trash).'

The facts in (2) indicate that P_1 and P_2 are syntactically and semantically independent, and it is their combination that produces complex spatial expressions of the type in (1a) and (2c). This observation is further supported by the fact that these two categories show different sensitivity to movement operations.

For instance, the sentences in (3a–b) indicate that P_2 moves along with the noun phrase preceding it and can never be stranded (3c) (see Aboh 2005):

(3) a. [Távò lɔ́ jí]$_i$ wɛ̀ Asíbá xɛ́ t_i
table Det P_2 Foc Asiba climb
'Asiba climbed ON TOP OF THE TABLE.'

b. [Távò tɛ́ jí]$_i$ wɛ̀ Asíbá xɛ́ t_i?
table which P_2 Foc Asiba climb
'On which table(top) did Asiba climb?'

c. *[Távò lɔ́]$_i$ wɛ̀ Asíbá xɛ́ t_i jí
table Det Foc Asiba climb P_2

It is, however, possible to leave P_2 in situ provided it is preceded by a resumptive pronoun bound by the displaced noun phrase:[5]

(4) [Távò lɔ́]$_i$ yà Asíbá xɛ́ **é**$_i$ **jí**.
table Det Top Asiba climb 3sg P_2
'As for the table, Asiba climbed on top of it.'

I conclude from this that P_2 is not part of the preceding DP. Instead, the complex $DP_{[RO]}$-P_2 forms a larger constituent that can be pronominalized as the following topic construction with resumptive adverb shows:

(5) [Távò lɔ́ jí]$_i$ yà Asíbá xɛ́ flɛ́n$_i$.
table Det P_2 Top Asiba climb there
'As for the top of the table, Asiba climbed there.'

While the category P_2 tends to move along with the $DP_{[RO]}$, with which it forms a larger constituent, elements of the type P_1 resist movement operations and must be stranded. Equating P_1 with prepositions in languages like English, this amounts to saying that Gbe languages allow preposition stranding. Compare the examples in (6a–b) to their English translations. Unlike English, however, P_1 pied-piping always leads to ungrammaticality in Gbe (6c):

(6) a. Àsíbá$_i$ wɛ̀ Kòfí zé kwɛ́ xlán t$_i$
Asiba Foc Kofi take money P_1
'Kofi sent money to Asiba.'

b. Mɛ́nù$_i$ wɛ̀ Kòfí zé kwɛ́ xlán t$_i$?
who Foc Kofi take money P_1
'Whom did Kofi send money to?'

c. *[xlán Àsíbá]$_i$ wɛ̀ Kòfí zé kwɛ́ t$_i$
P_1 Asiba Foc Kofi take money
'To Asiba Kofi sent the money.'

Given that P_1 is immobile, while P_2 is not, extraction of a sequence containing both P_1 and P_2, as in (2c), results in fronting of the constituent involving P_2 but not P_1 (7a). Pied-piping of the sequence $P_1 > DP_{[RO]} > P_2$ is excluded, as shown in (7b):

(7) a. gbó **jí** wɛ̀ kpɔ̀nɔ̀n lɛ́ nyì àgbàn cè **xlán**.
trash P_2 Foc police Numb throw luggage Poss P_1
'The policemen threw my luggage on/to the Dumpster (lit., at the top of trash).'

b. *[**Xlán** gbó **jí**]$_i$ wɛ̀ kpɔ̀nɔ̀n lɛ́ nyì àgbàn cè t$_i$
P_1 trash P_2 Foc policeman Numb throw luggage Poss

The generalization therefore appears that P_2 cannot allow a gap to its left and must be preceded by a full DP or a pronoun. On the other hand, P_1 must remain in situ and appears to license a gap (e.g., a *wh*-trace) to its right. These asymmetries become more apparent when it comes to the capacities of P_1 and P_2 to assign case.

In this regard, the following examples show that $DP_{[RO]}$-P_2 sequences occur in argument positions (e.g., object and subject; see 8a–b), unlike P_1-$DP_{[RO]}$-(P_2) sequences (8c):

(8) a. Kòfí klɔ́ [távò lɔ́ jí].
Kofi wash table Det P_2
'Kofi washed the surface of the table/the tabletop.'

b. [Távò lɔ́ jí] nɔ̀ zɛ̀.
table Det P_2 Hab crack
'The surface of the table/the tabletop habitually cracks.'

c. *Tò Àsíbá dè ná nyɔ́n
P_1 Asiba P_2 Fut be.good
lit., 'Asiba's place will be good.'

On the contrary, P_1 introduces a new argument and assigns case (a possibility that is not available for P_2). Sentence (9a) involves an intransitive verb that is separated from the P_1-$DP_{[RO]}$-(P_2) sequence by an intervening adverb. This contrasts with the ungrammatical sentence in (9b), where nothing can intervene between the intransitive verb and the immediately following locative phrase, which includes P_2. The latter is dependent on the verb or on some licensing null head nearby. The grammatical example in (9c) shows that the adverb must occur after the VP in such sentences:

(9) a. Mì fɔ́n **hàɖòkpóló** [sɔ́n zàn lɔ́ jí]!
2pl stand immediately P_1 bed Det P_2
'Get out of the bed immediately!'

b. *Mì bíɔ́ **hàɖòkpóló** xɔ̀ mɛ̀!
2pl enter immediately room P_2
'Enter the room immediately!'

c. Mì bíɔ́ xɔ̀ mɛ̀ **hàɖòkpóló**!
2pl enter room P_2 immediately
'Enter the room immediately!'

That P_1 but not P_2 is an argument introducer and a case assigner is further indicated by the sentences in (10). We see in example (10a) that the internal argument *távò lɔ̀* 'table the' is case licensed by the verb *zé* 'take', but the sequence $DP_{[RO]}$-P_2 *cɔ̀fù mɛ̀* 'shop in' is left caseless, and the sentence is ungrammatical. The grammatical example in (10b), however, is well formed because the sequence $DP_{[RO]}$-P_2 is introduced by P_1:

(10) a. *Kòfí zé [távò lɔ́] [cɔ́fù mɛ̀]
Kofi take table Det shop P_2
b. Kòfí zé [távò lɔ́] [sɔ́n cɔ́fù mɛ̀].
Kofi take table Det P_1 shop P_2
'Kofi took the table from inside the shop.'

Similarly, elements of the type P_1 require the following pronoun to have accusative morphology, unlike elements of the type P_2, which seem unrelated to case assignment. Observe in example (11a) that P_1 occurs with weak accusative pronouns or with

strong pronouns (the latter do not show case morphology). Example (11b), on the other hand, shows that P_2 cannot occur with weak nominative or accusative pronouns but requires strong pronouns:

(11) a. Kòfí zé kwɛ́ xlán mì /*ùn / nyɛ̀n.
Kofi take money P_1 1sg-Acc 1sg-Nom 1sg.St
'Kofi sent me some money.'

b. Àgán jɛ̀ *mì /*ùn / nyɛ̀n jí.
stone fall 1sg-Acc 1sg-Nom 1sg.St P_2
'A stone fell on me.'

I conclude from this description that, in $P_1 > DP_{[RO]} > P_2$ sequences, P_1 assigns case to the phrase $DP_{[RO]}$-P_2, which realizes its complement. This makes P_1 comparable to English prepositions, whereas P_2 appears to be a postnominal element that forms a larger phrase with the $DP_{[RO]}$ preceding it.

Finally, elements of type P_1 form a smaller class (only five are found in Gungbe) than that of elements of type P_2, which totals around thirty items (Ameka 2003). The following sections discuss the categorial status of P_1 and P_2.

2.1. P_1 elements and their relation to verb series

The Kwa literature generally assumes that elements P_1 derive from verbs via serial verbs (Ansre 1966; Lord 1973, 1993; Ameka 2003). The argumentation is based on the observation that the element P_1 *xlán* 'goal' in (12a) and the second verb (i.e., V_2) in the verb series in (12b) occupy the same surface position. In addition, the semantic fusion of V_1 and P_1 in (12a) is similar to that of V_1 and V_2 in the verb series in (12b):

(12) a. Sétù zé kwɛ́ **xlán** Kɔ̀jó. [zé + xlán ➔ send to]
Sétù V_1-take money P_1 Kɔ̀jó
'Sétù sent money to Kɔ̀jó.'

b. Sétù zé kpò **xò** Kɔ̀jó. [zé + xò ➔ hit with]
Sétù V_1-take stick V_2-beat Kɔ̀jó
'Sétù beat Kɔ̀jó with a stick.'

Furthermore, certain verbs that occur as V_2 in verb series display dual functions as main predicates and as adpositions of the type P_1. A case in point is the item *ná*, which can occur as a lexical verb meaning 'give' (13a). In example (13b), however, *ná* is ambiguous and could correspond to a V_2 in a series or to an element of type P_1. The sentence is accordingly ambiguous between a goal reading and beneficiary reading. In example (13c), *ná* introduces a nonfinite clause:

(13) a. Sétù **ná** kwɛ́ Kɔ̀jó. (lexical verb)
Sétù give money Kɔ̀jó
'Sétù gave Kɔ̀jó money.'

b. Sétù zé kwé **ná** Kɔ̀jó. [Lexical verb and P_1]
Sétù take money give/P_1 Kɔ̀jó
'Sétù took money and gave it to Kɔ̀jó.' (i.e., Kɔ̀jó is the beneficiary)
'Sétù took money and handed it (over) to Kɔ̀jó.' (i.e., Kɔ̀jó may not be the beneficiary)

c. Sétù jró **ná** tɔ́n. [P_1]
Sétù want to go out
'Sétù wanted to go out.'

It appears from these facts that P_1 intersects with both elements, which would be characterized as prepositions (e.g., in English) and verbal elements. This observation led Ansre (1966) to coin the term *verbid*, which suggests that these elements are halfway through the grammaticalization process from verbs to prepositions.[6]

For the purpose of this chapter I argue that, in spatial expressions of the type P_1-$DP_{[RO]}$-P_2, the element P_1, which encodes direction/path/goal, selects a (possessive) predicate phrase IP, including the sequence $DP_{[RO]}$-P_2 as illustrated in (14):

(14) $[_{P1P}\ [_{P1[Direction/goal/path]}\ [_{IP}\ DP_{[RO]}\text{-}P_2]]]$

The following section discusses the internal structure of the $DP_{[RO]}$-P_2 sequence further.

2.2. $DP_{[RO]}$-P_2 sequences and their relations to possessive structures in Gungbe

Unlike elements of type P_1, which appeared close to verbs, elements of type P_2 often derive from relational nouns expressing axial parts, regions of objects, body part nouns, or landmark terms (Ameka 2003). For example, the list in (15) includes three Gungbe elements P_2, together with their source nouns:

(15) Òkpá 'fence' ➔ kpá 'beside'
Òjí 'above/sky' ➔ jí 'top/above'
Ònùkɔ̀n 'forehead' ➔ (nù)kɔ̀n 'in front of'

Even though elements P_2 are often translated by the corresponding English prepositions (e.g., on, in, under), their semantic properties actually derive from their (possessive) relation to the reference object $DP_{[RO]}$ that they are attached to. To see this, compare the following locative expressions: example (16a) involves a full possessive construction of the type DP-*sín*-DP, while (16b) includes a $DP_{[RO]}$-P_2 (Aboh 2002, 2005):

(16) a. Yé gbá cɔ́fù lɔ́ ɖó xwé lɔ́ sín ɔ̀kpá gò.
3pl build shop Det P_1 house Det Poss fence P_2
'They built the shop against the fence of the house.'

b. Yé gbá cɔ́fù lɔ́ ɖó xwé lɔ́ kpá.
3pl build shop Det P_1 house Det P_2
'They built the shop beside the house.' (i.e., up to/at the side of the house)

While examples (16a–b) point to a close relationship between DP-*sín*-DP locatives and $DP_{[RO]}$-P_2 locatives, example (16c) indicates that these are not structurally isomorphic. Indeed, the element glossed as P_2 in (16b) cannot be modified, unlike its noun source in (16a):

(16) c. *Yé gbá cɔ́fù lɔ́ ɖó xwé lɔ́ kpá gò.
3pl build shop Det P_1 house Det P_2 P_2
'They built the shop beside the house.'

In this regard, it is interesting to note that elements of the type P_2 are parallel with other postnominal morphemes that also derive from nouns and whose semantic properties imply a predicate relation with the noun they attach to. Examples of such morphemes are *tɔ́* and ***nɔ̀***, which can be used derivatively to form new nouns, as shown in (17a–b):

(17) a. àkwé-**nɔ̀**
wealth-person
'rich person' (lit., mother of wealth)

b. àzé-**tɔ́**
witch-person
'witch' (lit., father of witchcraft)

It is obvious that such complex nouns imply possession predication in some sense and can therefore be compared to English expressions such as 'the king of soul [music]' or its French counterpart, 'le roi de la soul.'

2.2.1. Possessor-possessum versus possessum-possessor sequences in Gungbe

In accounting for the facts in (15), (16), and (17), I propose elsewhere that $DP_{[RO]}$-P_2 (and NP-*tɔ́*/*nɔ̀*) sequences are structurally derived from DP-*sín*-DP possessive constructions (19a). According to this view, the second type of possessive construction in Gbe, namely, the $DP_{[Possessee]}$-$DP_{[Possessor]}$-*tɔ̀n* sequence, shown in (19b), results from movement of the possessum to the left of the possessor as an instance of predicate inversion (Aboh 2002, 2005):

(19) a. dáwè lɔ́ **sín** kɛ̀kɛ́ lɔ́ (possessor > possessum)
man Det Poss bicycle Det
'the man's bicycle'

b. Kɛ̀kɛ́ dáwè lɔ́ **tɔ̀n** lɔ́ (possessum > possessor)
bicycle man Det Poss Det
'the bicycle of the man'

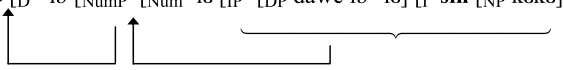
For the sake of discussion, I assume the rudimentary predicative structure in (20), whereby the possessor occupies the subject position of an extended projection of a possessive predicate IP, whose head is encoded by the genitive marker *sín*, the complement of which contains the possessum. This extended projection has DP as its left periphery (see Abney 1987; Kayne 1994; Szabolcsi 1987, 1994; Zribi-Hertz 1998; Den Dikken 1998, 2006 for discussion).

(20) $[_{DP}\ [_{D^\circ}\ [_{IP}\ DP_{[Possessor]}\ [_{I^\circ}$ sín $[NP_{[Possessum]}]]]]]$

Following the analysis of DPs in Aboh (2002, 2004a, 2005), I interpret the distribution of the specificity marker *lɔ́* and number marker *lɛ́* in such possessive constructions as evidence that the possessum is not a full DP but has to be associated with the D layer of the whole possessive construction. In (19a), for instance, the possessor and the possessum are each associated with a determiner. In (19b), however, the possessor is associated with its own determiner, while the possessum is left dislocated, and its associated determiner occurs at the far right. I conclude from this that, in such sequences, the phrase containing the possessor, the possessum, and the genitive marker are fronted to [spec DP], with the determiner at the far right realizing D. Under this analysis, a *sín*-type possessive (21a) is derived as shown in (21b):

(21) a. [dáwè lɔ́ lɛ́ **sín** kèkɛ́] lɔ́ lɛ́
man Det Num Poss bicycle Det Num
'The men's bicycles'

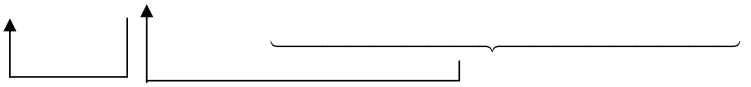
b. $[_{DP}\ [_{D^\circ}$ lɔ́ $[_{NumP}\ [_{Num^\circ}$ lɛ́ $[_{IP}\ [_{DP}$ dáwè lɔ́ lɛ́] $[_{I^\circ}$ **sín** $[_{NP}$ kèkɛ́]]]]]]]



while a *tɔ̀n*-type possessive (22a) is derived as in (22b):

(22) a. [Kèkɛ́ dáwè lɔ́ lɛ́ tɔ̀n] lɔ́ lɛ́
bicycle man Det Num Poss Det Num
'The bicycles of the men'

b. $[_{DP}\ [_{D^\circ}$ lɔ́ $[_{NumP}\ [_{Num^\circ}$ lɛ́ $[_{FP}$ kèkɛ́ $[_{F}\ [_{IP}\ [_{DP}$ dáwè lɔ́ lɛ́] $[_{I^\circ}$ tɔ̀n $[_{NP}\ t_{kèkɛ́}]]]]]]]]]$



Without going into the details of the analysis (see Aboh 2002), what is crucial for the discussion here is that the derivation in (22b) involves movement of the

possessum past the possessor to [spec FP] prior to movement of the whole phrase FP, which contains the possessive predicate, to [spec NumP] and [spec DP]. Movement of the possessum to [spec FP] is an instance of predicate inversion in possessive constructions as extensively argued for in the literature (see, for instance, Kayne 1994 and Den Dikken 1998, 2006, and references cited there for various proposals). Den Dikken has shown that such predicate inversion (an A-movement) triggers leftward movement of the head of the predicate phrase (i.e., here, I°) to some position, F°, higher than the subject of the predicate (here, the possessor). This movement results in a domain extension, which, in Chomsky's (1993) locality theory and notion of equidistance, permits movement of the predicate over the subject of the predicate (also an A-position) without minimality violation. Corver (2004), on the other hand, has shown that instances of predicate fronting inside the DP can also trigger I°-to-F°, as an example of the DP-internal counterpart of V2 (or I°-to-C° movement).

The Gungbe data do not provide direct evidence for I°-to-F° movement in predicate inversion, but one could adopt Nunes' (2004) copy theory of movement and maintain that the predicate head moves to F° in this language, too, as a consequence of domain extension. However, Gungbe (unlike certain Germanic languages) allows for the lowest copy to spell out, while the highest one is deleted under the LCA (Kayne 1994). I do not elaborate on this any further, but I suggest in sections 3 and 4 that languages differ superficially in the expression of complex spatial expressions to the extent that they choose derivation (21b) or some variant of (22b), which may imply I°-to-F° movement. To do this, I first show in the next section that complex locative expressions involve a truncated possessive phrase that realizes the sequence $DP_{[RO]}$-P_2 in Gbe languages. Accordingly, these sequences represent only a predicate phrase embedding the $DP_{[RO]}$ and its part expressing location.

2.2.2. $DP_{[RO]}$-P_2 as truncated possessives

I suggested earlier that $DP_{[RO]}$-P_2 and *sín*-type possessives are structurally related even though not identical. Indeed, if we were to extend the proposed analysis of *sín*-type possessives to $DP_{[RO]}$-P_2 constructions, we would imply that the latter involve a full possessive structure like that in (23). One distinguishing factor would then be that $DP_{[RO]}$-P_2 sequences have no overt possessive genitive marker.

(23) $[_{DP}\ [_{D°}\ [_{IP}\ [_{DP[OR]}$ Távò (lɔ́)] $[_{I°}\ [_{NP}$ glɔ́]]]]]
table Det under

However, another difference between $DP_{[RO]}$-P_2 sequences and *sín*-type possessives indicates that a refinement is needed. For instance, there is no movement of the possessive predicate to [spec DP] within the external DP layer as proposed for *sín*-type possessives in (21a). In this respect, the contrast in the examples in (24) shows that $DP_{[RO]}$-P_2 sequences exclude the determiner. Put another way, P_2, which functions as possessum in such structures, cannot be marked as specific (24a). No such restriction applies to the possessum of full DP *sín*-type possessives as illustrated in (24b):

(24) a. *só lɔ́ tà lɔ́
hill D et $P_{2[i.e., head]}$ Det
'on the top of the hill'

b. kòklɔ́ lɔ́ sín tà lɔ́
chicken Det Poss head Det
'the head of the chicken'

I take the impossibility of having a determiner to the right of P_2 as an indication that $DP_{[RO]}$-P_2 structures do not exhibit pied-piping of the whole IP to [spec DP], precisely because they lack the outer DP layer. This leads me to conclude that DP-P_2 sequences are "truncated" possessive constructions as in (25):

(25) $[_{IP}\ DP_{[Possessor]}\ [_{I^\circ}\ Ø\ [NP_{\ [Possessum]}]]]$

An immediate consequence of this analysis is that the truncated possessive IP combines with various lexical elements such as verbs (26a), elements of the type P_1 (26b), and Ds (26c) to form complex predicates:

(26) a. $[_{TP}$ Kòfí $[_{VP}\ [_{V}$ bíɔ́ $[_{IP}$ xɔ̀ $[_{I^\circ}\ [_{NP}$ mɛ̀]]]]]]
Kofi enter room $P_{2[i.e., inside]}$
'Kòfí entered the room.'

b. $[_{TP}$ Kòfí $[_{VP}\ [_{V}$ hɔ́n $[_{P1P}$ [sɔ́n $[_{IP}$ xɔ̀ $[_{I^\circ}\ [_{NP}$ mɛ̀]]]]]]]]
Kofi flee $P_{1[i.e., from]}$ room $P_{2[i.e., inside]}$
'Kofi fled from the room.'

c. $[_{DP}\ [_{IP}$ Kòfí $[_{I^\circ}$ sín $[_{DP}$ glɛ̀]]] $[_{D^\circ}$ lɔ́ $[t_{IP}]]]$
Kofi Poss farm
'Kofi's farm' (i.e., the aforementioned one)

This analysis correlates with the fact that locative phrases are almost always argumental in Gbe (Essegbey 1999). Yet, one may still object to this analysis of $DP_{[RO]}$-P_2 sequences by pointing out that there is in principle no reason that the truncated IP possessive structure $DP_{[RO]}$-P_2 must lack an overt genitive marker, unlike full DP possessives: Compare (26a–b) to (26c).

2.2.3. Null sín*-type genitives in Gbe*

The question of the absence of genitive marking in possessive $DP_{[RO]}$-P_2 sequences actually bears on the more general question of whether Gbe languages allow for possessor-gen-possessum (i.e., *sín*-type genitive) constructions with no overt genitive marking. Ewegbe, a closely related language, provides us with an immediate answer to this question. Ewegbe displays two types of possessive constructions:

(27) a. $XP_{[Possessor]}$ -*fe*-$YP_{[Possessum]}$
b. $XP_{[Possessor]}$ -Ø-$YP_{[Possessum]}$

The structure in (27a) is generally used for alienable constructions as in (28a), while the strategy in (27b) is used mainly for inalienable constructions as in (28b) (see Agbedor 1996 and references cited there for discussion).

(28) a. Kòfí *fe* agbale (Ewegbe)
Kofi Poss book
'Kofi's book'

b. Ama dada
Ama mother
'Ama's mother'

These Ewegbe facts therefore indicate that these languages involve a null variant of the *sín*-type genitive. I infer from this that the pattern $XP_{[Possessor]}$-*fe*/Ø-$YP_{[Possessum]}$ is available in all Gbe languages. This leads me to propose that a null variant of *sín* is present in Gbe locative constructions as a generalization of the pattern (27b) to all (conceivable) inalienable constructions. This is not unreasonable because, when considering a sequence like *xɔ̀tá*, which is interpreted as 'roof' but literally means 'head/top of the house' or 'on/over the house,' it is conceivable that the topmost part of a house (i.e., its "head") is understood as an intrinsic property of the house (see Talmy 2000).

Going back to the discussion on complex spatial expressions (sections 2.2.2 and 2.2.3), I take this possessive relation between the $DP_{[RO]}$ and its part expressing location as an indication that $DP_{[RO]}$-P_2 sequences involve a truncated possessive predicate structure as in (25), where P_2 appears to derive from the possessum noun phrase, which acts as a predicate. I now turn to the question of how P_2 relates to the possessum NP.

2.2.4. P_2 incorporates into I

If P_2 elements derive from the NP possessum in a structure like that in example (25), which results from *sín*-type possessives, one last question that needs to be addressed is why the possessum phrase, that is, the NP that is acting as a predicate, cannot be expanded. Recall from the ungrammatical example in (16c) that the element described as P_2 could not be modified. An additional example is given in (29), where we see that this element excludes nominal modifiers because P_2 cannot be modified by an adjective:

(29) *só yù lɔ́ tà wéwé (Gungbe)
hill black Det P_2 white
'on whitish top of the black hill'

However, such a restriction does not apply to *sín*-type possessives, where modification of the possessum NP is possible regardless of whether the genitive marker is overtly realized:

(30) a. kòkló yú lɔ́ sín tà wéwé (Gungbe)
chicken black Det Poss head white
'the black chicken's white head'

b. Ama dada gan (Ewegbe)
Ama sister big
'Ama's big sister'

In order to account for the contrast in (29) and (30), I (2005) take into account seemingly unrelated morphological properties of P_2 elements, which point to their nature as a head. The description goes as follows. Gungbe nouns generally involve a noun prefix ***a***– or ***o***–*:*

(31) a. **ò**hún b. àgbán
'drum' 'plate'

It appears in the examples in (32) that the prefix *o*– can be omitted in speech, unlike *a*–:

(32) a. Kòfí xɔ̀ (ò)hún
Kofi buy drum
'Kofi bought a drum.'
b. Kòfí xɔ̀ *(à)gbán
Kofi buy plate
'Kofi bought a plate.'

In N_1(P)-N_2 pseudocompounds, however, both prefixes must delete just in case they realize N_2. This is illustrated in examples (33a–b), which contrast with those in (33c–d):

(33) a. (ò)hún kpòtín
drum stick
'drumstick'
b. *(à)gásá fɛ̀n
crab claw
'crab claw'
c. sìn (*ò)hún
water drum
'water drum'
d. xùmɛ̀ (*à)gásá
sea crab
'sea crab'

The same observation holds for $DP_{[RO]}$-P_2 sequences because the vowel prefix of P_2 must drop. In example (34a) the initial vowel of the noun *ò-kpá* 'fence' may be optionally realized. However, this vowel cannot occur in example (34b), where the derived P_2 is being used.

(34) a. Yé dó (ò)kpá lɛ́ dó xwé lɔ́.
3pl plant fence round P_1 house Det
'They built a fence around the house.'

b. Yé zà xwé lɔ́ (*ɔ̀)-kpá.
3pl sweep house Det P_2
'They swept beside the house.'

Taking these facts seriously, I (2005) propose that the Gungbe noun prefixes *a–* and *o–* are indicators of an extended NP layer. Given that nominal modifiers are part of this extended NP layer (e.g., Cinque 1994; Szabolcsi 1994; Giusti 1997), we can interpret their absence and that of Gungbe noun prefixes in $DP_{[RO]}$-P_2 as evidence that the possessum is a bare NP that merges as a complement of I. This, in turn, creates an appropriate context for the incorporation of N into the inflectional genitive head:

(35) $[_{IP}\ [_{DP}$ àtín lɔ́$]\ [_{I^o}$ jí $[_{NP}\ t_{jí}\ ]]]$

In example (35), therefore, P_2 elements naturally resist modification because they are expressions of a bare noun phrase whose head N subsequently incorporates into I^o. This corroborates the fact that P_2 elements are clearly of nominal origin even though they behave syntactically as functional heads.[7]

Applying this analysis to complex spatial expressions of the type P_1-$DP_{[RO]}$-P_2 discussed thus far, I propose that they involve a complex predicate phrase of the type in (36):

(36) $[_{P1P}\ [_{P1}$ ɖó $[_{IP}\ [_{DP}$ àtín lɔ́$]\ [_{I^o}$ jí $[_{NP}\ t_{jí}]]]]]$
P_1 tree Det P_2
'on (top of) the tree'

In the complex spatial expressions in (36), the P_1element, which derives from verbs and encodes direction/path/goal in Gbe, selects a (truncated possessive) predicate phrase IP, in which the reference object, $DP_{[RO]}$, is the subject, while the part of it that expresses location represents a part phrase that acts as a predicate. The latter is a bare noun phrase that functions as a complement of the possessive predicate. The head of this noun phrase subsequently incorporates into the higher functional head, I^o, within the predicate phrase and surfaces as P_2.[8] This analysis is compatible with the general consensus in the literature on West African languages that elements of the type P_1 often relate to predicators and are sometimes used as copulas in locative and equative constructions, while P_2-type elements often derive from nominals and may bring about genitive inflection.

The representation in (36) holds for Gbe-type languages that exhibit the order P_1-$DP_{[RO]}$-P_2. The next question to address now is how to account for the areal pattern illustrated in (37), where the relevant adpositions precede the noun phrase that expresses the reference object (hence the order P_1-P_2-$DP_{[RO]}$). (See also example (1b) and Kari 2004; Frajzyngier, Johnston, and Edwards 2005 for further illustration)

(37) a. Mi-ḅúká-n úḅí yǫ mú ívóm úvay. (Degema, Kwa)
1sg-keep-Asp book Det $P_{[in]}$ $P_{[inside]}$ house
'I kept the book in the house.'

b. Kù wàŋ-á zà á ndòŋ bíŋ. (Mina, Chadic)
Inf sleep-AFF$_{[Goal\ orienter]}$ Asp P$_{[Predicator]}$ P$_{[inside]}$ house
'He slept in the house.'

Together the Gungbe data and the pattern in (37a–b) show that the distribution of the adpositions P_1 and P_2 varies across West African languages, where they appear to either circumvent or precede $DP_{[RO]}$. While works on West African languages often report these patterns as a mere areal feature, the structural relation between P_1-$DP_{[RO]}$-P_2 and P_1-P_2-$DP_{[RO]}$ sequences is hardly discussed. The next section takes on this issue.

3. Outside Gbe

In addition to showing that certain West African languages exhibit either P_1-$DP_{[RO]}$-P_2 or P_1-P_2-$DP_{[RO]}$ sequences in complex locative expressions, example (37) further indicates that the variation is found both within and across language families. For instance, Degema (Kwa) appears to show the same pattern as Mina (Chadic), as opposed to Gungbe (Kwa). This means that the observed pattern cannot be predicted by genetic considerations such as Kwa versus Chadic.[9] I take this apparent nonpredictability as indirect evidence that P_1-$DP_{[RO]}$-P_2 and P_1-P_2-$DP_{[RO]}$ are expressions of the same underlying possessive structure, such that any language that has access to the source possessive predicate in (25) may exhibit any of the observed patterns. More specifically, I argue that the sequence P_1-P_2-$DP_{[RO]}$ in (37) is derived from the underlying structure P_1-$DP_{[RO]}$-P_2 as represented in (25).

3.1. Zina Kotoko

In his account of Zina Kotoko (a Chadic language of Cameroon), Holmberg (2002) indicates that this language involves two types of adpositions. As in Gungbe, elements of the type P_1 relate to predicates (or to the so-called relators; Den Dikken 2006), while elements similar to P_2 often derive from nouns involving body parts or landmarks. A list adapted from Holmberg (2002, 162) is given in (38):

(38)

P_1	P_2	Origin
má 'from'	gmá 'on'	gə́máyá 'head'
ná 'to'	lyá 'behind'	àlyá 'back of a person'
	mwá 'under'	house/shelter
	fká 'in front'	. . .

It appears from this list that the elements listed under P_2 form a larger set than those shown under P_1. However, Zina Kotoko elements of the type P_2 precede the reference object DP rather than follow it as in Gungbe. Further consider the following three types of locative expressions: directional (39a), existential (39b), and adverbial (39c) (Holmberg 2002, 163):

(39) a. Ná gwyià húní má mwá tábɔ̀l.
I come out P_1 P_2 table
'I came out from under the table.'

b. Kìtàbí dé a mwá tábɔ̀l.
books Det P_1 P_2 table
'The books are under the table.'

c. Tá 'dam cákárá dé má mwá màfù.
they ate chicken Det P_1 P_2
'They ate the chicken under a tree.'

All of these examples involve structures where P_2 precedes the reference object, leading to the sequence P_1-P_2-$DP_{[RO]}$. With regard to P_2 elements, Holmberg (2002) rightly points out that, in Zina Kotoko, they should be distinguished from full nouns because they cannot occur with a determiner, and they generally do not require a genitive marker. There is one exception to this rule, though: *fká* 'front', which is marked by the genitive *cə:*

(40) Ná fín Ádàm má fká **cə** mafù dé. (Holmberg 2002, 164)
I saw Adam P_1 P_2 Poss tree Def
'I saw Adam in front of the tree.'

Together with the facts in (38b), this example indicates that the Zina Kotoko P_2 elements show the same ambiguous categorial status as their Gbe counterparts. They do not qualify as full nouns, but they are not comparable to genuine pre/postpositions, either. In this regard, Holmberg (2002, 165) suggests that such categories are somehow comparable to English adpositions:

(41) a. We met at the *back* of the house.
b. The statue is in *front* of the town hall.
c. He came out from *under* the table.

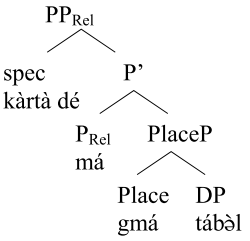
According to Holmberg (2002) *back* in (41a) is equivalent to a noun because it takes both the determiner and the genitive marker. *Front* in (41b) is situated somewhere between a noun and a preposition since it cannot take the determiner even though it still requires the element *of*, which is used as a mark of the genitive. Finally, the element *under* in (41c) is a full preposition that cannot be further specified by a determiner or by genitive marking. I return to this characterization in section 4 and show that it is misleading.

What matters for the present discussion, though, is that Holmberg's (2002) developmental cline suggested for (41) indicates that the Zina Kotoko elements are located somewhere between English preposition-like elements (e.g., *front)* and fully developed prepositions (e.g., *under*). This reasoning led Holmberg to assign a special lexical-syntactic category, Place, to these categories. The author then concludes the following:

> Zina Kotoko has a small set of simple prepositions and a larger set of complex prepositional expressions made up of two heads, a Place and a Relator. The Place is a noun-like category crucially taking only one argument. Therefore it requires a Relator in order for the complex to denote a relation between an individual and a place (in the case of existential PPs), or an event and a place (in the case of adverbial PPs), or in order to form a complex predicate together with a verb, and thus denote a relation between an agent, an individual, and a place (in the case of directional PPs). (Holmberg 2002, 174)

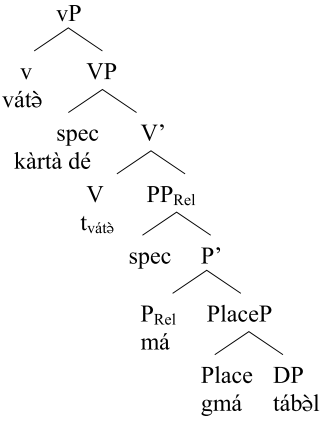
According to this view, the locative predicate in (1b), repeated here as (42a), illustrates an instance of existential PP, as represented in (42b). Note that there is no lexical verb or copula in this sequence. Instead, the relator seems to assume the function of a copula:

(42) a. [Kàrtà dé a gmá tábə̀l]. (Holmberg 2002, 169)
cards Det P1 P2 table
'The cards are on the table.'

b.


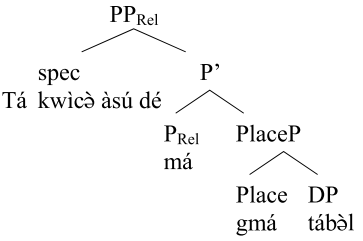
Example (43a–b), on the other hand, represents a directional PP in which the lexical verb selects a PP that embeds the Place phrase as a complement, with the theme object merged in [spec VP]:

(43) a. Də̀ vátə̀ [kàrtà dé má gmá tábə̀l]. (Holmberg 2002, 170)
he took cards Def P1 P2 table
'He took the cards from the table.'

b.


The examples in (44a–b) are instantiations of adverbial PPs. The rationale here is that such prepositions relate an event to a location or an individual. Accordingly, the VP that expresses the event merges as the specifier of the preposition, which selects PlaceP as a complement. This view actually unifies the sequences in (42a) and (44a):

(44) a. Tá kwìcə̀ àsú dé má gmá tábə̀l. (Holmberg 2002, 172)
they cut meat Det P1 P2 table
'They cut the meat on the table.'

b. 

Holmberg's (2002) analysis of prepositions certainly provides an insight into the semantics of these elements in Zina Kotoko: The so-called category Place establishes a predicative relation between a reference object DP and its location part, and the resulting complex may be further related to an individual or an event by means of a relator. However, at the same time, the proposed syntax obscures the distribution of such elements across Chadic and Kwa.

Recall from previous discussion that the two patterns commonly observed are P_1-$DP_{[RO]}$-P_2 (e.g., Gungbe) and P_1-P_2-$DP_{[RO]}$ (e.g., Zina Kotoko). According to the analysis in (42–44), these languages would involve complex prepositional expressions that would realize PP shells where P_1 selects P_2. It is not clear how selection proceeds between these elements, but suppose Holmberg's (2002) characterization is correct, and suppose also that Kayne (1994) is right in suggesting that UG does not allow for a directionality parameter. If so, then the proposed analysis does not help explain why the Gungbe one-place predicate, PlaceP, exhibits complement-head order, whereas Zina Kotoko shows head-complement order even though the two languages are superficially SVO. The same could be said of Gungbe and Degema, both Kwa languages. If there is no directionality parameter, then the obvious question is, what other parameter (or factor) triggers such a variation, even though the semantics and development of the P_1 and P_2 elements appear quite similar in both languages?

Another reason to reject Holmberg's (2002) analysis is that the representations in examples (42–44) cannot accommodate example (40), which includes the genitive marker *cə* and is treated as an exception by the author. For the purpose of this discussion, it is crucial to note that this genitive marker exhibits a similar distribution in genuine possessive constructions. This makes the Zina Kotoko facts quite similar to those found in Gbe, where we observed that $DP_{[RO]}$-P_2 sequences are akin to DP-*sín*-DP-type possessives. Compare, for instance, the Zina Kotoko possessive structure in

(45a) to the bracketed complex locative expression in example (45b), previously shown in example (40):

(45) a. ghìká dé cə Ádàm (Holmberg 2002, 167)
knife Det Poss Adam
'Adam's knife'

b. Ná fín Ádàm [má fká cə mafù dé]. (Holmberg 2002, 164)
I saw Adam P_1 P_2 Poss tree Def
'I saw Adam in front of the tree.'

In what follows, I take the example in (45b) to be not an exception but rather a fingerprint of the possessive structure that underlies complex locative constructions in Gungbe, Degema, and Zina Kotoko. More specifically, I argue (contra Holmberg 2002) that the example in (45b) and those in (42–44) involve a possessive construction of the type in (25) and differ only as to whether the predicate head I° spells out (e.g., *cə* in Zina Kotoko).

Going back to the two patterns found in complex locative expressions in West African languages, we can now say that the difference between Gungbe-type languages, which display P_1-$DP_{[RO]}$-P_2 structures, and languages like Zina Kotoko and Degema, which have P_1-P_2-$DP_{[RO]}$ sequences, reduces to the existence of predicate (head) inversion in the latter but not in the former.

In order to show this, let us step back and look at the two variants of possessive constructions in Gbe discussed previously and partially repeated in (46–47):

(46) . . . $[_{IP}$ $[_{DP}$ dáwè lɔ́ lɛ̀] $[_{I°}$ **sín** $[_{NP}$ kɛ̀kɛ́]]]

(47) . . . $[_{FP}$ kɛ̀kɛ́ $[_{F}$ $[_{IP}$ $[_{DP}$ dáwè *lɔ́* lɛ́] $[_{I°}$ tɔ̀n $[_{NP}$ $t_{kɛ̀kɛ́]]]]]}$

Recall also from the discussion that representation (47) involves predicate inversion, that is, movement of the possessum past the possessor. This movement appears to correlate with the spell-out of the genitive marker, here *tɔ́n* (see Kayne 1994; Den Dikken 1998; and references cited there for discussion).

Combining this analysis with that of P_1-$DP_{[RO]}$-P_2 in Gungbe (36), I conclude that the Zina Kotoko P_1-P_2-GEN-$DP_{[RO]}$ sequence in (45b) is evidence that in some of these languages, P_2 may move past the reference object $DP_{[RO]}$, picking up the genitive marker on its way to a higher functional head, as illustrated in (48). I descriptively refer to this type of inversion as *predicate (head) inversion* to indicate that the category that inverts is a head:

(48) $[_{P1P}$ $[_{P1}$ má $[_{FP}$ $[_{F}$ fká-cə $[_{IP}$ $[_{DP[RO]}$ mafù dé] $[_{I°}$ $t_{fká-\ cə}$ $[_{NP}$ $t_{fká}]]]]]]]$

In support of this analysis is evidence that the Zina Kotoko P_2 elements are reduced forms compared to their noun sources. I interpret this as an indication that these

elements are heads just like their Gungbe counterparts. I therefore conclude that, while the Gungbe facts are compatible with the possessive structure in (46), that is, the source structure, the Zina Kotoko facts are expressions of its derived variant in (47).

An alternative to this view is to say that the Zina Kotoko P_1-P_2-GEN-$DP_{[RO]}$ sequence involves the derivation in (49), whereby the noun phrase complement moves to [spec FP], followed by I-to-F head movement: a common predicate inversion structure as illustrated in (49):

(49) $[_{P1P}\ [_{P1}$ má $[_{FP}$ fká $[_{F}$ cə $[_{IP}\ [_{DP}$ mafù dé$]$ $[_{I^\circ}\ t_{cə}\ [_{NP}\ t_{fká}]]]]]]]$

Partial evidence that this analysis is inferior to the predicate (head) inversion in (48) comes from another Chadic language: Hausa.

3.2. Hausa

Like the West African languages discussed thus far, Hausa has a small class of elements comparable to prepositions in languages like English, as well as a larger class of adpositional elements "which do not lend themselves to useful subclassification" (Newman 2000, 466).[10]

3.2.1. Simple and complex prepositions in Hausa

In their descriptions of Hausa, Newman (2000) and Jaggar (2001) argue that this language has simple prepositions (50a), complex adpositions and prepositions (50b–c), and genitive prepositions (50d–e):

(50) a. Zā à sāmṵ̀ à kā̀suwar̃ Kanɔ̀.
3sg Fut find.3sg P market.Gen Kano
'One will find (it) at Kano market.'

b. Arɛ̀wa **d**à
north P
'to the north of'

c. bāya **d**à
back P
'behind'

d. Arēwac-**in**
north.Gen
'to the north of'

e. bāya-**n**
back.Gen
'after, behind, in addition to'

A look at the data in (50) indicates that the term *simple preposition* refers to one-word elements that can take a complement on their own, a case that has already been

presented with regard to Gungbe and Zina Kotoko. On the other hand, the expression *complex preposition* is a cover term for multiword (often bimorphemic) adpositions that appear to combine a noun (or a derived adverb) with simple prepositions. Finally, the so-called genitive prepositions are adpositions involving a noun (or an adverb) that has merged with a zero-vowel linker *-n/-r̃*, also found in various genitive constructions (Newman 2000, 470).

In the Hausa literature, the distinction between complex and genitive prepositions seems to result from the fact that the former can be analyzed as involving two separate words, whereas the latter cannot. In this regard, Jaggar (2001, 676) indicates that, even though the genitive prepositions are morphologically complex and can be analyzed as structurally complex, speakers consider them as one-word elements.

Yet, with regard to syntax, there seems to be no good reason for treating the sequences in (50b–c) as involving a structure that is different from those in (50d–e). As the examples show, both sequences can be characterized as a structure where a place/direction/time/manner lexical element (e.g., a noun) combines with either a preposition-like element or a genitive marker.

For the sake of argumentation, let us assume that the sequences in (50b–e) are expressions of the same underlying structure. Put another way, I propose that the examples in (50b) and (50d) realize the two scenarios depicted in (48) and (49) and that the only difference is that the possessor is an empty category (presumably pro, whose content is pragmatically recoverable). In (50b), for instance, the noun phrase complement moves to [spec FP], while the predicate head I° moves to F° as indicated in (51a): a now classical case of predicate inversion. With regard to example (50d), however, I argue that it is an instantiation of the derivation in (49), where the head noun of the possessum, which we describe as P_2, incorporates in I°, which hosts the genitive marker, and the complex P_2 genitive marker further moves past the possessor noun to the higher functional head F° (51b): a case of predicate (head) inversion:

(51) a. $[_{FP}$ arɛ̀wa $[_{F°}$ dà $[_{IP}$ $[_{DP}$ pro] $[_{I°}$ $t_{dà}$ $[_{NP}$ $t_{arɛ̀wa}]]]]]]$ (predicate inversion)

b. $[_{FP}$ $[_{F°}$ arɛ̀wac-in $[_{IP}$ $[_{DP}$ pro] $[_{I°}$ $t_{arɛ̀wa\text{-}c\text{-}in}$ $[_{NP}$ $t_{arɛ̀wa}]]]]]]$ (predicate head inversion)

I conclude from this description that (51a–b) both involve predicate inversion and that the only difference is that the inverted element is a phrase in (51a) and a head in (51b). A morphological indication that supports this analysis is that the noun in (51b) and related examples occurs in its bound form (presumably smaller than an NP) containing the linker. In (51a), however, the preceding noun occurs in its full form (i.e., a DP). This means that the genitive marker in (51b) is an affix, unlike the preposition in (51a), even though the two occupy the same position.

This analysis correlates with speakers' intuition that examples (50b–c), derived as (51a), involve two-word prepositions, while (50d–e), represented as in (51b), involve one-word prepositions. Indeed, the representations in (51a–b) suggest that sequences (50b–c) are somehow comparable to (phrasal) compounds and probably show similar prosodic phrasing, while sequences (50d–e) are more akin to morphologically complex words.

In addition, the proposed analysis conforms to possessive constructions in Hausa. This language exhibits, among other strategies, possessive constructions of

the following type: possessum noun (phrase) + linker + possessor noun phrase, where the linker may be a free morpheme (52a) or its bound variant (52b). Example (52c) further shows that the bound form is also found in N-N compounds; see Newman (2000) and Jaggar (2001) for discussion.[11]

(52) a. kuɗin nàn na Audù (Jaggar 2001, 332)
money Det Gen Audu
'this money of Audu's'
b. kuɗi-n Audù
money-Gen Audu
'Audu's money'
c. jirgi-n ƙasà (Newman 2000, 302)
ship-Gen ground
'train'

Various syntactic properties (e.g., number, gender) condition the choice of the linker, but one that is relevant to the present discussion is that the freestanding linker must be used "whenever the possessor is separated from the noun possessed by some constituent such as an adjective, numeral, demonstrative, or even bound definite article" (Newman 2000, 300). The bound form, however, directly attaches to the head noun. Accordingly, the freestanding linker attaches to phrases, while the bound variant is an enclitic that attaches to lexical or functional heads. Applied to the so-called complex and genitive prepositions illustrated in (50), this distinction naturally leads to the derivations and conclusions in (51), where in (51a) the inverted element is a phrase that requires the free morpheme, while in (51b) the inverted head attaches to the clitic genitive marker.

I conclude from this discussion that the morphosyntax of Hausa genitive prepositions can be taken as indirect evidence that the Zina Kotoko example in (45b) involves the structure in (48). Recall that there, too, the nominal *fká* 'in front', which attaches to the genitive marker *cə*, shows a morphologically reduced form that suggests its head nature (see also Holmberg 2002). A final point that supports this argument is that Hausa, just like Zina Kotoko, displays complex locative expressions in which a phrase headed by the so-called genitive prepositions occurs as a complement of a simple preposition. The combination of the two gives rise to the sequence P_1-P_2-Gen-$DP_{[RO]}$ as exemplified in (53a) and represented in (53b):

(53) a. dàgà ciki-n gàri (adapted from Jaggar 2001, 676)
from inside-Gen town
'from inside the town'
b. $[_{P1P}[_{P1}$ dàgà $[_{FP}[_{F}$ ciki-n $[_{IP}[_{DP}$ gàri$]$ $[_{I^{\circ}}$ $t_{ciki\text{-}n}$ $[_{NP}$ $t_{ciki}]]]]]]]$

This example is identical to the Zina Kotoko example in (45), where the two adpositions linearly precede the genitive marker, which precedes the reference object DP (i.e., the possessor). As I argued earlier, such complex locative expressions include a simple preposition that selects the possessive predicate, whose head moves past the possessor, picking up the genitive marker on its way.

Given that the analysis of Zina Kotoko and Hausa builds on the discussion of the two possessive constructions found in Gungbe (possessor-Gen-possessum versus possessum-possessor-Gen, with the latter being derived by predicate inversion), one may wonder whether there is independent evidence in Chadic for predicate inversion of the sort discussed in this chapter.

3.2.2. Independent evidence for predicate inversion in Hausa

Partial evidence that this is indeed the case comes from the distribution of adjectives in Hausa. When used as predicates, *short* adjectives require the order illustrated in (54), where the predicative adjective occurs to the right of its subject. Various markers follow this sequence, which are referred to as *stabilizers* in the literature (Newman 2000; Jaggar 2001):

(54) a. Yāròn dōgō nḗ (Newman 2000, 29)
boy tall Stab
'The boy is tall.'
b. Gidǎ̀jen nàn sǎ̀bàbbī nè̀
house.pl Det new Stab
'These houses are new.'

Setting aside the syntax proper of the stabilizer, the word order exhibited in these Hausa predicative constructions is parallel to that of English structures like those in (55), where the subject, *our doctor*, linearly precedes the predicate, *the biggest idiot in town.* In terms of this description the Hausa examples in (54) and the English one in (55) involve the same underlying structure:

(55) Our doctor is the biggest idiot in town. (Den Dikken 1998, 177)

If so, it is interesting to note that according to Den Dikken (1998, 177) and much related work, predicative structures like that in (55) relate to predicate inversion sequences such as that in (56a). The latter provides the ground for the analysis of sequences, such as that in (56b), as involving predicate inversion, too (see also Kayne 1994):

(56) a. The biggest idiot in town is our doctor.
b. that idiot of a doctor

I do not go into the details of Den Dikken's (1998) analysis here. The relevant point for our discussion, though, is the possible link between example (56b) and English sequences like (57a) as potentially derived from predicate inversion. The French equivalent of this example, (57b), actually suggests that the intuition is correct because the fronted category there is followed by the preposition *de*, also found in French possessive predicates:

(57) a. The *idiot* doctor came two days after John died!

b. Cet/l'*imbécile* de médecin s'est pointé deux jours après la mort de Jean!
That/the.idiot of doctor Refl.be show.up two days after the death of John

In comparing the data in (56) and (57), one might decide that the link between the French example (57b) and the English sentence (57a) is not as straightforward as the one between (57b) and (56b). Actually, accounts of predicate inversion in Romance and Germanic languages (e.g., Den Dikken 1998) often focus on the correspondence between (57b) and (56b).[12]

Yet, the following Hausa facts point to a strong correlation between (57a) and (57b) in terms of predicate inversion.[13] Indeed, while Hausa predicative adjectives must follow their subject, (short) attributive adjectives may precede or follow the noun they modify. The latter two strategies are illustrated in (58a–b). According to Newman (2000, 30) the two word orders have the same meaning even though they may imply different pragmatics: The postnominal attributive adjective encodes emphasis or contrast. Further observe from example (58c) that compounds involving an adjective and a noun follow the pattern in (58b):

(58) a. gidā farī (Newman 2000, 30)
house white
'white house'
b. fari-ngidā
white-Gen house
'white house'
c. baƙi-n cikī̀
black-Gen belly
'sadness/jealousy'

The sequence in (58b) involving a prenominal attributive adjective and the compound in (58c) are clearly parallel to the English example in (56b) in terms of word order and structure since both examples involve a mark of possession: *of* in English and the linker *-n* in Hausa. Nevertheless, the Hausa example, (58b), is an instance of an attributive adjective that is comparable to the English example in (57a) and the French sentence in (57b). Following Den Dikken's (1998) analysis of English examples like (56b) in terms of predicate inversion and keeping the parallel between these structures, that is, the examples in (57) and the Hausa attributive adjective sequences in (58), I conclude that the Hausa prenominal attributive adjectives in (58b), as well as the A-N compounds in (58b), involve predicate inversion, too.[14] This conclusion is compatible with Newman (2000, 30), who observes: "The standard word-order pattern in Chadic is noun + adjective, which presumably was the original order in Hausa as well. Prenominal adjectives in such phrases as **farin gidā** . . . probably began as N of N constructions." In this chapter I reinterpret Newman's observation and suggest that the sequences (58b) and (58c) are not simple juxtapositions of two lexical heads linked by a genitive marker but rather phrases belonging to a (possessive-like) predicate phrase of which the noun phrase (e.g., house, belly) is the subject and what now appears as an attributive adjectival phrase represents the predicate, which has

inverted. Under this view, the genitive marker spells out a functional head (within the extended projection of the predicative adjective) that has moved past the subject as a consequence of predicate (head) inversion. With this description in mind, we can further pair sequences such as (58b–c) with (complex) locative expressions of the type in (53a) as involving predicate (head) inversion of the type argued for in this chapter.

In summary, this chapter argues that the complex locative structures in (1a–b) involve the structure in (1d), where a preposition-like element, P_1, selects a predicate phrase in which the reference object DP is in a predicative relation with its part phrase expressing location. The latter acts as a predicate and realizes the complement of the predicate phrase head (i.e., I°). The discussion further shows that the head of this part phrase can incorporate into I°, turning as such into elements that I describe as P_2. In some languages, P_2 may further invert and move past the subject of the predicate, an instance of predicate (head) inversion shown to exist in Zina Kotoko and Hausa.

In previous work, this type of predicate (head) inversion, which makes P_2 elements superficially comparable to true prepositions in other languages, led certain authors (e.g., Holmberg 2002) to wrongly suggest that certain West African languages display structures similar to PP shells. I have shown that such an analysis cannot be maintained for Kwa and Chadic in general.

In what follows, I take a step further and propose that complex locative expressions of the type described in example (1) universally include the (possessive) predicate structure in (59). I further argue that language variation in the surface position of the P_1 and P_2 elements (and the morphological shape they take) results from various syntactic operations that may affect these elements (e.g., incorporation, head movement, predicate [head] inversion).

(59) $[_{P1P[Direction]}\ [_{P1}\ [_{IP}$ [Reference object] $[_{I°}\ [_{P2P}$ Part/side]]]]]

While this might appear to be a strong claim based on a couple of West African families (e.g., Kwa, Chadic) that display some areal features, the Trans-Atlantic journey started here gives some credence to the intuition that (59) universally underlies the complex spatial expressions in (1).

4. Crossing the Atlantic

Now that we have established that locative expressions in certain African languages involve complex phrases of the type in (59), where the reference object ($DP_{[RO]}$) and its part/side are involved in some type of (possessive) predicate relation, the question obviously arises as to the implication of such an analysis for typologically different languages (e.g., Germanic, Romance), which seem to exhibit no contrast between P_1 and P_2 as described in the previous sections. Before tackling this question, let me first take you to Suriname, where I discuss Sranan, a creole language with English as lexifier and certain Gbe languages as substrate, with some influence from Dutch and Portuguese (see Smith 1987 and references cited there).

4.1. A stop in Suriname: The case of Sranan

Citing work by Schumann, Bruyn (2001) indicates that early Sranan has P_1 and P_2 expressions. The latter derive mainly from English words like *top, inside, under*, and *back*. Example (60) shows that P_1 elements precede what looks like a complement noun, while P_2 elements may precede or follow:

(60) a. Sinsi a komm **na** hosso **inni.** (Bruyn 2001, 8)
since 3sg come P_1 house P_2
'since she entered the house'

b. Mi kommotto **na** **inni** djari. (Bruyn 2001, 11)
1sg come.out. P_1 P_2 garden
'I'm coming from the garden.'

c. A trueh watra **na** **inni** ***vo*** wan tobbo. (Bruyn 2001, 12)
3sg throw water P_1 P_2 $Poss_{[of]}$ Det tub
'He threw water into a tub.'

These Sranan examples are interesting in several respects. The pattern in (60a) is equivalent to that discussed for the Gbe languages, where the adpositions circumvent the noun phrase that encodes the reference object. I analyzed such sequences earlier as instances of complex locative expressions in which P_1 selects for a truncated predicate structure that includes a reference object DP and a bare noun phrase representing the part that merges as complement of the predicate functional head Iº. I further proposed that P_2 originates as the head of this noun phrase but subsequently incorporates into Iº (see section 2.2. and subsequent sections).

On the contrary, the pattern in (60b) is parallel to that found in some other Kwa languages (e.g., Degema, Igbo) but occurs most commonly in Chadic languages, where the two adpositions precede $DP_{[RO]}$ in the fixed order $P_1 > P_2 > DP_{[RO]}$. Just as in Chadic, the pattern in (60c) indicates that in some contexts the two adpositions may co-occur with a genitive marker, in which the sequence $P_1 > P_2 >$ Gen precedes $DP_{[RO]}$. The analysis of Chadic therefore extends to Sranan in a straightforward manner. Therefore, I concluded that $P_1 > P_2 >$ (Gen) $> DP_{[RO]}$ structures derived from the Gbe pattern by predicate (head) inversion, where P_2 incorporates into Iº and the complex P_2 + Iº further rises to Fº. I also argued that this movement may correlate with the spell-out of the genitive inflection expressing Iº.

Given these descriptions, Sranan appears to combine the two patterns found in Kwa and Chadic (e.g., Gungbe, Degema, Zina Kotoko, Hausa). This is a surprising finding since none of the languages discussed thus far clearly combines these two patterns in complex locative expressions. Sranan therefore provides us with further empirical evidence that the two patterns discussed in this chapter represent the two sides of the same coin. Put differently, Sranan gives us strong motivation for relating the two constructions (even though the choice of one pattern over the other in a particular language may derive from various semantic or pragmatic factors). In so doing, Sranan also underscores the point made in previous sections that inversion may (but does not necessarily) go hand in hand with spelling out the genitive features as

illustrated in the Zina Kotoko and Hausa examples (see also Den Dikken 1998, who reaches the same conclusion on independent grounds).

Starting from the sequence in (60a), represented as in (61a), I propose that examples such as (60b–c) are derived as in (61b–c):

(61) a. Sinsi a komm [$_{P1P}$ [$_{P1}$ **na** [$_{IP}$ [$_{DP}$ hosso] [$_{I°}$ **inni** [$_{P2P}$ [$_{NP}$ t$_{inni}$]]]]]]
b. Mi kommotto [$_{P1P}$ [$_{P1}$ **na** [$_{FP}$ [$_{F}$ **inni** [$_{IP}$ [$_{DP}$ djari] [$_{I°}$ t$_{inni}$ [$_{NP}$ t$_{inni}$]]]]]]]
c. A trueh watra [$_{P1P}$ [$_{P1}$ **na** [$_{FP}$ [$_{F}$ **inni-vo** [$_{IP}$ [$_{DP}$ wan tobbo] [$_{I°}$ t$_{inni-vo}$ [$_{NP}$ t$_{inni}$]]]]]]]

Given these representations and my claim that the source structure, (61a), is universally available in complex locative expressions and taking into account sociohistorical relationships among the Suriname creoles, Gbe languages, English/Dutch (Germanic), and Portuguese (Romance), Sranan appears a very good springboard for jumping again over the Atlantic to certain Germanic and Romance languages.

4.2. Crossing the Atlantic again to Germanic (e.g., English, Dutch)

As previously mentioned, Sranan emerged from the contact between Gbe languages and English (and to some extent Portuguese and Dutch; Smith 1987). For instance, there are good reasons to believe that the forms *inni* (expressing P_2) and *vo* (realizing genitive marking) developed from the English prepositions *in(side)* and *of*, respectively.[15] On the other hand, the source of the form *na* is not so clear and is still a matter of debate. Given the description in (61), however, *na* is semantically and functionally comparable to the English locative/allative prepositions *at* and *to*. With this characterization in mind, let us now consider the Sranan sequences in (61b-c) in the face of the corresponding English complex locative predicates.

Starting with the $P_1 > P_2 >$Gen sequence in (61c), it appears that this Sranan example is very similar to example (41b), repeated here as (62a) and represented in (62b):

(62) a. The statue is *in front of* the town hall.
b. The statue is [$_{P1P}$ [$_{P1}$ **in** [$_{FP}$ [$_{F}$ **front + of** [$_{IP}$ [$_{DP}$ the town hall] [$_{I°}$ t$_{front+of}$ [$_{NP}$ t$_{front}$]]]]]]]

Here, the complex preposition *in front of* does not realize a PP shell, as one might assume from common analyses of PPs (e.g., Holmberg 2002). Instead, *front* expresses the bare noun phrase that encodes the part of the reference object, which realizes the subject (i.e., the possessor) in the truncated possessive predicate selected by *in*. The functional inflection of this possessive predicate is realized by *of*, to which *front* adjoins under predicate inversion, where the complex *front-of* moves past the possessor. *the town hall.*

Keeping this line of reasoning, I propose that the Sranan sequence $P_1 > P_2$, in (61b), where the genitive marker is not overtly realized, finds an echo in English complex prepositions of the type listed in (63).[16]

(63) Decomposing English complex prepositions

P_1	P_2	*Inf*
be-	neath	
be-	low	
a-b-	ove	
out-	side	
in-	side	
be-	side	
in	front	of
to	in	

As is transparent from this table, these morphologically complex prepositions can be split into two parts arguably corresponding to P_1 and P_2, sometimes in addition to a third part expressing possession. Taking this observation seriously and following the same reasoning as before, I suggest that English constructions like (64a) are derived by predicate (head) inversion of the sort argued for in this chapter and represented in (64b):

(64) a. John went inside the room.
b. John went $[_{P1P}\ [_{P1}$ in $[_{FP}\ [_{F}$ side + I $[_{IP}\ [_{DP}$ the room$]\ [_{I^\circ}\ t_{side + I}\ [_{NP}\ t_{side}]]]]]]]$

What this analysis suggests is that the list of elements in (63) are not prepositions in the traditional sense. They are not complex prepositions involving PP shells, either, nor are they words. Instead, these prepositions bring about a complex predicate phrase such that an example like (65a) (e.g., in the context of a boat) is comparable to (65b), which involves a recoverable null subject inside the IP:

(65) a. Come below.
b. Come $[_{P1P}\ [_{P1}$ by $[_{FP}\ [_{F}$ low + I $[_{IP}\ [_{DP}$ pro$]\ [_{I^\circ}\ t_{low + I}\ [_{NP}\ t_{low}]]]]]]]$

The proposed analysis clearly makes sense from a diachronic perspective. However, a question that now arises, which I also alluded to when discussing the Hausa data, is whether contemporary English speakers are aware of the complex syntax of such prepositions, which they merely treat as words. Going back to Hausa, recall from the discussion that speakers distinguish sequences like that in (50b) from that in (50d) on the basis that the former involves two separate words, while the latter involves a bimorphemic word (Jaggar 2001). The same feeling is observed in English, where *in front of* is treated as a morphologically complex preposition involving a PP shell structure (Holmberg 2002) as opposed to, for instance, *above, beside, inside*, and *outside*, which are regarded as simplex prepositions somehow comparable to *in, to, at*, and so on.

The question of how much syntactic structure we can infer from morphological form obviously relates to issues on language acquisition, for which I have nothing to offer except that speakers might learn these complex forms just as they learn idioms.

Accordingly, that English and Hausa speakers seem unaware of the hidden complex structures of these prepositions is not an argument against analyzing them as such.

Following this line of argumentation, the case of the preposition *into* (split in (63), as *to* + *in*) presents us with a quite insightful puzzle. All of the native English speakers I have consulted accept this form as a simple preposition that is stored as such in the lexicon and presumably first merges in the preposition head in prepositional phrases. There is also the common feeling that *in* naturally precedes *to* in the complex form *into* such that the partition in (63) looks completely counterintuitive. Under the traditional view of such prepositions, therefore, the bracketed sequence in (66a) can be represented as in (67b):

(66) a. John went [into the room]
b. John went [$_{PP}$ [$_{P}$ into [$_{DP}$ the room]]]

Apparently, this analysis would be supported by preposition-stranding constructions, where the preposition *into* can be stranded as illustrated in (67a) and represented in (67b). Here, the fronted DP moves through [spec PP] (e.g., Riemsdijk 1978):

(67) a. The room John went into
b. [$_{DP}$ the room] John went [$_{PP}$ [$_{DP}$ ~~the room~~] [$_{P}$ into [$_{DP}$ ~~the room~~]]]

This analysis not only corresponds to speakers' intuition but also conforms to my own characterization of *in* in (62) and (64). However, if we follow the analysis proposed in this chapter that sequences such as *into the room* are complex locative expressions that derive from predicate inversion, we would have to reject the analysis in (66b) and subsequently (67b), where *into* merges in P. Instead, I subscribe to a different analysis of *into*, where I first decompose it as the equivalent of two independent morphemes *in* + *to*. Second, I hypothesize that *in*, contrary to what one might think on the basis of its surface position, actually represents the part of the reference object used to express location (i.e., the inner part of DP$_{[RO]}$). Put together, these two assumptions make it possible to directly compare the English complex preposition *into* with the Sranan sequence *na inni* in (61b).

What immediately emerges from this comparison between Sranan *na inni* and English *into* is that the Sranan element *na* appears to be an allative preposition comparable to English *at/to* and that expresses P_1. The latter precedes *inni*, which encodes P_2. Upon this observation, it is clear that English *into* displays the mirror image of Sranan: $P_2 > P_1$. I take this to be no accident. Starting with the Sranan order $P_1 > P_2$, we naturally derive the English order $P_2 > P_1$ in terms of predicate inversion, where the inverted P_2 subsequently adjoins to P_1, as illustrated in (68), as the alternative to (66b):

(68) John went [$_{P1P}$ [$_{P1}$ **in**~~ner part~~ + I + F + **to** [$_{FP}$ [$_{F}$ t$_{\text{inner part+I+F}}$ [$_{IP}$ [$_{DP}$ the room] [$_{I^{\circ}}$ t$_{\text{inner part+I}}$ [$_{NP}$ t$_{\text{inner part}}$]]]]]]]

In terms of predicate (head) inversion, the analysis predicts sequences like *into* (i.e., $P_2 > P_1$) to exist as a consequence of the derivation in (68), even though this appears completely counterintuitive from the speakers' perspective. It is worth mentioning,

though, that Noonan (this volume) came to exactly the same conclusion on independent grounds (i.e., a comparative analysis of prepositions in German and English).[17]

In addition, the proposed analysis appears compatible with the fact that English simplex prepositions (e.g., *to, for, of*) can target functional positions (e.g., C, I) that can also attract verbs cross-linguistically (e.g., I-to-C movement versus V-to-I movement). Complex forms (e.g., *beside, inside, before, into*), on the other hand, do not readily occur in such positions by themselves because they are part of phrases that need to be selected by outer elements.[18]

A question that I have left untouched until now is that of the semantics of these prepositions. Given the proposed analysis, one wonders whether the semantic properties of these prepositions are compositional, as one may assume from the syntactic structure they involve. Two options are possible here: (i) One argues that the semantic properties of these prepositions are not compositional and do not reflect their syntactic structure, (ii) or one proposes that the meaning of these prepositions is to some extent compositional and does coincide with their internal structure. For the time being, it is difficult to tease these two options apart, given that not much is known about the semantics of these individual prepositions and how they combine to form new semantic units. For the sake of the discussion, however, I adopt the second option, assuming that the meaning of these prepositions is compositional and says something about the structure they bring about. If so, an example such as (64a), *John went inside the room*, would mean that *John went* $P_{1[in]}$-$P_{2[side]}$-$I_{[of]}$ *the room.* Of course, a proper semantic analysis of such structures is necessary before we reach a final conclusion.

4.3. Flying over Dutch

Given the proposed analysis for English complex locative prepositions, it is extremely tempting to extend this approach to Dutch (and other Germanic languages). I do not resist this temptation even though not much will be said about Dutch. It seems to me reasonable that the proposed analysis also extends to certain Dutch adpositions. A proper discussion of the Dutch facts goes beyond the scope of this chapter because these are extremely complex and deserve a chapter on their own (see Den Dikken 1995, this volume; Koopman 1997). In addition, the apparent heterogeneity of the class of elements that would fall under P_2 suggests that further study is needed here.

Still, the following Dutch counterparts of some English elements indicate that these can be minimally split into three parts (69). I take this as an indication that they might involve even more structure than I have assumed thus far.[19]

(69) List of certain Dutch adpositions (Hans den Besten personal communication, 11/03/2005)

P_1	P_2	Infl.	Used as preposition	Used as adverbial	Used as particle postposition
be-	ned-(er)	-en	✓	✓	*
b-	ov-(er)	-en	✓	✓	*
b-	uit-	-en	✓	✓	*
b-	inn-	-en	✓	✓	✓ (directional)
be-	zijde	-en	✓	*	*
be-	zuiden/zuid	-en	✓	*	*

If the proposed analysis is right, then one would expect the left-hand column to correspond to P_1 and the second one to P_2, dragging along some inflection from inside the possessive structure.

Even though these complex prepositions can be decomposed into three different parts and can arguably be said to involve the same underlying structure, they do not display the same distribution. For instance, while all of the elements listed here can be used as prepositions, only four out of the six forms presented can be used as adverbials, while one form functions only as a particle postposition.

Another point that is worth mentioning is the contrast in (70). According to Den Besten (personal communication, 11/03/2005), the Dutch counterpart (70b) of the English sequence in (70a) is marginal or at least does not feel right. Here, we have a combination of an element P_1 and an element P_2 forming a complex preposition (b+innen) comparable to those found in English (e.g., in-side). For the time being, it is not clear to me why such combinations of P_1 and P_2 should be less productive in Dutch than in English.[20]

(70) a. He came from inside the house.
b. ?/%Hij komt van binnen het huis (Den Besten, personal communication, 11/03/2005)

I have nothing insightful to offer as to these Dutch puzzles, but I take the strict match between the first three columns of the lists in (63) and (69) to be a strong indication that Dutch and English complex locative prepositions involve the same underlying structure. Keeping things simple, this would mean that a morphologically complex element like *buiten*, in the context of the bracketed sequence in sentence (71a), minimally requires the structure in (71b):

(71) a. Hij staat [buiten de cirkel]
He stands outside the circle
'He is standing outside of the circle.'
b. $[_{P1P}\ [_{P1}$ B $[_{FP}\ [_{F}$ uit + en $[_{IP}\ [_{DP}$ de cirkel$]\ [_{I^\circ}\ t_{uit+en}\ [_{NP}\ t_{uit}]]]]]]]$

In (71b), the complex (head) *uit-en*, consisting of the lexical head N, which has adjoined to the head of the predicate phrase (I°), thus realizing P_2, subsequently inverts to a position to the left of the $DP_{[RO]}$ *de cirkel*. I further propose (as before) that the morphologically complex form *buiten* results from the morphological merger of the inverted form *uit-en* and the selecting element *b-*, which realizes P_1. I conclude from this that locative expressions such as in (71a) involve predicate (head) inversion. This conclusion awaits further confirmation, and I hope to come back to the Dutch complex prepositions in future work.

4.4. Arriving at Romance

While the Dutch situation may look somehow obscure, the Romance facts transparently support the proposed analysis in terms of predicate (head) inversion. Consider the following examples from Italian (72a) and French (72b–c):

(72) a. accanto al letto (Italian; Mauro Scorretti personal communication)
b. à côté du lit (French)
c. en face de la maison

A possible reconstruction of the complex Italian preposition *accanto* is that it derives from the adposition *ad*, roughly corresponding to 'at', and *canto* 'side'.[21] If this is the right characterization, then *accanto* involves a sequence of P_1 and P_2 (similar to English *beside*) and manifests predicate (head) inversion in which the element P_2 moves to Fº via Iº. This leads us to propose representation (73) for (72a):

(73) $[_{P1P}\ [_{P1}$ ad $[_{FP}\ [_{F}$ canto + a $[_{IP}\ [_{DP}$ l-letto] $[_{I^\circ}\ t_{canto+a}\ [_{NP}\ t_{canto}]]]]]]]$

In terms of Kayne (1994) and much related work, this analysis makes sense particularly when it comes to the French examples (72b–c) and related cases. Here again, I propose that such French sequences reduce to cases of a P_1–P_2 articulation, where P_2, *côté* (or *canto* in Italian) originates from inside the predicate structure and moves past the subject of the predicate, dragging along the inflection, which in French is expressed by *de*. According to this view, (72b) has the representation in (74):

(74) $[_{P1P}\ [_{P1}$ à $[_{FP}\ [_{F}$ côté + de $[_{IP}\ [_{DP}$ le lit] $[_{I^\circ}\ t_{côté+de}\ [_{NP}\ t_{côté}]]]]]]]$

The fact that, in this context, lexical items such as *côté* cannot be modified and cannot take determiners in French supports the view that they are heads and therefore underscores the analysis proposed here. I further propose that, in some cases, the phonological merger of the determiner *le(s)* and the preceding P_1 element *de* gives rise to the forms *du*/*des* in French (or *al* in Italian). That this merger does not affect the feminine determiner *la* (e.g., à *côté de la*/**du maison*) suggests that it is indeed a phonological process. This ends our journey.

5. Baggage claim

This chapter shows that, in certain locative phrases, the preposition encoding direction/path selects a truncated possessive phrase or a predicate phrase in which the ground is expressed by a reference object. This reference object ($DP_{[RO]}$) is the subject of the predicate and its part that expresses the location is embedded in the complement. The head of the part phrase incorporates into a higher functional head leading to P_1-$DP_{[RO]}$-P_2 sequences in certain Kwa languages. In other Kwa and Chadic languages, however, P_2 moves past the $DP_{[RO]}$ and drags along a possessive inflection, leading as such to P_1-P_2-Poss- $DP_{[RO]}$ sequences. The discussion of facts from Sranan then shows that English/Dutch (Germanic) and French/Italian (Romance) are well-behaved West African languages.

Notes

This chapter draws on material that originally appeared in my article "The Category P: The Kwa Paradox" in *Linguistic Analysis* 32: 615–46. The conclusions there are reviewed in

section 2. This extended version was presented at the Venice Workshop on Prepositional Phrases, at the Utrecht Conference on Spatial Ps, at a Geneva research seminar, at an ACLC lecture, and at a University of Chicago linguistics colloquium. I thank the audiences at these events for their comments and questions. I am also grateful to Hans den Besten, Guglielmo Cinque, Boban Arsenijevic, Mauro Scorretti, Norval Smith, and Malte Zimmermann for their valuable comments and suggestions on the facts about Germanic, Romance, Slavic, and Chadic languages.

1. Gbe is a subgroup of Kwa languages that are spoken on the coast of Ghana, Togo, and Benin and in part of the Ogun and Lagos states of Nigeria (Capo 1991).

2. Talmy (2000, 196, ff) argues that "a major group of space-characterizing linguistic forms makes appeal to a ground object's having some form of asymmetry, or biasing in its structure. Either it has structurally distinct parts—parts that in themselves are distinguishable from one another and can form a basis for spatial discriminations—or it has some kind of unidirectionality." According to this characterization, therefore, the ground may be complex in the sense described in this chapter in that it involves a reference object whose part is used to localize the figure.

3. For ease of discussion I refer to this structure as IP, but see Bowers (1993, 2001), Kayne (1994), Den Dikken (1995, 1998, 2006), and much related work for discussion.

4. Even though the analysis proposed here is compatible with Den Dikken's (1998, 2006) analysis of predicate inversion, it must be noted that in his work, the predicate phrase embedding the subject and the phrase acting as predicate is a small clause that occurs as complement of the inflection phrase. According to this view, the base structure of a possessive construction is as follows: $[_{IP}$ [I $[_{SC}$ Possessum $[_{XP}$ Possessor]]]], where the possessum is the subject of the small clause, and the possessor acts as predicate (Den Dikken 1998, 195). In terms of Den Dikken's analysis, the Gungbe facts discussed here could be analyzed as involving predicate inversion followed by inversion of the possessor over the possessum. As usual, the problem with such a view is that Gungbe does not provide immediate (morphosyntactic) support for it. However, I do not consider this an argument against Den Dikken's analysis. Instead, I stick to the minimal structure in (1d) for the sake of clarity.

5. This last property clearly distinguishes P_2 from determiners that also appear to follow the noun in Gbe (see Aboh 2004a, 2005).

6. See Aboh, Ameka, and Essegbey (2002) for discussion on the development of P, and Aboh (2003, 2009) and references cited there for discussion on verb series.

7. This analysis makes the Kwa elements of the type P_2 (including the genitive marker *sín)* superficially comparable to English genitive *'s*, with which they share the same syntactic head position.

8. If we were to adopt a theory of grammaticalization along the lines of Roberts and Roussou (2003), we would conclude from this that the incorporation of N into I paves the way for the emergence of a new category, P_2. According to this view, grammaticalization is seen as (i) movement of a lexical category out of the lexical domain to the functional domain and (ii) the ability such a lexical item acquires to first merge in the functional domain. The same reasoning can be (and has been) made to account for the development of prepositions from verbs in West African languages (e.g., Lord 1973, 1993).

9. Both Igbo and Degema (Kwa) appear to display the pattern P_1-P_2-DP (Carrell 1970).

10. The glosses of the Hausa examples are mine, and the translations are adapted from Newman's (2000) and Jaggar's (2001) own translations.

11. The distinction I am making here between the free preposition and the genitive marker is comparable to that often made between the English preposition 'of' and the genitive 's in possessive constructions such as "John's book" versus "a book of John's," where the latter sequence involves predicate inversion (Den Dikken 1998).

12. Note, however, that the French example in (57b) superficially differs from the English one in (56b) in that the inverted predicate can be preceded by the determiner *le* 'the' or the demonstrative *ce(t)* 'that'. I take the French *le* vs. *ce(t)* alternation to be related to focusing within the DP and to derive from a distinction made by Corver (2004) in terms of predicate fronting vs. predicate inversion (Aboh 2004b). In addition, the following noun, *médecin*, cannot be preceded by a determiner, unlike in English.

13. Corver (2004) has also proposed to view the following Germanic and Romance sequences or prenominal adjectives as instances of predicate inversion:

(i) arme-e-ik! (Corver 2004, 157)
poor-e I
(ii) pauvre de moi
poor of me
'poor me'

14. The same holds for the English example in (57a). A case that looks strikingly similar to the Hausa situation and strengthens this line of thinking is the inflectional ending *-e*, which attaches to Dutch attributive adjectives but not to predicative adjectives. Compare the following examples:

(i) Deze appel is mooi.
(ii) een mooi-e appel

These examples are parallel to the Hausa examples of predicative adjectives (54) and attributive adjectives (58b).

As often discussed in the literature, this inflectional ending does not attach to attributive adjectives modifying indefinite singular neuter nouns. The distribution of the inflectional ending *-e* has led to a number of proposals in the Dutch literature. However, one analysis that is worth mentioning in the context of this discussion is that of Corver (2004, 161n15), who, following the predicate inversion analysis, suggests that *-e* "is a small clause head whose movement enables structural domain extensions (for reasons of locality, i.e., X-to-F movement) or lexicalization of operator-heads." While supporting the analysis I have proposed for Hausa, Corver's (2004) analysis of Dutch adjectival inflection further indicates that these facts are common to languages with predicate inversion. According to this view, the English example in (57a) differs from attributive adjective sequences in Hausa and Dutch only in that there is no overt manifestation of INFL in such contexts. I hope to return to this issue in future work (see also Corver 2006).

15. Sranan includes other elements of the type P_2 such as *tapu* 'top, on', *baka* 'behind', *fesi* 'before'.

16. Scots equivalents of certain English prepositions are illuminating: a-b-low (below); a-b-uin (above); a-side (beside); a-neath (beneath); a-hint (behind); a-fore (before), a-b-oot (about). I thank N. Smith for pointing to these facts.

17. Norval Smith (personal communication, 11/02/2005) also mentioned to me that in the context of contrastive focus the complex preposition 'onto' can be realized as 'to + on' as in the following example: 'We moved the meeting from behind$_{[Foc]}$ the veranda to on$_{[Foc]}$ the garden.'

18. A point not dealt with here involves the implications of the proposed analysis for expressions such as *at the side of, by way of, by reason of, on account of*, and *because (of)*, which sometimes introduce adjunct clauses.

19. I thank Hans den Besten for providing me with these data and for answering my Gbe/Kwa-oriented questions about Dutch.

20. Speaker judgments vary in this respect, and not all prepositions behave similarly. According to Hans den Besten (personal communication, 11/03/2005), *Hij komt van binnen**in** het huis* lit., 'he comes from in inside the house' sounds better.

21. I thank Mauro Scorretti for mentioning this to me.

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8

WERNER ABRAHAM

Misleading Homonymies, Economical PPs in Microvariation, and P as a Probe

1. The point of departure: Three distributional classes of P

It is customary to classify adpositions, and pre- and postpositions in particular, into lexical, governed, and grammatical Ps (Rauh 1993, 2002, 3ff.).

(1) lexical:
   a. The professor put the books [*on the shelf*]
   b. The car parked [*behind the bus*]

(2) governed:
   a. He relied [*on their promises*]
   b. Mary was irritated [*about the delay*]

(3) idiomatic:
   a. He bought the car [*at a good price*]
   b. The boy answered [*with a choked voice*]

The labels used for the three classes in (1)–(3) have been chosen to express that:

(4) a. "lexical" has a clear spatial (or derived temporal) meaning and, consequently, has a full set of spatial features; its grammatical status may be both complement and adjunct; a lexical P has theta features, as well as quantifier features;
   b. "governed" Ps have a reduced set of features comparable in many ways to other grammaticalized categories; in particular, they are used to relate to governed and case-bearing DP/NPs—they are in construction with DP/NPs to form complements of lexical heads, and they are selected ("governed" by the categories V, N, and A) by these heads just like morphological cases; they have neither theta features nor quantifier features; all of this supports their analysis as morphological—that is, inherent (not locative)—case forms;

c. "idiomatic" Ps are adjuncts, not complements, that are not spatially defined (spatial feature bearing) at all; like governed Ps, they have neither theta features nor quantifier features.

The following distributional tests substantiate this division (Rauh 2002, 16). Governed Ps cannot license determiner-like operators as in (5), quantifier-like elements as in (6), or adjuncts as in (7):

(5) a. My place of birth lies [*right/somewhere over* this hill] . . . lexical P *over*
b. *His father has no influence [*right/somewhere over* him] . . . grammatical P *over*

(6) a. My place of birth lies [*all the way over* this hill] . . . lexical P *over*
b. *His father has no influence [*all the way over* him] . . . grammatical P *over*

(7) a. My place of birth lies [*over* this hill *in a hidden location*] . . . lexical P *over*
*b. *His father has no influence* [*over him even in his dreams*] . . . *grammatical P over*

In the "a" illustrations the P constituents are licensed by referential arguments. In other words, governed P(P)s do not denote P-specific referents, in contrast to lexical P(P)s. From this it follows that any [$_{PP}$ P [$_{DP}$ D N]] cannot be taken up by a coordinated coreferential proform. Cf. (8):

(8) a. My place of birth lies [*on this hill*]$_i$, and I still live [*there*]$_i$
b. *I relied [*on his promise*]$_i$ on, and she relied [*there*]$_I$ as well

Notice that governed Ps are not theta marking their complements. Since, however, lexical heads are thematically related to their complements, an awkwardly ambiguous grammaticality follows from this discrepancy. See (9) (similarly Rauh 2002, 17): The lexicals *influence* and *wallet* and *promise* and *table*, respectively, are sortally incompatible, while there is nothing wrong with the selections between the prepositions and their respective complements, *over his wallet* and *of her table:*

(9) a. ?Father has no influence [*over his wallet*]
b. ?His promise consisted [*of her table*]

The claim that grammatical, governing Ps need be analyzed as morphological case receives support from the following distributions, which make use of the fact that PPs are islands for anaphoric coreference. We expect that bare case-bearing complements are subject to anaphoric coreference restrictions that are on a par with grammatical prepositional objects but not on a par with lexical PPs. This bears out:

(10) a. He$_i$ combed [$_{DP}$ his hair]
b. He$_i$ combed [$_{DP}$ himself$_i$/*him$_i$]
c. The group$_i$ laughed [$_{PP}$ about themselves$_i$/*them$_i$]
d. The group$_i$ sat under a big rain shelter [$_{PP}$ above *themselves$_i$/them$_i$]

Clearly, case differs from a governing P to the extent that prepositions themselves assign a complement, which case does not.

The best cross-linguistic evidence for the latter classificatory distinction is the fact that dative shift is not possible for all English verbs. In German, for example, dative replacement by some P-governed DP is not possible at all, mainly because P+DP in the regular case yields a reading different from DATIVE-DP. In general, the prepositional phrase has a higher intension (has more semantic features) than the pure case phrase. English *to*(+DP), on the other hand, is void of spatial feature to the extent that it can be part of dative shift for a wide number of predicates.

This chapter accesses both P categories: lexical, as well as grammatical. From the array of questions and inducive ideas, I pursue two main topics. The first is the alleged double case governance of German prepositions (dative vs. accusative) and their different licensing conditions. I claim that there is no such thing as one common licenser for two P cases. The other is that a far-ranging homonymy in the English prepositional lexicon has obscured the distributionally obvious distinction with spatial adverbs. I demonstrate that German has a more direct, visible access to such categorial distinctions.

The main point of this chapter is that lexical prepositions and their higher projections (such as prepositional adverbials; cf. German *darauf* 'thereon', *hinüber* 'over there', etc.) may be seen as probes for their "governing" verbs, adjectives, and nouns merged higher than vP, whereas grammatical(ized) prepositions merge early within VP. This way the distinction between spatial (locative) case and grammatical (nonspatial) case, much in the sense of Hungarian or Finnish, can be accounted for also in a clearly syntactic fashion. This distinction appears to lead directly to the idea that feature-rich spatial PPs and locative cases are subject to the semantic V-nearness corollary, whereas feature-poorer Ps and purely grammatical cases are not.

2. Syntactic-lexical derivation

2.1. The higher semantic intension of the directional accusative

Morphological case plays a crucial structural role in German PPs, and the main question concerns the way in which case and linear (pre- and post-)positions contribute to the event structure of the clause. Some (e.g., Jackendoff 1973; Zwarts 2005) maintain that this contribution is neither direct nor syntactic but that its character is indirect and compositional and involves the interplay of the partially spatial properties of verbal predicates and PPs (involving spatial categories of Place and Path). As a consequence, there is the belief that nothing in P-governing V licenses a certain case. Rather, a local-directional constituent as *in den.*ACC *Saal* 'into the hall' or its pronominal verbal particle *hin-* denotes a set of paths (or vectors, in Zwarts's terminology), whereas the local-stative *im.*DAT *Saal* 'in the hall' denotes a set of stative places. This denotational difference leads to telic *in den Saal tanzen* 'dance into the hall', on the one hand, and atelic *im Saal tanzen* 'dance in the hall', on the other hand. This approach is consonant with the general assumption that syntax and semantics are divergent in the range of categorial inventories, as well as formal

processes. In contrast, this chapter takes the position that syntax and semantics need to be convergent to the extent that categories of semantic import can be introduced in syntax. These categories are subject to formal syntactic processing much in line with, for example, minimalist syntax. In other words, such categories and hierarchical structural descriptions make use of case-licensing conditions, lexical vs. functional categorizations, and structural place and derivational time of merge in the sense of minimalism (Kayne 2005; Noonan 2005).

Although case distinction plays the crucial discerning semantic role, case alone does not appear to be sufficient to do the job:

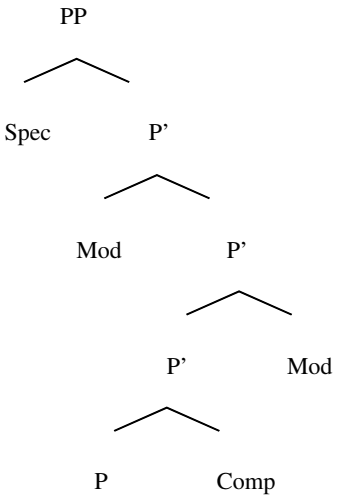
(11) a. *unter der*.DAT *Brücke hindurch (laufen*.MOTION/**stehen*.STATIVE)
under the bridge there-through (run/*stand)
b. *aus dem*.DAT *Haus heraus (laufen*.MOTION/**stehen*.STATIVE)
out of the house thereout
c. *hinter dem*.DAT *Wandschirm hervor (laufen*.MOTION/**stehen*.STATIVE)
from behind the windscreen thereout

Notice that the two local components in (11a–c) are not coreferent: The paths denoted by *hindurch, heraus*, and *hervor* are not identical with the PPs *unter/aus/hinterDP.* Furthermore, the local constituent as *unter der Brücke hindurch* 'under the bridge there-through' does not contain any accusative to mark it telic directional. Yet, it is telic directional on the strength of the adverbial *hindurch* and, in particular, *hin-*, which appears to be linked to the semantic categories PATH + GOAL, with SOURCE remaining hidden. Likewise, *aus dem Haus heraus* 'out of the house thereout' and *hinter dem Wandschirm hervor* 'from behind the curtain thereout' signal motional direction with SOURCE + PATH but without any accusative. What, then, is the underlying categorial link for telicity and directionality? Clearly, it is not case, at least not by itself. The fact that the postposed adverbials (*hindurch, heraus, hervor)* all specify semantic locality and are not coreferent with the preposed prepositional constituents forces the conclusion that motional directionality and telicity are necessarily triggered not by prepositions but by local adverbials in consonance with the motion vs. nonmotion meaning of the verb (*unter der Brücke hindurch *stehen* 'under the bridge therethrough *stand').

The preceding sketches the questions I am discussing. This is how the chapter is organized. Subsections 1.1–1.3 take up syntactic questions of German prepositions, their constituency, and licensing problems. I will demonstrate that the morphologically richer German formally dehomonymizes a considerable amount of prepositional data that English leaves in formally converged form. In section 2 directional prepositions are discussed with respect to their visible and silent variants and adverbial companions. Section 3 takes up related questions like whether or not prepositions govern both dative and accusative complements as canonically assumed in the grammatical tradition of German. The traditional assumption is repudiated for a number of solid distributional probes, above all since the optional verbal particle *hin/her-* always disambiguates the two case options. The end of section 3, as well as Section 4, is dedicated to dialectal variation under several different criteria, among which, foremost, are structural economy in direction vs. stative location and, in particular, the rising economy of Path and stative location signals.

Clearly, the potential for lexical items to form heads of complex constructions depends on their lexical properties. Furthermore, it is these properties that determine the licensing mechanism of constituents within maximal projections. Only the first type, lexical/spatial P, instantiate fully the general P structure as in (1a–b), (5a), (6a), and (7a). See (12) for the general P structure.

(12)



The specifier, Spec, hosts measure phrases such as *two yards* or *right;* the modifier, Mod, is the structural position of AP such as *high* and *far;* and the complement can be instantiated by NP, CP, PP, and null. Only the first, the lexical, type has the potential of echo extension (pronominal adverbs) in German (and Dutch) as in (13) (Van Riemsdijk 1990; Noonan 2005). Compare (a) and (b) in (13)–(14):

(13) a. Er springt auf den Stuhl **drauf**
he jumps on the chair thereon
b. Er hält viel auf seinen alten Mini ***drauf**
he holds much on his old Mini thereon
'He is very addicted to his old Mini (car)'

(14) a. Er fliegt über den Wolken **d(a)rüber**
he is stuck in the traffic therein
b. Er spricht über Wien ***darüber**
he speaks about Vienna thereabout

See also (17). No doubt the local echo expansion depends on the features that are attributed to P in the local PP in the first place. The (b) versions are not part of the type illustrated in (1) but appear to belong to (2) or (3). Notice that English lacks the possibility of echo PPs, as do the Romance languages.

There are other important typological differences. Consider the PP of English dative shift, which is not possible with particular English verbs. German, more or less ubiquitously, does not permit dative shift since P+DP in the regular case yields

a reading different from DATIVE-DP (Abraham 2000). Furthermore, datives in German are equivalent to PPs in Dutch, its genetically closest neighbor, and the continental Scandinavian languages are related in a majority of cases by a number of different lexical prepositions and specific V meanings: for example, goal, beneficiary vs. comparative dative (with *vorziehen* 'prefer') or instrumental dative (with *unterziehen* 'subject to'). The list cannot be exhaustive at this point (see McFadden 2006; Meinunger 2006; Cook 2006).

From this array of questions and inducive ideas, the present chapter pursues two subtopics. The first is concerned with the alleged double case governance of German prepositions (dative vs. accusative) and their different licensing conditions. I claim that there is no such thing as one common licenser for two P cases. The second subtopic is concerned with directional PPs in nonstandard varieties of German and what processes of economy on their form are executed. The two topics share the following common denominator: What semantic subcomponents can be distinguished in the array of German datives in opposition to the (P-mediated) accusative?

2.2. Syntactic extensions for P: PP → P, as well as PP → P-PP??

Prepositional phrases are traditionally taken to expand measure phrases and modifiers as in [$_{\text{MEASP}}$ *two meters* [$_{\text{MODP}}$ *deep* [$_{\text{PP}}$ *below* [$_{\text{DP}}$ *the bottom*]]]]. Jackendoff (1973, 345, 348) recognizes PP → P, as well as PP → P-PP, which, to the best of my insight into the literature, has remained unchallenged. Compare Svenonius (2005). Apart from the fact that this does not make sense according to projection theory—any P must expand for a complement, and if it does not on the surface, then it must be implied and accounted for at some level of representation—German does not align empirically in any single case with Jackendoff's illustrations. This is so for the very reason that that all Pos are SpecPs for two primary reasons:

(i) The lexical and syntactic equivalents of the alleged Ps like *afterward, before, inside, away*, and *down* are complex adverbs in German without the looks of Ps.
(ii) They never subcategorize for NP or DPs—which is a precondition for P-status.
(iii) They do not stack at all for PP → P-PP, that is, doubly or even higher (Jackendoff 1973, 350), except for one individual P: lexical *von*(+DATIVE). See the later discussion.
(iv) Where, in English, such alleged Ps are identical in form with Ps, their grammatical function is not: They combine with the simple verb lexical entries in their own right and behave like (separable) verb particles (word focus; separable from the V stem, always staying in V last when the V stem moves to C or I/T in matrix clauses). Examples of such non-Ps are *up, on*, and *down.*

See the following illustrations:

(15) a. Harpo rode the horse out of the barn
b. Sam disappeared down into the darkness

(16) a. *Harpo rode the horse out/of the barn
b. *Sam disappeared down the darkness

Thus, PP → P-PP would represent any of (15a,b) only if also (16a,b) were correct, but they are not. *Out of* is just one single P, and *down* in (15b) is no P in the first place. See the German and Dutch equivalents in (17):

(17) a. Harpo ritt den Gaul aus dem Stall heraus
H. reed het paard (uit) de schuur (er)uit
b. Sam tauchte in die Dunkelheit hinab
S. dook de duisternis in

Clearly, distributional facts of German and Dutch cannot be taken to simply transfer to English also. However, this methodological premise holds for the comparative takeover only, not for the conclusions drawn from the monolinguistic comparison between (15) and (16). See also (18) (from Jackendoff 1973, 345f.; his (1a–c)):

(18) a. Chico ran {into the opera house
{in
b. The elevator operator kicked Groucho {down the stairs
{downstairs
c. He didn't play the harp {after the first act
{afterward
{before Zeppo walked in
{before
{inside the hotel
{inside

Jackendoff's line of argument would be correct only if *in, downstairs, before*, and *inside*—i(ntransitive)Ps in his terminology—were Ps. However, they clearly are not. In fact, my claim here is that iP does not exist as a category, not in English or anywhere else. Jackendoff's iPs are in fact both morphemic variations on Ps and adjuncts not in a syntactic head-dependent relation as Ps are. If Ps are head governed, adjuncts like *onward* (cf. the P *on;* Jackendoff 1973) are VP governed, thus not head governed. They can thus not be in an extension PP → P both for empirical reasons and for projection reasons.

There are seeming exceptions to (iii) for German: There are no combinations other than those with *von*+DATIVE governing Ps. Why only *von?* Why only with the dative? Does the case-governing force of *von* cut through that of the dominated, linearly second P? How is that to be thought of syntactically? Notice the lexical theta property: *Von* is always a SOURCE-theta role. Obviously, since the dominated doubly governing Ps resort only to DATIVE government as well (see '*ACC' later), there is no directional ACCUSATIVE licenser involved (as argued in Abraham 2003). Thus, since the choice of the marked ACCUSATIVE is not triggered, the default case for Ps, DATIVE, surfaces. See also the discussion of such facts for English *from behind/inside/below/beyond/in front of/above/six miles up* by Svenonius (2005, 7, his example (33)).

Why is it only *von/from* that subcategorizes for other Ps? This applies to local, as well as temporal, uses of P: See German *nach* 'after' in (19):

(19)	*von*	*über*	DAT	*ACC
		hinter	DAT	*ACC
		unter	DAT	*ACC
		auf	DAT	*ACC
		neben	DAT	*ACC
		an	DAT	*ACC
		nach	DAT	—
		vor	DAT	*ACC
			zwischen DAT	*ACC
		*durch	—	*ACC
		* *zu*	*DAT	—

Clearly, PathP instantiated by *von* dominates (DegrP, ModP, and) PlaceP for *über,* and so on (in line with Svenonius 2005 and Noonan 2005 for a number of different languages). Both tPs are theta bearers, and both license lexical projections of their own.

However, it is doubtful that the items in (19) are really optimal forms in German. My hunch is that even what I called the exception of PP > P+PP in German is not indigenous. See (20), which is no doubt preferable:

(20)	*Der Flieger taucht von über dem Berg auf*	=	*taucht über dem B. auf*
	the plane appears from over the mountain		appears over the mountain
	taucht von hinter dem Berg auf	=	*taucht hinter dem B. hervor auf*
	appears from behind the m.		appears behind the m. thereout
	kam von hinter dem Berg	=	**kam hinter dem Berg hervor*
	came from behind the m.		came behind the m. therefrom
	stammt von hinter dem Berg	=	**stammt hinter dem Berg hervor*
	originates from behind the m.		originates behind the m. therefrom
	von unter der Brücke	=	*unter der Brücke hervor/heraus*
	from under the bridge		under the bridge therefrom/-out
	von auf dem Berg		*vom Berg herunter*
	from on the mountain		from the mountain thereunder
	von neben der Scheune	=	*neben der Scheune hervor/heraus*
	from next to the barn		next to the barn therefrom/-out
	von an der Seite des Busses	=	*an der Seite des B. hervor/heraus*
	from at the side of the bus		at the side of the b. therefrom/-out
	von nach dem Zugsende	=	*hinter dem Zugsende hervor*
	from after the end of the train		after the end of the train therefrom
	von vor dem Palast	=	*von der Vorderseite des P.s her*
	from in front of the palace		in front of the palace therefrom
	von zwischen den beiden Lastwägen	=	*zw. den beiden L. hervor/heraus*
	from between the two trucks		between the two trucks therefrom

*<u>*von durch*</u>*
from through
* <u>*von zu*</u>
from to

To all appearances, *von* is always less preferable to a verbal particle with *her-*. Both elements have the same speaker orientation: from a speaker-distant place on the path toward the speaker. Let us take the two exceptions to this generalization with the nonmotion predicates *kommen* and *stammen* 'come, originate': In both cases, *hinter dem Berg* is like a proper local name rather than a complex PP. As soon as *kommen* is taken as a locational motion verb proper, *kam hinter dem Berg hervor* 'came behind the mountain therefrom' is the correct version. No such ambiguity exists with *stamen* 'originate' simply because the predicate disallows a motion verb reading. From this one can conclude that Paths may begin in English with a P as in (19a) but not in German, as in (19b):

(21) a. English: PLACE-Prep > PATH-Prep > PLACE-Prep
b. German: PLACE-*Prep > PATH-Prep > PLACE-Prep

Furthermore, there is the lexical contingency upon the predicate at work (for *kommen* 'come' in the sense of *stammen* 'descend from, originate'), which blurs the general conclusion for German that *von* 'from', which is the first P in linear order. However, we saw earlier that this is due to a lexical meaning that disallows a locational reading. We can thus say that P *von* before another PP is phonetically silent, if not to be replaced by verbal particle status in the first place.

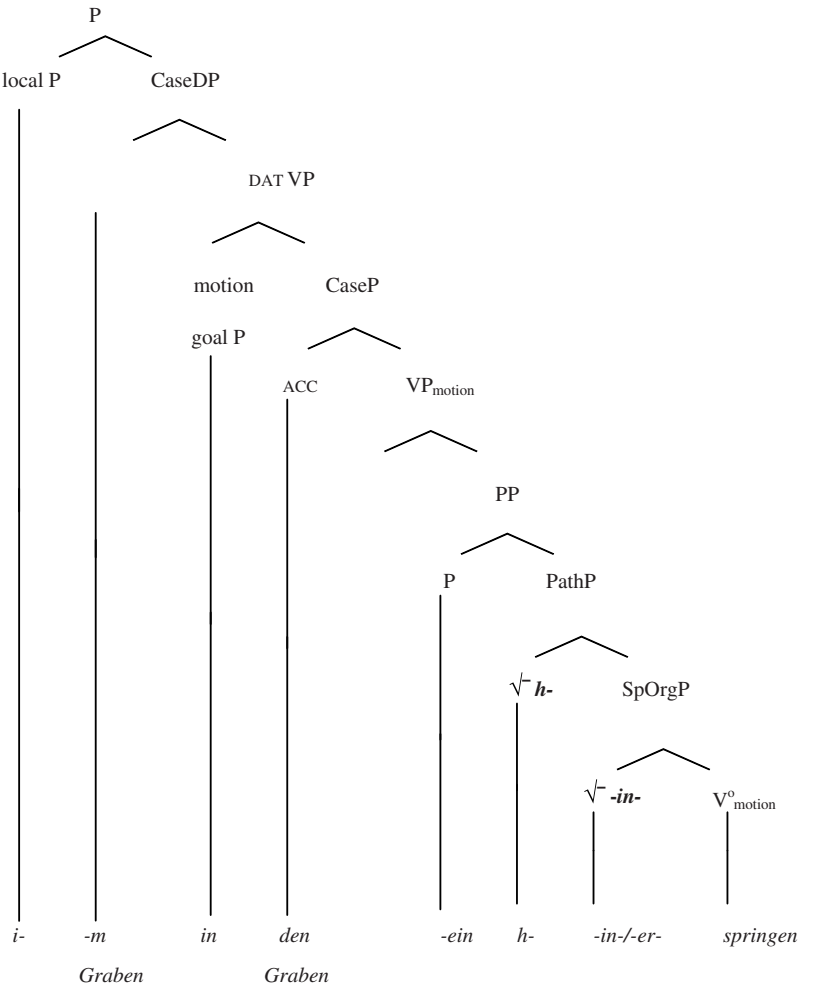
Is there a licenser such that the direction case marking in the doubly governing Ps is triggered? There is no P to do this, to all appearances, but there is the verbal particle *hin-* (far less frequently also *her-*). See (22). In order to serve these functions, *hin/her* and P must remain separated in these cases. In other words, *hin* remains a verbal particle (to any verb of movement such as *laufen, springen, rennen, hüpfen, fahren, schwimmen*, and *tanzen: hin*$_i$*tanzen über die Tanzfläche in/zu*+DP$_i$ 'DIR.dance across the hall floor').

(22)	*hin-/her-*	*über*	*DAT	ACC
	*her-	*hinter*	*DAT	ACC
		unter	*DAT	ACC
		auf	*DAT	ACC
	*her-	*neben*	*DAT	ACC
		an	*DAT	ACC
		vor	*DAT	ACC
	*her-	*zwischen*	*DAT	ACC
	*her-	*durch*	—	ACC
		zu	DAT	—

Example (22) shows that *hin-* and *her-* license direction and telic goal and, consequently, case in their own right, namely the accusative (to the extent at least that the obligatory intervening P allows for accusative). Notice that, in terms of

lexical-syntactic underspecification, the directional verbal particles *hin-* and *her-* can be broken down into the direction element *h-* and the speaker-orientation elements *-in-* vs. *-er-* for "speaker distancing" and "speaker proximity creating," respectively. The composition and licensing process is broadly speaking the following. See the two root categories, h- and -in-, in the structured categorial tree (23) for *im Graben springen* 'in-the-ditch jump' vs. *in den Graben hineinspringen* 'into-the-ditch jump' [SpOrgP = speaker-orientation phrase].

(23)



Furthermore, V° rises to VP and picks up the verbal particle *h-in/er-ein,* which in turn licenses the accusative case. The atomic elements *-in-* and *-er-* have homonymic counterparts *in(zu),* with the silent direction element, and the verbal prefix *er-*. For the latter compare the perfective Vs *er-starken* iV 'grow strong', *-heben* tV 'find out', and *-folgen* iV 'result.' In all of such *er*-prefigated verbs, the semantic meaning component 'in the speaker's favor' or 'closing in on success' is inherent.

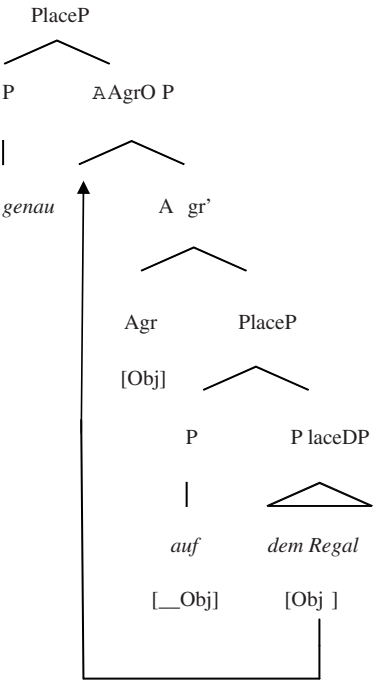
2.3. Licensing the directional accusative

To what extent can one say that P licenses case or that V licenses case mediated by P or that V licenses P but not case? Or, if we say that the accusative is a necessary concomitant of directional V+P, are there Ps that evade the accusative, and, conversely, are there Ps with a clear directional meaning while not governing the accusative? All of this exists in German (and Latin and undoubtedly other languages). How is all of this to be brought in line with licensing?

Let us say, then, that we have to distinguish theta licensing, case licensing, and probably also directional licensing. See the following randomly ordered examples:

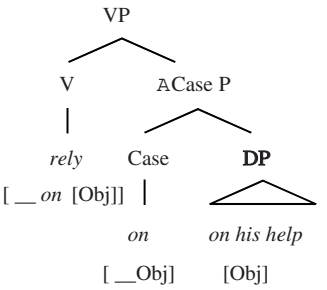
(24) post- or preposition licensing exemplified by German *entlang des.*GEN/*dem.*DAT / **den.*DACC *Fluss(es)* 'along the river' vs. *den.*ACC/**dem.*DAT/**des.*GEN *Fluss(-es) entlang; wegen des.*GEN/*dem.*DAT *Verbot(s)* 'because of the prohibition' vs. *des.*GEN/ **dem.*DAT *Verbot(s) wegen.*

(25) so-called doubly governing Ps in German license from different categories: from P directly with dative and stative locality—we call this the default theta and case marking of P, as opposed to V with accusative and direction and/or telic endpoint. See the following structured tree (abstracting from details) for the local-stative PP *genau auf dem Regal* 'right on the shelf' with *auf* 'on' theta and case licensing in its own right (i.e., without being licensed itself). I argue that directional *auf* 'on(to)' for *auf das Regal (hin)legen* 'lay on the shelf' is licensed differently, with the motion V acting as licenser.



Suffice it to say at this point that, whereas the German directional particle *hin*-(V_{motion}) 'there to' is the direction and accusative licenser, English has no such overt direction licenser. It is assumed that it is a silent category in English, surfacing as *to* only in *onto.*

(26) P can either theta license and/or case license in its own right, or it can do neither. In the first case, the licensing relation is V independent, which in turn means that V and P attract each other under semantic intersection. The latter P is usually specifying only a single grammatical (idiomatized) relation (as in *depend/rely on*, *consist of*, *angry about;* see differences such as German/Dutch *kämpfen um/vechten om* vs. English *fight for*).



In the majority of cases, Ps of this grammatical(ized) type disallow P-paradigmatic alternatives. There are few exceptions, which, however, carry their pregrammaticalizing motivation on their sleeves: *talk to/about*, *fight for/against* (Rauh 2002, 18).

What is the grammatical status of the preposition? Is there a common status of P in the first place? Rauh (1993, 2002) and Hentschel (2003) claim there is not. Rather, there are subclasses depending on how P is used. See (27a–d/i–iii):

(27) a. It is used lexically: *(sit) on the chair*
b. It is used abstractly as in idioms and highly grammaticalized usage, that is, 'governed': **(depend) on his mother;* in other words, while the lexical P in (i) theta-marks its complement, *the chair,* on the basis of its local meaning, *on* in (ii) does not.
c. It is used an adjunct as in *buy something at a good price;* they are not complements of lexical heads (i.e., they are not selected by the latter)
d. It has a clearly structural status in related languages as the (demoted carrier of the) instrumental in the Latin or Russian passive:
(i) *Milites Graeci superati sunt* Romanis$_{ablative}$
'The Greek soldiers were beaten by the Romans.'
(ii) *Gostinica była postroena francuz*ami$_{instrumental}$
'The hotel was built by the French.'
See, for a comparative variant, the prepositional instrumental in Polish (Hentschel 2003, 179):

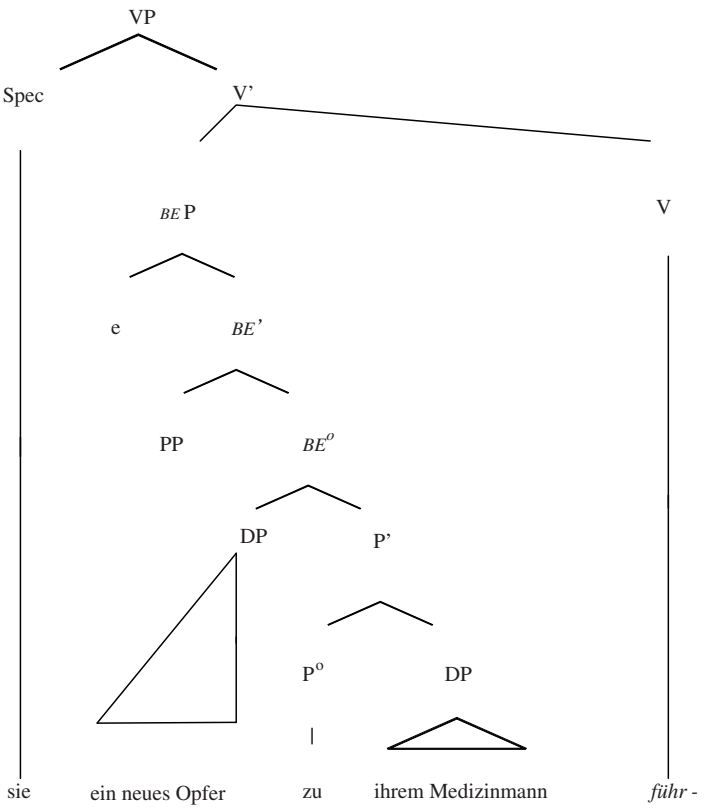
(iii) *Hotel zostal zbudowany przez Francuzów*
'The hotel was built by the French.'

Polish *prez* 'by', then, would be a structural preposition in the light of the fact that it always occurs with the passive instrumental. Accordingly, English *by* and German *von/durch* would be governed, structural case prepositions. Consider the so-called low dative in German, which, in fact, is an incorporated prepositional case:

(28) *Er zieht Wein.*ACC *Bier.*DAT *vor*
'He prefers wine to beer.'

This low dative co-occurs only with prefix verbs that are taken to be incorporated prepositions (Meinunger 2006, 94, 96; however, see the repudiating position in Cook 2006): *ausliefern* 'extradite', *aussetzen* 'expose', *entziehen* 'deprive', *unterwerfen* 'subject', *unterziehen, unterordnen* 'subordinate', *nachbilden* 'copy', *nachempfinden* 'adapt', *anlagern* 'adjoin', *vorausschicken* 'send ahead of', *vorziehen* 'prefer', *vorstellen* 'introduce', *zuführen* 'bring to', and a few others. Its structure is taken to be that in (29):

(29)



Meinunger (2006: 98) takes the generalized, cross-typological ditransitive structure to be of great advantage: [$_{VP}$ SUBJ [IO [DO [PP V(] V] V] V])

3. Syntactic semantics: Extensions of direction Ps—a microvariationist view

3.1. Ps and echo adverbials

There are also incorporations of these morphemes such as *hinüber, -unter, -auf, -durch*, and *-zu. hin-*, of course, is subcategorized for verbs of motion and licenses only accusative on the respective tP (Abraham 2003).

hin- also incorporates with the same set of Ps in intransitive status:

(30) a. *Er lief durch den.*ACC *Garten*$_i$ *(hin*$_i$*durch)*
he ran through the garden (therethrough)
b. *Er schwamm über den.*ACC *Teich*$_i$ *(hin*$_i$*über)*
he swam across the pond (thereover)
c. *Er stellte sich auf das.*ACC *Sofa*$_i$ *(hin*$_i$*auf)*
he stood onto the sofa (thereon)
d. *Er sprang in das.*ACC *Becken*$_i$ *(hin*$_i$*ein)*
he jumped into the basin (therein)

Furthermore, (30a–d) are all perfective predications to the extent that they imply (31a–d), their resultants.

(31) a. *Er ist durch den.*ACC *Garten*$_i$ *(hin*$_i$*durch)gelaufen* ⇒ *Er ist im Garten*$_i$ *(dr*$_i$*innen)*
he has through the garden (therethrough) run — he is in the g. (therein)
b. *Er ist über den.*ACC *Teich*$_i$ *(hin*$_i$*über)geschwommen* ⇒ *Er ist über dem T.*$_i$ *(dr*$_i$*üben)*
he is across the p. (thereover)
c. *Er hat sich auf das.*ACC *Sofa*$_i$ *(hin*$_i$*auf)gestellt* ⇒ *Er ist auf dem Sofa*$_i$ *(dr*$_i$*oben)*
he is on the sofa (thereon)
d. *Er ist in das.*ACC *Becken*$_i$ *(hin*$_i$*ein)gesprungen* ⇒ *Er ist im Becken*$_i$ *(dr*$_i$*innen)*
he is in the b. (therein)

Both the directional and the stative-local verbal particle often and quite idiomatically (but only optionally) are accompanied by an "echo" in the form of a pronominal adverbial as in *drüber*$_i$*tanzen über die Tanzfläche*$_i$ 'thereover$_i$dance across the hall floor$_i$', as well as in the locative cases (Noonan 2005). See the implicates to the right of the implication symbol in (31): *dr*$_i$*innen*, *dr*$_i$*üben*, *dr*$_i$*oben, dr*$_i$*innen.* These pronominal "echo" adverbials are locally A-bound, albeit different from reflexive anaphors to the extent that they also copy the theta status

of its coreferential bindee (much like the intensifying pronoun *selbst/ipse* 'self').

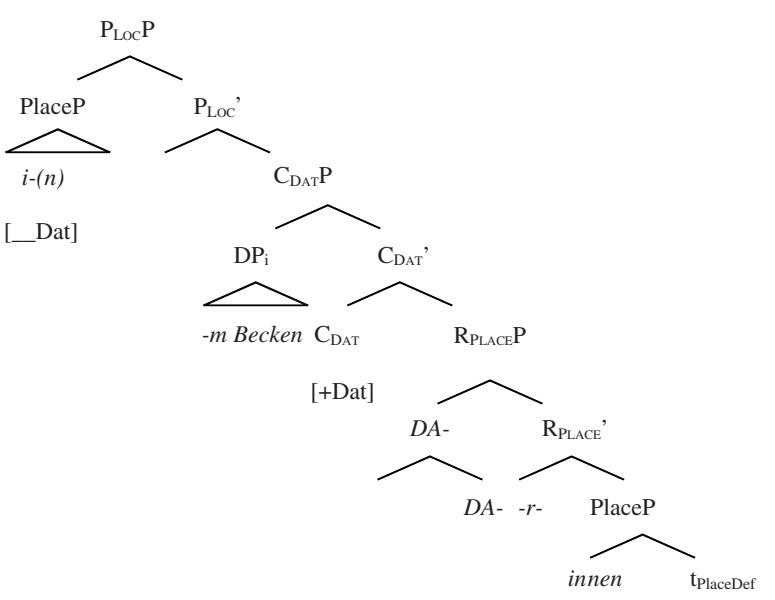
The echo adverbials ("shadow Ps," in Noonan's terminology; see Noonan 2005) of the place implications after the implication symbol show beyond a doubt that, counter to English (Jackendoff 1973; Svenonius 2005) and Dutch (Van Riemsdijk 1990; Koopman 1993), in German there are no intransitive[1] Ps due to their different adverbial morphemics: *dr/hinein*$_{\text{DIR}}$*-drinnen*$_{\text{LOC}}$, *drüber*$_{\text{DIR}}$*-drüben*$_{\text{LOC}}$, (*drüber*$_{\text{DIR}}$*-(dr) oben.* See also the nonhomonymy of P-*in* and the corresponding verb particle *(hin) ein-* (compare *hin-*in*).[2]

Following Inagaki (2002) for Japanese and Noonan (2005) for German, motion events are taken to crucially involve (32) and, consequently, (33):

(32) a. Rel_{PATH} > Path > Place > $\text{N}_{\text{RELPLACE}}$ (Inagaki 2002)
b. Dir > R_{PATH} > Path > Loc > R_{PLACE} > $\text{Place}_{\text{DEF}}$ (Noonan 2005)

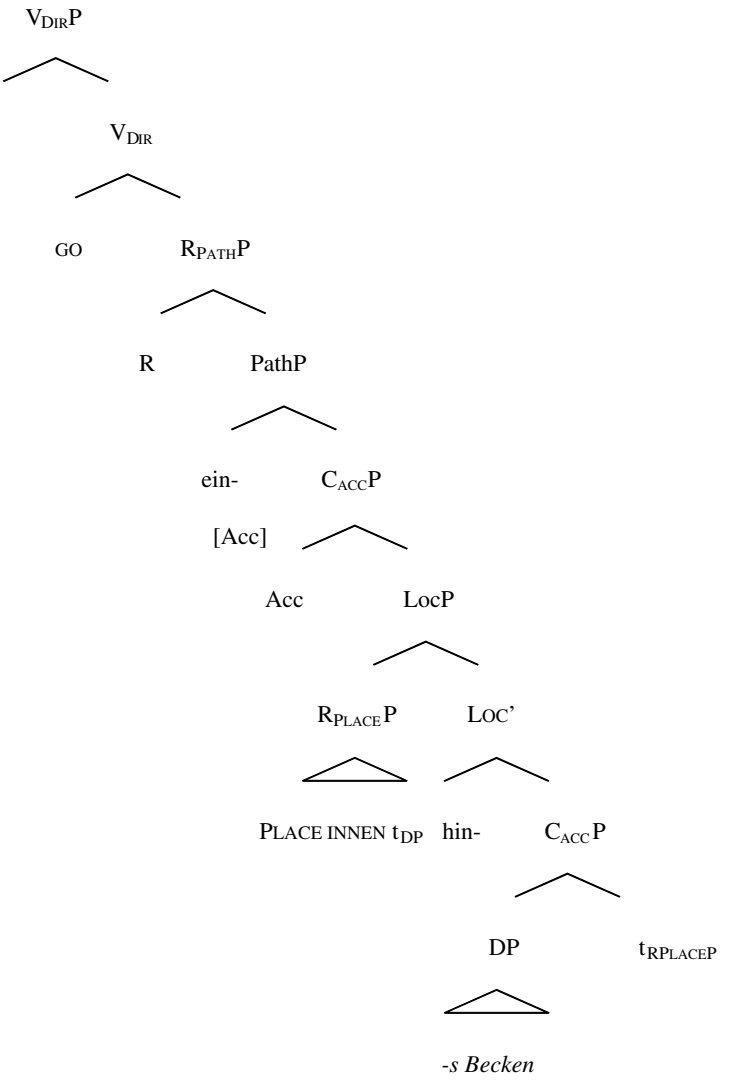
The structure representation for stative locational *in . . . drin(nen)* as in *Er ist <u>im</u> Becken*$_i$ *<u>dr</u>*$_i$*<u>innen</u>* 'he is in the pool therein' is (32).

(33)



The directional motion event *in . . . hinein* as in the illustration *Er ist <u>ins</u> Becken <u>hinein</u>* with a silent motion verb (like *go;* cf. Van Riemsdijk 2003) looks more complicated. See (34), again somewhat simplified:

(34)

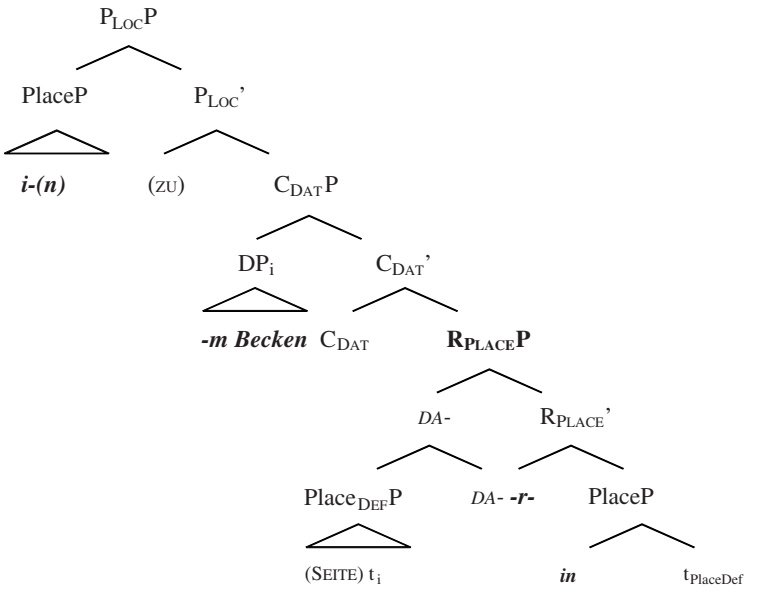


We have seen that covert, or silent, categories play a role in the structure of (34) and the likes. Let us pursue this a little more.

3.2. Silent stative-locational and directional P

The structured tree in (24) left out adpositions that appear necessary to satisfy semantic intuitions and cross-linguistic phenomena to the extent that some languages make overt elements that never appear in others. Think of *on(to), in(to)* lacking a direct reflex in German: *in(*zu), auf(*zu).* On the other hand, what appears as P in some languages is something else in others. English has no direct equivalent of German *hin-/her-* as verbal particles of direction. See *(zu)* in (34), as well as the silent motion verb *go* and the silent LocP PLACE INNEN in (33).

(35)



In addition, $R_{PLACE}P$ moves up into the Vdomain adjoining the locative pronominal *da-* in $SpecR_{PLACE}P$ (Noonan 2005). See (36) and compare it with (35):

(36) $[_{LocP}\ [_{PLACEP}$ in . . .] ZU $[_{CASEP}$ der $Kiste_i$ K $[_{RPLACEP}\ [_{PLACEDef}$ . . .]
-DA r- $[_{PLACEP}\ t_i$ in]]]] →
→ $[_{RPLACEP}$dr $[_{PLACEP}$in . . .]]. . . . . $[_{LocP}\ [_{PLACEP}$ in . . .]
$[_{CASEP}$ der Kiste K $t_{RPLACEP}$]]

4. There are no prepositions that govern both dative and accusative: P-case or V-case-P or VP-case-P?

Double government by a single grammatical category or part of speech (in this instance, the preposition) contradicts, in a very fundamental way, the natural principle that a single clausal part of speech should not be ambiguous with respect to its assignment. In other words, one should not encounter within the same word class subcategorization differences that are not *syntactically* (as opposed to merely *semantically*) justifiable. Taking into account all of this, I investigate the following hypotheses:

(i) There is no double government among prepositions.
(ii) Independently of any verb subcategorization, prepositions, as a class, govern the dative exclusively.
(iii) What appears to be accusative government by prepositions is not prepositional subcategorization. In other words, the "prepositional

accusative" as allegedly dependent on P is in fact a valence of and (as such) dependent upon motion verbs, more specifically of an overt or a covert deictic component of the verbal predicate.

4.1. Semantically motivated syntax: The distributional shibboleth

Any telic verbal expression of motion in German may—albeit it need not—be combined with a deictic directional anaphor. Verbs with such particle anaphors select the element containing the directional accusative as a verb-adjacent category. In contrast, the prepositional dative, when used with homonymous predicates, is an adverb that is not linked to the verb. In traditional parlance, it is not part of the valence of the verb. Only the accusative versions (37a–c) can be expanded by means of the directional deictic (DD) *hin-*.

(37) a. *Die Sportlerin schwimmt* ***im/ in den*** *Kanal.*
ART.NOM athlete(F) swim.3SG PREP.DAT/PREP ART.ACC canal
'The athlete swims in/into the channel.'

b. *Der Surfer gleitet* ***auf dem/ das*** *Wasser.*
ART.NOM surfer glide.3SG PREP.DAT/ PREP ART.ACC water
'The surfer glides on/onto the water.'

c. *Sie hüpft* ***im/ in das*** *Wasser*
3 F hop.3SG PREP.DAT/ PREP ART.ACC water
'She hops in/into the water.'

(38) a. *Die Sportlerin schwimmt* ***in den*** *Kanal*$_i$ ***(hin***$_i$**(ein)).*
ART.NOM athlete(F) swim. 3SG PREP ART.ACC channel (DD PREP)
'The athlete swims into the channel.'

b. *weil der Surfer* **auf** ***das*** *Wasser*$_i$ ***(<u>hin</u>***$_i$ *(*auf))glitt*
because ART.NOM surfer PREP ART.ACC water DD (PREP)glide.PAST
'because the surfer glided onto the water'

c. *Ob sie* ***in das*** *Wasser*$_i$ ***(<u>hin</u>***$_i$ **(ein)) hüpft*
whether 3 F PREP ART.ACC water (DD(*PREP) hop.SG)
'Did she hop into the water?'

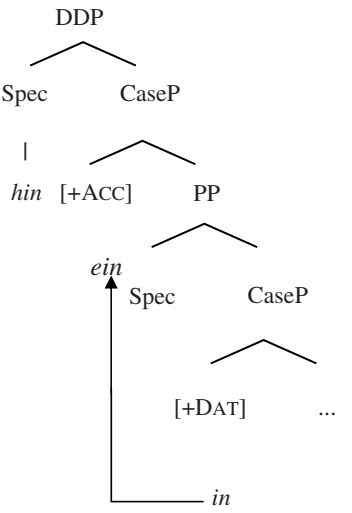
The expression ***im*** *Wasser*$_i$ ***(<u>hin</u>****ein*$_{*i}$*)* *hüpfen* indicates that if *im Wasser* and *(hin)ein* are coreferential, the result is ungrammatical. This leads to the coreferentiality filter in (39):

(39) Pronominal DD-PP coreferentiality filter: *[$_{PP}$ PP$_i$ [$_{XP}$ . . . [$_V$ DD$_i$ V^0]]]

Compare again (38a–c). The deictic-directional particle *hin-* reflects the antecedent directional GOAL-NP (*in/auf das.*ACC *Wasser*) as much as a reflexive pronoun reflects a referentially resumed noun.

Let us further assume that *-ein* in *hinein* is [$_{PP}$ PP [*in*]], plus the incorporated accusative feature.

(40)



hin-ein appears to be a loner in the DDP inventory: No such lexical incorporation is noticeable for *her/hin-**aus***, *her-**vor***, *her/hin-**über***, and so on.[3]

Notice that the coreferentiality condition alone (i.e., that the prepositional constituent needs to be coreferential with the deictic particle) does not filter out the locative reading (e.g., the directional *[in den Kanal]$_i$ hinein$_i$* as opposed to the equally coreferential locative *[im Kanal]$_i$ (drinnen$_i$)*. Distinguishing criteria are in (41a–b):

(41) a. What is the structure of [$_{XP}$ . . .]?
b. Lexical diagnostics: *hinein* 'to-in' (+ACC) vs. *drinnen* 'there-in' (+DAT)

See the following illustrations.

(42) a. *Die* *Sportlerin schwimmt* ***im*** *Kanal$_i$* (***hin***$_{*i/j}$ ein)
ART.NOM athlete(F) swim.3SG PREP.DAT channel (DD PREP)
'The athlete swims in the channel.'
b. *weil* *der* *Surfer* ***auf dem*** *Wasse$_i$* (***hin***$_{*i/j}$ *auf)glitt*
because ART.NOM surfer PREPART.DAT water (DD PREP)glide.PAST
c. *Ob* *sie* ***im*** *Wasser$_i$* (***hin***$_{*i/j}$ *ein)* hüpft?
whether 3 F PREPART.DAT water DD PREP dive.3SG

(43) a. *daß die Sportlerin* < ***in den*** *Kanal* > < (***hin****(ein)) > *schwamm*
COMP ART.NOM athlete(F) PREPART.ACC channel DD PREP swim.PAST
'that the athlete swam into the channel'

b. *weil der Surfer* < ***auf das*** Wasser > < (***hin***(**auf*)) > *glitt*
c. *ob sie* < ***in das*** *Wasser* > < (***hin****(*ein*)) > *hüpft?*

Furthermore, (43a) means the same as *daß die Sportlerin* ***in den*** *Kanal schwamm or daß die Sportlerin* ***hin****einschwamm*.
Similarly:

(44) a. */#*dass die Sportlerin* ***im*** *Kanal* ***hin****einschwamm*
that the athlete in the channel into-swam
b. */#*weil der Surfer* ***auf dem*** *Wasser* ***hin****aufglitt*
since the surfer on the water onto-glided
c. */#*ob sie* ***im*** *Wasser* ***hin****einhüpft?*
whether she in the water into-dives

The diagnostics of the telic resultative quality of the directional constituent is the attributive function of the subject—something that is impossible with dative adverbs. See (45):

(45) a. *die* ***in den/*im*** *Kanal*$_i$ *(****hin****ein*$_i$*) geschwommene Sportlerin*
ART.NOM PREP ART.ACC/*ART.DAT channel (DD.PREP) swim.PPT.ADJ athlete
'the athlete who has swum into the channel'
(lit., 'the into-the-channel-having-swum athlete')
b. *der* ***auf das/ *im*** *Wasser*$_i$ *(****hin****auf*$_i$*) geglittene Surfer*
ART.NOM PREP ART.ACC/*ART.DAT water (DD.PREP) glide.PPT.ADJ surfer
'the surfer who had glided into the water'
(lit., 'the into-the-water-having-glided surfer')
c. *die* ***ins/*im*** *Wasser*$_i$ *(****hin****ein*$_i$*) gehüpfte*
ART.NOM PREP ART.ACC/*ART.DAT water (DD.PREP) hop.PPT.ADJ
'the [female] who hopped into the water'
(lit., 'the into-the-water-having-hopped [female]')

The structural closeness of the accusative constituent to the predicate also reveals itself in the fact that they topicalize in immediate local adjacency. This is ruled out with the dative alternant. This fills in for **[**$_{XP}$ . . .**]** in (41a): [$_{XP}$ . . .] must not be zero in the pronominal DD-PP coreferentiality filter: *[$_{PP}$ PP$_i$ [$_{PP}$ P[+Acc] NP[+Acc]] [$_V$ DD$_i$ V^o]]. The following data illustrate the restriction:

(46) a. *Im Staubecken in den Kanal*$_i$ *(hinein*$_i$*) geraten kann man leicht*
in.DAT reservoir in ART.ACC channel (DD.PREP) get into aux INDEF. SUBJ easily
'In the reservoir, the channel can be gotten into easily.'
but: **In den Kanal*$_i$ *im Staubecken (hinein*$_i$*) geraten kann man leicht*
b. *An der Küste* ***[auf die Welle***$_i$ ***(hinauf***$_i$***) gleiten]*** *muß der Surfer*
on art.DAT shore prep art.ACC wave (DD.PREP) glide aux the.NOM surfer
'From the shore into the waves, the surfer must glide.'
but: **Auf die Welle*$_i$ *an der Küste (hinauf*$_i$*) gleiten muß der Surfer*

c. *im Becken* ***[ins Wasser***$_i$ ***(hinein***$_i$***) hüpfen soll]***$_i$ *man nicht gleich* t_i
in.DAT pool prep.ACC water (DD.PREP) dive aux one.SUBJ not right away
'In the pool, one shouldn't jump into the water right away.'
but: **Ins Wasser*$_i$ *im Becken (hinein*$_i$*)hüpfen soll man nicht gleich*

(47) a. *Hin<(ein*$_i$*)> in den Kanal*$_i$ *<*ein*$_i$*> geraten kann man leicht*
DD (PREP) prep art.ACC channel PREP get into AUX one.SUBJ easily
'Into the channel, one can easily go.'
b. *Hin<(auf*$_i$*)> auf die Welle*$_i$ *<auf*$_i$*>gleiten muß der Surfer*
DD (PREP) PREP ART.ACC wave PREP glide AUX the.NOM surfer
'Onto the waves, the surfer must glide.'
c. *Her <(über*$_i$*)> über die Bahn*$_i$ *(über*$_i$*)hüpfen soll man nicht gleich*
DD (PREP) PREP the.NOM railway (PREP)hop AUX one not right away
'Over the bay, one should not hop right away'

4.2. The syntax of telic/perfective predications

Accusative preposition assignments may be licensed and anaphorically represented by the particle *hin-;* they are perfective; they therefore allow for a resultative small-clause predication, grounded in event semantics, as an extension of the simple verb (Abraham 1990, 1993, 1995). The dative PP, by contrast, is an adverbial with scope over the VP. Syntactically, it is a VP adjunct:

(48) a. [$_{CP}$*da* [$_{IP}$*Karl* [$_{VP}$*ja* [$_{VP}$ *vor* ***der*** *Tür*[$_{VP}$ [$_{V}$(*hin und her-*) *läuft*]]]]]]
since K. EMPH PREP ART.DAT door (DD CONJ DD) run.3SG
'since Karl runs back and forth in front of the door'
b. [$_{CP}$*da* [$_{IP}$ *Karl* [$_{VP}$ *ja* [$_{VP}$ *vor Hans* [$_{SC}$ [$_{V}$ *vor* ***die*** *Tür* [$_{V}$ *(hin-) tritt*]]]]]]]
since K. EMPH PREP H. PREP the.ACC door (DD) step.3 SG
'since Karl steps in front of the door before Hans'

The verb *treten* in *vor die Türe treten* must contain an element, semantically/syntactically clearly identifiable, that licenses the accusative assignment. We assume the existence of a *pro*, namely, a *pro-treten*, that may optionally be lexicalized at any time as *hin-* and that in every instance licenses the accusative case. Resultativity, expressible as secondary object predication, creates a copular predication that is independent of the simplex motion predicate. The verb-particle alternate, {*pro*/*hin*}, is located in Spec, DDP. This deictic verb component must rise to the functional category, FP, in the small clause, SC, in order to license the accusative case, as in (48b).

(49) a. [$_{VP}$NP$_i$ [$_{VP}$ t'$_i$ [$_{SC}$t$_i$ [$_{FP}$ *vor*$_j$ Case[+DAT] [$_{PP}$ t$_j$ *der Tür*] [$_{DDP}$ *hin* Case[+ACC]]]]
[[$_{DDP}$ {*pro*$_i$, ***ein***}]-*treten*]]]

In addition, (49a) reflects the semantics of one-place perfective *eintreten* in (4938b).

(49) b. θ_i *tritt ein* θ_i T^0 *eingetreten*

t_l t_m t_z

Koopman's idea to conceive of *onder* and *door* in (50a–b) (cf. the correspondent (48b) above) as postpositions cannot be transferred to German for the simple reason that the verbal particles have a form different from Ps. Furthermore, I prefer the perfective/telic semantics to be reflected in the syntax—a fact that the structures in (50a–b) for Dutch do not reflect.

(50) a. [$_{PathP}$ Path^o [$_{PlaceP}$ *in* [$_{PP}$ [$_{DP}$ *het bos*]]] … *het bos in* "the-forest-in"

(in) den Wald hinein

b. [$_{PathP}$ *door* [$_{PlaceP}$ *onder* [$_{PP}$ [$_{DP}$ *de brug*]]] … <onder> *de brug* < *onder* > *door*

"the-bridge-under-through"

unter der Brücke (hin)-durch

4.3. Valence decomposition: Argument/valence status of *hin-*

With the NP in [[$_{PP}$P [$_{NP}$ NP]] (. . .) V], *hin-* governs the accusative as secondary predicate. The emphasized verb particle ***hin*** in [$_{NP}$NP$_i$ [$_{VP}$ P t'$_i$ [sc t$_i$ [$_{FP}$ *vor de Tür*]] [[$_{DIRP}${pro, ***hin***}]-V]]] governs [$_{FP}$ *vor der Tür*]. See (49a–b). This results in (51). Notice that syntactically *hin* appears to have specifier status with respect to some syntactic subphrase of VP: It cannot have head status as a verbal prefix. This underlines the analysis in (50)–(51): *hin* is not simply an isolated part of the complex verb *hin*(ein)gleiten.* On the other hand, the deictic verb particle, with its governing power (directional accusative), is merged as part of the complex verb, for example, *hin*(ein)gleiten.* This means that, at the same time, it must have the status of a valence-extending predicate (i.e., X^0) status. Such a categorial Janus-headed nature can be exhibited only by a small-clause predicate within a complex verbal derivation.

(51) [$_{vP}$ NP$_i$ [$_{VP}$ t'$_i$ [$_{SC}$ t$_i$ [$_{FP}$ *vor die Tür* {*pro*, ***hin***}]]][[[$_{DDP}$ t]-*treten*]]]]]

Dative government is therefore the unmarked P(*vor*)-government, which may be expressed as follows: P+dative is effectuated as long as no particle valence of *hin-* enforces accusative assignment. In such a case there is no VP-internal small clause, and *vor*-NP is an adverbial grammatically independent of the predicate.

(52) [$_{vP}$NP$_i$ [$_{VP}$ t'$_i$ [$_{PP}$ *vor der Tür*]] [$_{VP}$ t$_i$] V]

4.4. Redundancy and specific word syntax

Here are several irregularities having to do both with the postsumptive portion of the preposition after *hin-* (or *her-*) and with alternatives concerning deixis:

(53) a. regular postsumptive copy in the structure:
aus+NP+*her**aus***+V; (applies to *-unter-*, *-auf-*, *-durch-, weg-, über-)*
b. irregular postsumptive copy in the structure:
in+NP+*hin**ein***+V
c. *vor*+NP+*da**vor***; cf. **hin**vor*, in contrast to *her**vor***

Preposition and deictic particles are inverted, in comparison with High German and the Low German of the North:

(54) *abhin-/abher-, durchhin/-her-*V

(55) *donna-donni* 'herunter-hinunter' (PREP.DD)
āhi-ahhi 'abhin-anhin' (PREP.DD)
āhr-ahhr 'abher-anher' (PREP.DD), and so on

(56) [[$_{V}$ [$_{V}$ AB$_{i}$ [$_{DirP}$ hin t$_{i}$] V]

(57) a. ##[*er* steigt] [*hinAB*]##
with level iambic prosody (High German)
b. ##*er* [steigt__] [ab*hin*]##
with trochaic prosody after the onset (nonstandard variant)

4.5. Areal alternation [$_{PP}$ [$_{DD}$ *hin-*[$_{P}$ *auf*]]] vs. [$_{PP}$ [$_{P}$ *auf-*[$_{DD}$ *hin*]]]

Notice that the deeper rationale for the linearization of the first and standard echo-pronominal type, [$_{PP}$[$_{DD}$ *hin-*[$_{P}$ *auf*]]], follows the discourse-based tendency to place clitic complements to the left of their heads. In contrast, the second, nonstandard type, [$_{PP}$ [$_{P}$ *auf-*[$_{DD}$ *hin*]]], follows the rightward-governing direction of the category P. Within this alternation, a striking areal correlation is the following: The P+*hin* type as in (57) is not documented in the dialects of South Germany, with just a few stative-locative exceptions as in (58a), **obdar,* and (59a), **indar.* However, in the DD versions, this linear pattern, *obhin* and *inhin*, prevails.

(58) a. *am* Berg *d(a)roben/*obdar*
PREP.DAT mountain PREP.DD / PREP.DD
'on the mountain' (Austro-Bavarian)
b. *(auf) den Berg hinauf/aufhin*
PREP.ART.DAT mountain DD.PREP / PREP.DD
'up the mountain' (standard German hinauf; South German dialects aufhin)

(59) a. *im Bad d(a)rinnen/*indar*
PREP.DAT bath DD.PREP / PREP.DD
'there in the bath' (Austro-Bavarian)

b. *(ins) das Bad hinein/einhin
PREP.ACC bath DD.PREP / PREP.DD
'into the bath' (Alemannic)

(60) standard German and Dutch:
(in) das Bad einhin(jucken)—de badkuip in kruipen
'to jump into the bath'
*(*ab) die Straße abher(kommen)—de straat af komen*
'to come down the street'
(aus) einem Sack ausher(nehmen)—de zak er uit halen
'to take out of a bag'

The obvious generalization is the following: *Hin-* is a small-clause predicate of a complex P predication. As a small-clause predicate, as in (61), it governs the directional accusative, that is, it decides from the apparent option {dative/accusative}:

(61) external Θ [$_{SC/VP}$ P{3,4}__]

More precisely, *hin-* extends government right through the preposition. The relationship with the verb is that in (62):

(62) [$_{VP}$ [$_{SC}$ eΘ [$_{PP}$ (P)[$_{NP}$ NP {4}] ***hin***-] -P-V]

Thus, *-hin* is the small-clause predicate of a postpositional construction having the configuration shown in (63):

(63) [$_{VP}$ [$_{PP}$ (P) [$_{NP}$ NP {4}] ***hin***-]-V]

4.6. German vs. Latin: Overt or covert licensers

I have shown here that the canonical view of a class of German prepositions with double government, ubiquitously found in grammatical descriptions of German for native speakers and in grammars of German as a foreign language, not only is unjustified but also is empirically false. I have established this through distributional constraints. Moreover, a number of theory-related descriptive qualities that can be derived from these constraints (e.g., small-clause predicate status of *hin-;* adverb status of P lexemes with dative government vs. verb-particle status with accusative government; maximal and simultaneously head-projection signals based on the deictic verb-particle united in status as a small-clause predicate) correspond with the intuitively plausible semantic characteristics of the dative versus the accusative in preposition selection.

(64) Standard German
a. ***dich*** *(*heran/*zu)* *rufen*
2SG.ACC DD.PREP/PREP CALL
'to call you (over here)'

b. ***dir*** *(zu/*heran)* *rufen*
2SG.DAT PREP/DD.PREP call
'to shout at you'

(65) a. ***dich*** *(heran/*zu)* *pfeifen*
2SG.ACC DD.PREP/PREP whistle
'to whistle you (over here)'
b. ***dir*** *(zu/*heran)* *pfeifen*
you.DAT PREP/DD.PREP whistle
'to whistle at you'

(66) Latin
a. consulere alicui
consult.INF someone(M SG).DAT
'advise someone'
b. consulere aliquem
consult.INF someone(M SG).ACC
'direct someone'

Needless to say, in German it is not case that signals the meaning difference. Rather, the (optional) verbal particles are licensers of the distinct lexical meaning and case selection. However, languages without particles (e.g., Latin) signal the difference on the basis of morphological case, as in (66).

5. Structure economy in microvariation: South German dialects

A different but equally silent locational identifier phenomenon shows up in German dialects. Other than in Dutch it is not restricted to directional Ps (Rowley 1989; Harnisch 2004, 294). See (67a–g) for German and (68a–b) for Dutch and Montafon–High Alemannic German.[4]

	East Franconian		*Standard German*
	Direction	Stative-Locational	(Only) Direction
(67) a.	*naus de Schwamme*	*draußen'n Holz*	**(in) die Schwämme hinaus*
	thereout the mushroom	thereout in the wood	into the mushroom thereout
b.	*nunter's Tal*	*drunten der Stroaß*	**(in) das Tal hinunter*
	theredown the valley	down by the road	into the valley thereunder
c.	*näiber'n Spritzenplatz*	*häim der Tann*	**(zum) Spritzenpl. hinunter*
	thereacross the fire square	herein the inn	to the fire sq. thereunder
d.	*vier'n Markt*	*vorne'n Markt*	**(auf) den Markt vor*
	for the market square	on the market square	on the market square

e.	*ninter'n Tanzsaal* to the dancehall down	*hinten 'n Leiten* in the grass slopes behind	**(in) den Tanzs. hinunter* into the dancehall down
f.	*nei mann Korb* into my basket	*drinne dann Korb* in your basket	*in meinen Korb hinein* into my basket therein
g.	*naof'n äibern Buden* onto the attic	*druum'm Spitzbuden* on the attic	**(auf) den Boden hinauf* onto the attic thereonto

		Dutch Direction	*Montafon German* Direction	*Standard German* Direction
(68)	a.	*het bos in lopen* the forest in go	*da Waald ihi goo* the forest inthere go	**(in) den W. (hinein)gehen* into the woods therein go
	b.	*de brug onder zwemmen* the bridge under swim	*d'Brokki onderihi* the bridge underinthere	**(unter) die B. (drunter-) schwimmen* under the b. (thereunder) swim

The preposed locational and directional element is unmistakably identical to the verbal particle in Standard German. See (69a) from Harnisch (2004, 295f.).

		East Franconian	*Standard German*
(69)	a.	*Wer get'n etz amol <u>her</u> der Oma?* who goes now once there the grandma?	*Wer geht denn jetzt *(<u>zur</u>) Oma <u>her</u>?* (to) grandma hereto
	b.	*Isch steh <u>dort</u>'n König.* I stand there the King	*Ich stehe dort *(beim) König.* there (next to) King
	c.	*Na sin'mer <u>fort</u>'s Hochzeitsladen* then are we away the wedding invitation	*Dann sind wir *(zum) Hochzeitsladen <u>fort</u>.* (to) the wed.inv. away
	d.	*<u>Dou</u> mann Platz ligt sa doch!* there my seat lies she anyway	** (Bei) meinem Platz da liegt sie doch.* (At) my seat there lies she anyway

The role the category of verbal particle, as well as speaker orientation, plays in these examples is highlighted in table 8.1. Notice that *zum Hochzeitsladen <u>fort</u>*(GO*)* shows a silent motion predicate that can be implied from the preposition *zu* 'to' and the motion particle *fort* 'away'.

In other words, where prepositions do not express directionality (accusative in standard German) vs. stative location (dative in standard German) by case morpho-

TABLE 8.1. Micro-Variationist Distributions: Verb Particle and Speaker Orientation

	Direction	*Stative location*	*Standard German particle verb*
Speaker distal	*<u>fort</u>'s Hochzeitsladen* away to wedding invitation	*<u>dort</u>'n König* there a king	*zur Oma <u>her</u>gehen* to grandma hithergo
Speaker proximal	*<u>her</u> der Oma* hither to grandma	*<u>dou</u> mann Platz* there my seat	*zum Hochzeitsladen <u>fort</u>*(GO*)* to wedding invitation away

logical distinctions as in the respective German dialects, the nonambiguous verbal particle takes over in pre-DP position. The verbal particle optionally echoing P+Case in standard German is not repeated in this microvariety of German. The sublexical components are identified as follows: One type distinguishes the base morphemes between particle and P as in (70), and another makes no such base distinction, which results in differentiated derivative endings as in (71) (dialect illustrations gleaned from Harnisch 2004, 296):

	Directional P		*Stative locational P*
(70) a.	*n-ei* 'there$_{\text{DIR}}$-into'	vs.	*dr-inn-e* 'there$_{\text{LOC}}$-in-ADV'
b.	*n-auf* 'there$_{\text{DIR}}$-onto'	vs.	*dr-uub-m* 'there$_{\text{LOC}}$-up-ADV'
c.	*vier* 'to the front of'	vs.	*vor-ne* 'in front of-ADV'
(71) a.	*n-aus-0* 'there$_{\text{DIR}}$-out-P'	vs.	*dr-auss-en* 'there$_{\text{LOC}}$-out-ADV'
b.	*n-unt-er* 'there$_{\text{DIR}}$-under-P'	vs.	*dr-unt-en* 'there$_{\text{LOC}}$-under-ADV'
c.	*n-(h)int-er* 'there$_{\text{DIR}}$-behind-P'	vs.	*(h)-int-en* 'there$_{\text{LOC}}$-behind-ADV'
d.	*n-äib-er* 'there$_{\text{DIR}}$-over-P'	vs.	*h-äib-m* 'there$_{\text{LOC}}$-over-ADV'

The respective DIR and LOC components correspond to standard German *hin-(/her-)* and *d(a)r.* P inflectional suffixes are usually *-er* (left column in (71)), thereby clearly distinguished from derivative adverbial endings in *-en* (right column in (70) and (71)). *Hin-(/her-)* and *d(a)r* are referentially coindexed with a DP binder. The claim that they are categorial Ps is confirmed by *nein* [$_{\text{DP}}$ [$_{\text{D'}}$ *'s* [$_{\text{NP}}$ *Haus*]]], where *nein* (standard German *hin*$_{\text{DIR}}$*-ein*$_{\text{ADV}}$) extends for Art+NP just like any P. The verbal particle in standard German *hin-ein, dr-aussen* is intransitive, which never extends the same P-like way. Speaker distality vs. proximity are unambiguously distinguished, albeit not in a unitary way. See table 8.2.

The dialectal area, though, divides into case assigners and case nonassigners. See (72) (Harnisch 2004, 297).

(72) a. *nein-* ***-n*** *Haus* . . . directional; P-default case assignment: dative
into Art.DAT house

b. *nai* ***deä*** *Regnitz* . . . directional; P-default case assignment: dative
into Art.DAT river name

c. *nein-* ***-s*** *Haus* . . . directional; P-Dir case assignment: accusative
into Art.ACC house

d. *nai* ***di*** *Regnitz* . . . directional; P-Dir case assignment: accusative
into Art.ACC river name

TABLE 8.2. Micro-Variationist Distributions: Direction vs. Stative Location

	Direction	*Stative location*
Speaker distal	**n**-*aus-0 de Schwamme*	**dr**-*auss-en 'n Holz*
	DIR-P-0 the mushroom	LOC-P-Adv the woods
Speaker proximal	**r**-*aus-0 de Tann*	**h**-*auss-en dr Tann*
	DIR-P-0 the pub	LOC-P-Adv the pub

TABLE 8.3. Grammaticalizing Steps between Standard German and Two Dialectal Varieties: The Rising Economy of Path and Stative Location Signals

	P___	*Article*$_{CASE}$	*NP*	*Verbal particle = V-incorporated*	*Overt P*	*Overt Case*
Standard German					1	2
direction	[$_{P'}$ in into	[$_{NP}$ die$_{ACC}$ the	[$_{N'}$ Stadt city	(hinein-) (thitherin)		
stative localization	[$_{P'}$ in in	[$_{NP}$ der$_{DAT}$ the	[$_{N'}$ Stadt city	(drinnen) (therein)		
Dialect 1					2	2
direction	[$_{P'}$ nei thitherinto	[$_{NP}$ die$_{ACC}$ the	[$_{N'}$ Stadt city	—		
stative localization	[$_{P'}$ drin therein	[$_{NP}$ der$_{DAT}$ the	[$_{N'}$ Stadt city	—		
Dialect 2					2	1 (default)
direction	[$_{P'}$ nei thitherin	[$_{NP}$ der$_{DAT}$ the	[$_{N'}$ Stadt city	—		
stative localization	[$_{P'}$ drin therein	[$_{NP}$ der$_{DAT}$ the	[$_{N'}$ Stadt city	—		

This, too, confirms that what looks like a verbal particle in Standard German, *nein/hinein,* has the categorial status of P assigning nonnominative case. However, the full distinguishing load falls on the speaker-oriented particle-like P in those areas that have no case distinctions. In the case-distinguishing areas, case is an additional distinctor just like in Standard German.

The tripartite licensing parameters for one standard and two variety codes are the following ones. They reflect the escalating demise of case morphological encoding under likewise disambiguated readings for PPs in German and two varieties, one with and another without case morphology. See table 8.3.

This comparison reveals that Standard German has the largest degree of analyticity: case distinction, as well as optional particle distinction. For instance, P cannot be spared: *(in) die Stadt (hinein)/(in) der Stadt (drinnen).* Dialect 1 provides the first step of grammaticalizing syncretism as, given the particle source P, there is no P antecedent required. Case is still distinguished: *nei die.*ACC *Stadt* vs. *nei der.*DAT *Stadt.* Dialect 2, finally, has the largest degree of syncretism: Case is no longer distinguished; it is reduced to the default case for P, the dative. In the standard, coreferential binding for V particle and P is obligatory or optional both for Loc and for Dir. The first variety, Dialect 1, shows P and V particle syncretism but still distinguishes case on the DP (in the article category). In the second variety, Dialect 2, then, case morphology has eroded completely, consequently suspending binding between V particle and Case. The last step provides the highest degree of economy: only one distinctor originating from speaker orientation.

English, with its partial syncretism of V particles (or adverbs like *onward, up, down)* represents a fourth variety not accountable for in German and its nonstandard varieties: Neither case nor Adv(V particle) nor position (pref-V vs. stranded V-last) are distinct parameters. Notice that, while P, like *on/auf* and so on have a relatively high

degree of lexical satisfaction (semantic intension), the V-particle-derived Ps in the nonstandard varieties possess distinctly more semantic intension by adding undividedly speaker orientation, as well as direction. Thus, while the grammaticalizing force reduces formal distinguishability, the result yet possesses higher semantic transparency. Clearly, this is characteristic of discourse-prominent German and its varieties, not, however, of the grammaticalizing result of likewise Germanic but SVO English and Scandinavian. Dutch, while on its way to the English type in terms of complete case erosion and the demise of derivative suff igation, still makes distinctions on the basis of its SOV syntax (position and accent of P are different from that of the V particle).

For the principled distinction of the V particle and the particle-derived P in the nonstandard varieties see the illustration in (73) (modified from Harnisch 2004, 299):

(73) a. . . . [$_V$ (GO) [$_V$ *nunter*]]$_j$ [$_{PP}$ *nei'n Gärkeller*]$_i$ [$_{PP}$ *nei aaner Kufn*] t$_i$ t$_j$
down into the brewery cellar into a barrel

b. . . . [$_V$ (GO) [$_V$ *nüber*]]$_j$ [$_{PP}$ *nei'n Wirt*]$_i$ [$_{PP}$ *zu Nacht*] t$_i$ *t*$_j$]
thereover into the pub at night

c. . . . [$_V$ (GO) [$_V$ *naa*]]$_j$ [$_{PP}$ *naa meina Biena*] t$_i$ *t*$_j$]
thereto to my bees

I have postponed signaling the anaphoric binding for coreference between the V particles and the reference-specifying DPs inside the PPs.

Summarizing, we can say this. In distinguishing between local stativity and directionality, German varieties choose between pivotal behavioral criteria: morphological case, linear position, and the additional "echo" adverbial. Standard German applies maximal analyticity, whereas the two nonstandard variants spare at least one of the identifying categories: morphological case or P antecedent. See table 8.4, where <. .> . . . <. .> means 'alternatively realized'.

Notice that, in Dialect 2, P-governed case reduces to the default dative (not what we have observed, through behavioral tests, to be the marked accusative in

TABLE 8.4. Economy Criteria Distributed across Varieties of German Local PPs (Dir "into the Town" vs. Stat "in the Town")

	Analyticity vs. syncretism	*Type of* LOC	*<Dir/Stat Adv>*	*<Pro$_i$>*	*Antecedent$_i$*	*Case:* ACC *vs.* DAT	*Nominal head*	*<Dir/Stat Adv>*	*<Pro$_i$>*
Standard German	maximal analyticity	DIR	*<hin* -thither	*-ein>* into	**(in)*	*die.*ACC the	*Stadt* city	*<hin* -thither	*-ein>* into
		STAT	*<drin* -there	*-nen>* in	**(in)*	*der.*DAT the	*Stadt* city	*<drin* -there	*-nen>* in
Dialect 1	P antecedent missing	DIR	*<n-*	*-ei>*	—	*die.*ACC	*Stadt*	*<n-*	*-ei>*
		STAT	*<dr-*	*-in>*	—	*der.*DAT	*Stadt*	*<dr-*	*-in>*
Dialect 2	P antecedent + P-governed case missing	DIR	*<n-*	*-ei>*	—			*<n-*	*-ei>*
		STAT	*<dr-*	*-in>*	—	*der.*DAT	*Stadt*	*<dr-*	*-in>*

standard German). Furthermore, obligatoriness vs. optionality of Adv-P binding proves to be the same for LOC and DIR. Economical syncretisms show up in case distinction (Dialect 2) and/or in the silence of the antecedent P (Dialects 1 and 2).[5] Moreover, the question of whether or not the Dir/Stat-Adv can be postposed determines the categorial status of *nei* in Dialects 1 and 2: Only postpositionality ensures the status of a verbal particle and, consequently, of directionality. Preposition leaves this question open (unless morphological case helps determine the alternative).

5. Conclusion: Semantically rich P/case is a probe, whereas grammaticalized P/Case is not

My line of discussion has been directed to the particular properties of German prepositions have demonstrated that the morphologically richer German formally dehomonymizes a considerable amount of prepositional data that English leaves in formally converged form. Both verbal particles and echo adverbials mark unambiguously directional and stative-locative prepositions. I have highlighted which visible and silent variants of adverbial companions to prepositional clusters are structurally identified. This has to do with the traditional position that German prepositions govern both dative and accusative complements. The traditional assumption is repudiated on the basis of a number of solid distributional properties, above all the optional verbal particle *hin/her-,* which always disambiguates in favor of the accusative. Finally, I have provided a substantial portion of empirical data from dialectal varieties to demonstrate that economy in direction vs. stative location phrases and, in particular, in Path and stative location categories works. No doubt the latter discussion highlights specific ways in which criteria of economy accompany the acoustic (nonwritten) linguistic signal and its processing in the hearer.

The main point of this chapter, although not spelled out explicitly so far, is that lexical prepositions and their higher projections (such as prepositional adverbials; cf. German *darauf* 'thereon', *hinüber* 'over, across', etc.) may be seen as probes for their "governing" verbs, adjectives, and nouns merged higher than vP, whereas grammatical(ized) prepositions merge early within VP (see Kayne 2005 on this). This way the distinction between spatial (locative) case and grammatical (nonspatial) case, much in the sense of Hungarian or Finnish, can be accounted for also in a clearly syntactic fashion. This distinction appears to lead directly to the idea that feature-rich spatial PPs and locative cases are subject to the semantic V-related corollary, whereas feature-poorer Ps and purely grammatical cases are not. The semantic verb-related corollary makes the following claim:

(74) Semantic Verb-related Corollary (on VO or OV languages):
([$_{CP}$ Vfin <) DativeNP < AccusativeNP < PP < PO < GenitiveNP < ([$_{V}$ Vfin])

In other words, the closer to the verb in either clause-final or V2 position, the higher its semantic intension, and, accordingly, the richer its feature inventory (Abraham 2000, 2006a, 2006b, 2006c). However, there is a seeming inanity in this claim. It

would not be implausible to claim that the verb-proximate accusative has a poorer intension than the V-distal dative—thereby contradicting the semantic corollary. However, it may be an optical illusion to think that accusative arguments have lesser intension (the homonymy view). What comes to mind just the same is that since accusative arguments are intimately linked to the verbal lexeme, they possess a variety of distinct intensions contingent upon the individual, accusative-selecting V (the polysemy view). Speakers are clearly less able to generalize about the thematic roles of direct objects than they are about those of dative arguments. This optical illusion of the lesser accusative intension surfaces since we tend to derive from the verb all that is nonrecurrent and nonsystematic in the accusative DP semantics. As pointed out, this may just be illusionary. For the same reason, we may let it be contingent not upon the verb but on the object DP. This would amount to saying that all accusative arguments, as verb linked and thus idiosyncratic valence carriers, have a very special semantics which need not be generalized in the first place.[6] The empirical status of the semantic, verb-related corollary is evident in the case of the English dative shift and when one compares German dative arguments and their Dutch and Scandinavian correspondents, which are prepositional objects in the majority of cases (Abraham 2000, 2006a). Consider the free adverbial reading in *wohnt in Wien-LOC$_1$ in einem Wohnwagen-LOC$_2$* 'lives in Vienna-LOC$_1$ in a mobile home' as opposed to the attributive reading of LOC$_1$ in relation to LOC$_2$ in the word order inverted in *einem Wohnwagen-LOC$_2$ in Wien-LOC$_1$* 'in a mobile home-LOC$_2$ in Vienna-LOC$_1$'.

In this sense, space pronominal echo adverbials are closer and thus more concrete intensionally than their corresponding PPs. This is why they do not lend themselves to abstract or figurative readings as shown in (30)–(31) (see Noonan 2006 for discussion). Spatially concrete Ps and locative case can aptly be demonstrated in Finno-Ugrian and Caucasian languages such as Udi and Agul, both Lezgian languages. Agul possesses a rich system of locative cases. Locative case markers consist of two parts: The first one specifies the localization of a trajector with respect to a landmark ('inside', 'above', 'below', 'near', 'behind', etc.), whereas the second one points at the direction of movement ('to' vs. 'from') or to the absence of movement ('at rest', zero marked). In total, there are twenty-five case forms in Agul (the grammatical cases ergative, absolutive, dative, and genitive, and twenty locative forms). In contrast, there are locative cases that have undergone a considerable bleaching of meaning and no longer provide distinct traces of their original locative semantics. These cases are on their way from purely locative to "grammatical" or "syntactic" ones (like the ergative or the dative). Among them, the adelative has the widest distribution (its locative meaning being 'motion from location near a landmark'). Thus, in (75) below the adelative NP encodes the participant, who is involved in the situation unintentionally; in (76) it marks the participant, who takes part in the action deliberately but mistakenly; in (77) it introduces the participant, who is capable of doing something. Finally, in (78) it expresses the causee (with the adessive case also being possible; all from Ganenkov, Maisak, and Merdanova 2007):

(75) ru].a-f-as berHem kura-se
girl-Adelat dress:Abs get_dirty-Fut
'The girl will unwittingly soil the dress.'

(76) za-f-as gi-s unaq'u-b xu-ne
I-Adelat that-Dat call-Msd become-Perf
'It so happened that I had to invite him.'

(77) za-f-as k'eD lik'a-s xu-ne
I-Adelat letter:Abs write-Inf become-Perf
'I managed to write a letter.'

(78) baw.a ru].a-f-as ‖ ru].a-w xed Xa-s q'u-ne.
mother:Erg girl-Adelat girl-Ad water:Abs bring-Inf do-Perf
'Mother made the girl bring water.'

Indo-European cases, by contrast, are highly grammaticalized throughout and do not have any concrete spatial denotation. Yet, prepositions do, at least where they are not selected grammatically by individual Vs. Consider the lexical type of P as illustrated for English in (1a–b). This is the type that has been the center of our focus in the present chapter and for which the claim with regard to its probing status holds, just as much as for the Alug lexical cases illustrated in (75)–(78). Needless to say, this invalidates the traditional valence idea, according to which verbs select ("govern") prepositions of whichever classification (except for adjunct Ps, naturally).

Notes

1. I consider "(in)transitive P" ill termed anyway since this would presuppose an external argument position. However, there is no such "subject" for P cross-linguistically. In the light of the licensing mechanics, as well as the fact that most of the allegedly "intransitive" Ps are adverbials with an idiosyncratic form, unlike the form of a P (see the examples Jackendoff 1973 lists for illustration), there is no choice but to dispense with "(in)transitivity of P."

2. Nonstandard forms such as Bavarian *ein-i,* Alemannic *īhi* "ein-hin" confirm beyond doubt the basic standard German phonetic status of *(hin/her-)ein.*

3. Grimm and Grimm (1877/²1984, vol. 10, 1414) register MHG *hin în,* as well as *înhin,* which I take to be parasitic to Alemannic *î(n)hin* > *einhin* after due ENHG diphthongization.

4. Montafon is a valley in the westernmost Austrian province bordering Switzerland. In the Montafon a High Alemannic (Swiss German) dialect is spoken (Abraham 1965).

5. The status of the criterion "antecedent" presupposes that the underived position of constituents such as *hinein* and *drinnen* is postpositional, not—as alternatively signaled in table 8.4—prepositional. See the distributional tests in (67)–(73).

6. Thanks to Daniel Hole, personal communication, Nov. 20, 2005.

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