

3

Postpositions vs Prepositions in Mandarin Chinese: The Articulation of Disharmony*

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3.1 Introduction

Whitman (2008) divides word order generalizations modelled on Greenberg (1963) into three types: hierarchical, derivational, and cross-categorical. The first reflect basic patterns of selection and encompass generalizations like those proposed in Cinque (1999). The second reflect constraints on syntactic derivations. The third type, cross-categorical generalizations, assert the existence of non-hierarchical, non-derivational generalizations across categories (e.g. the co-patterning of V~XP with P~NP and C~TP). In common with much recent work (e.g. Kayne 1994, Newmeyer 2005b), Whitman rejects generalizations of the latter type—that is, generalizations such as the Head Parameter—as components of Universal Grammar. He argues that alleged universals of this type are unfailingly statistical (cf. Dryer 1998), and thus should be explained as the result of diachronic processes, such as V > P and V > C reanalysis, rather than synchronic grammar.

This view predicts, contra the Head Parameter, that ‘mixed’ or ‘disharmonic’ cross-categorical word order properties are permitted by UG. Sinitic languages contain well-known examples of both types. Mixed orders are exemplified by

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prepositions, postpositions, and circumpositions occurring in the same language. Disharmonic orders found in Chinese languages include head initial VP-internal order coincident with head final NP-internal order and clause-final complementizers. Such combinations are present in Chinese languages since their earliest attestation. In this paper, we look in detail at the issue of PPs in Chinese, which are both mixed (in that they include pre-, post-, and circumpositions) and disharmonic (in that postpositions occur with head-initial VP, and prepositions with head-final NP). The basic facts are shown in (1–2) below. (1) shows a preverbal prepositional phrase (PrePP), (2) a preverbal postpositional phrase (PostP). (3) shows a circumpositional construction, with both preposition and postposition.

- (1) Wǒ [_{PreP} zài jiā] shuì wǔjiào.
 1SG at home sleep nap
 ‘I take a nap at home.’
- (2) Wǒ [_{PostP} xīn-nián yǐqián] yào huí jiā yī-tàng.
 1SG new-year before want return home 1-time
 ‘I want to go home once before New Year.’
- (3) Wǒ [_{PP} zài [_{PostP} shāfā shàng]] shuì wǔjiào.
 1SG in/at sofa on sleep nap
 ‘I took a nap on the sofa.’

We show in this paper that both prepositions and postpositions are adpositions, contrary to the view that the latter are nouns. We argue that the structural difference between these two types of PP is readily accounted for within a cartographic approach to PP structure.

The paper is organized as follows. Section 3.2 shows that both prepositional phrases (PrePPs) and postpositional phrases (PostPPs) instantiate a category P, while at the same time showing certain differences. Section 3.3 takes up these differences and accounts for them within a cartographic account of PP in Chinese. Section 3.4 relates the Chinese facts to recent discussions about constituent order harmony and disharmony. Section 3.5 reviews the historical sources for postpositions.

3.2 Postpositions and prepositions in Chinese are both adpositions

A fairly comprehensive list of prepositions and postpositions in contemporary Mandarin is provided in (4):

- | | |
|-------------------------------|----------------------------|
| (4) a. Preposition | b. Postposition |
| <i>cháo</i> ‘facing’ | <i>hòu</i> ‘behind; after’ |
| <i>cóng</i> ‘from’ | <i>lái</i> ‘for, during’ |
| <i>dāng(zhe)</i> ‘at, facing’ | <i>lǐ</i> ‘in(side)’ |

| | |
|------------------------------------|---------------------------------------|
| <i>dào</i> ‘to’ | <i>nèi</i> ‘inside, within’ |
| <i>duì</i> ‘toward’ | <i>páng</i> ‘next to, at the side of’ |
| <i>duìyú</i> ‘with respect’ | <i>qián</i> ‘in front of; before’ |
| <i>gěi</i> ‘to; for’ | <i>qiánhòu</i> ‘around’ |
| <i>gēn</i> ‘with’ | <i>shàng</i> ‘on’ |
| <i>gēnjù</i> ‘according to’ | <i>shàngxià</i> ‘around, about’ |
| <i>guānyú</i> ‘concerning’ | <i>wài</i> ‘outside, beyond’ |
| <i>lí</i> ‘from, away’ | <i>xià</i> ‘under’ |
| <i>tì</i> ‘instead of, for’ | <i>yǐhòu</i> ‘after’ (temporal) |
| <i>wǎng</i> ‘in the direction of’ | <i>yǐlái</i> ‘since, during’ |
| <i>wèi(le)</i> ‘for the sake of’ | <i>yǐnèi</i> ‘inside, within’ |
| <i>xiàng</i> ‘in the direction of’ | <i>yǐqián</i> ‘before, ago’ |
| <i>yán(zhe)</i> ‘along’ | <i>yǐshàng</i> ‘above, over’ |
| <i>zài</i> ‘in, at’ | <i>yǐwài</i> ‘outside, beyond’ |
| <i>zhìyú</i> ‘concerning’ | <i>yǐxià</i> ‘under, below’ |
| <i>zìcóng</i> ‘since, from’ | <i>zhījiān</i> ‘between’ |
| ... | <i>zhōng</i> ‘amidst, in’ |
| ... | <i>zuǒyòu</i> ‘around, about’ |

A perusal of the list in (4) shows that there are semantic differences between the prepositions in (4a) and the postpositions in (4b). Prepositions include path designators like *dào* ‘to’, *duì* ‘toward’, and *cóng* ‘from’. Postpositions include no designators of path per se. Instead, postpositions denote locations, e.g. *lǐ* ‘in(side)’, *shàng* ‘on’, and *xià* ‘under’.

The main controversy regarding category concerns postpositions, which have been claimed to be nouns (cf. Li Y.-H. Audrey 1990, McCawley 1992, Huang, Li, and Li 2009, among others). In this section we focus on distributional criteria showing that postpositions must be distinguished from nouns. Ernst (1988) provides evidence that *shàng* ‘on’, *xià* ‘under’, *lǐ* ‘in(side)’ are postpositions, not nouns, contrasting them with the nominal status of location nouns such as *shàngmiàn* ‘top’, *xiàmiàn* ‘underneath’. Ernst observes that like prepositions, postpositions always require an overt complement (no stranding) and that unlike nouns (cf. (6b), they disallow the subordinator *de* intervening between the complement and head (6a):

- (5) a. Shū zài [_{PostpP} *(zhuōzi) shàng].
 book be.at table on
 ‘The books are on the table.’
 b. Shū zài [_{PostpP} (zhuōzi) shàngmiàn].
 book be table top
 ‘The books are on the top (of the table).’

- (6) a. [_{PostpP} zhuōzi (*de) shàng]
 table SUB on
 ‘on the table’
 b. [_{NP} zhuōzi (de) shàngmiàn]
 table SUB surface
 ‘the top of the table’

Ernst thus concurs with Peyraube (1980: 78), who likewise concludes that monosyllabic morphemes such as *shàng* ‘on’, *xià* ‘under’, *lǐ* ‘in(side)’ are postpositions, and distinguishes them from location nouns such as *shàngmiàn* ‘top, surface’. Note that both Ernst (1988) and Peyraube (1980) focus on postpositions referring to location in space. Taking their work as a starting point, we provide additional evidence for the existence of postpositions expressing spatial and temporal as well as abstract location. This overview shows that postpositions are different from nouns expressing location (*contra* Li Y.-H. Audrey 1990, McCawley 1992, Huang, Li, and Li 2009, among others). In this discussion of PostPs, we adopt the structures assigned by Ernst. These are refined in section 3.3.

3.2.1 *Ban on adposition stranding*

Huang C.-T. James (1982) shows that prepositions may not be stranded. In (7) the complement of the preposition is recoverable from the context; in such contexts verbs allow empty objects, but prepositions do not.

- (7) Tā měi -tiān [_{vP} [_{PreP} zài jiā] [_{vP} shuì wǔjiào]],
 3SG every-day at home sleep nap
 wǒ yě měi -tiān [_{vP} [_{PreP} zài *(jiā)] [_{vP} shuì wǔjiào]].
 3SG also every-day at home sleep nap
 ‘He takes a nap at home every day, and I also take a nap at home every day.’

Likewise preposition stranding is impossible with relativization (8) and topicalization (9).

- (8) *[_{NP} [_{TP} wǒ [_{PreP} gēn [e]] bù shóu de] nèi-ge rén]
 1SG with NEG familiar SUB that CL person
 (‘the person I’m not familiar with’)
- (9) *Zhāngsān_i [_{TP} wǒ [_{PreP} gēn [e]] bù shóu]
 Zhangsan 1SG with NEG familiar
 (‘Zhangsan, I’m not familiar with.’) (Huang C.-T. James 1982: 499; (109a–b))

We find the same ban on stranding postpositions.¹ The ban on postposition stranding observed for the spatial locative with *shàng* ‘on’ by Ernst (cf. (5a) above) holds for postpositions in general, including disyllabic postpositions such as *yǐqián* ‘before’ (a temporal locative) and *yǐwài* ‘beyond, besides’ (an abstract locative):

- (10) a. Wǒ [_{PostP} [_{DP} *xīn-nián*] [_{PostP} *yǐqián*]] yào huí jiā yī-tàng,
 1SG new-year before want return home 1-time
tā yě yào [_{PostP} [_{DP} **(xīn-nián)*] [_{PostP} *yǐqián*]] zǒu.²
 1SG also want new-year before leave
 ‘I want to go home before the New Year; he also wants to leave before the New Year.’
 b. Miǎnfèi bǎoguǎn sān-tiān, [_{PostP} [_{DP} **(sān-tiān)*] yǐwài]
 free storage 3-day 3-day beyond
zhuóshōu bǎoguǎn-fèi.
 collect storage-fee
 ‘The free storage is three days, beyond three days there is a storage fee.’

The complements of the postposition in the second conjunct *xīn-nián* ‘New year’ (10a) and *sān-tiān* ‘three days’ (10b) are recoverable from the preceding context, but stranding is blocked. In contrast, both NPs and VPs in Chinese allow stranding in contexts parallel to (10).

- (11) a. Wǒ bàba huílái-le , [_{NP} [e] māma] yě huílái -le.
 1SG father return-PERF mother also return-PERF
 ‘My father returned, and my mother returned, too.’
 b. Wǒ chī-guo shérou, Zhāngsān yě [_{VP} [e] chī-guo].
 1SG eat-EXP snake.meat Zhangsan also eat-EXP
 ‘I have eaten snake meat, and Zhangsan has, too.’

Similarly, postpositions cannot be stranded by relativization (12a) or topicalization (12b), again in contrast to the nouns in (12c–d).

¹ Note that Huang, Li, and Li (2009) do not mention the ban on adposition stranding. As for the unacceptability of *de* intervening between a postposition and its complement (cf. (6a) above), it naturally presents a problem for their assumption that so-called ‘localizers’ are a subclass of nouns, nouns allowing *de* (6b). Huang, Li, and Li (2009: 17) thus characterize postpositions as ‘deviates’ of N, where ‘[i]n deciding the properties of a categorial deviate, anything language-specific in the original category is disfavored.’ (= (20)). ‘Interestingly, the use of *de* is also highly language-specific. [...] As a result, L[ocalizer] keeps all the syntactic properties of N except *de*.’

² Given the existence of the adverb *yǐqián* ‘previously’, the second conjunct of (10a) is acceptable without *xīn-nián* ‘New Year’ under the reading ‘He had also wanted to leave previously’, a reading not relevant here.

- (12) a. *[_{DP} [_{TP} [_{PostP} [e] shàng] pā-zhe yī zhī mǎo] de [nà liàng qìchē]]
on lie-DUR 1 CL cat SUB that CL car
‘that car that a cat is lying on’
- b. *[_{TopP} [Nà liàng qìchē], [_{TP} [_{PostP} [e] shàng] pā-zhe yī zhī mǎo]].
that CL car on lie-DUR 1 CL cat
‘That car, a cat is lying on.’
- c. [_{DP} [_{TP} [_{NP} [e] shàngmiàn] pā-zhe yī zhī mǎo] de [nà liàng qìchē]]
top lie-DUR 1 CL cat SUB that CL car
‘that car a cat is lying on’
- b. [_{TopP} [Nà liàng qìchē], [_{TP} [_{NP} [e] shàngmiàn] pā-zhe yī zhī mǎo]].
that CL car top lie-DUR 1 CL cat
‘That car, a cat is lying on.’

These facts are exactly parallel to the properties of prepositions as demonstrated by Huang C.-T. James (1982) in (8–9). A possible rejoinder to this argument might be to claim that postpositions are a type of phrasal affix or clitic (Liu Feng-Hsi 1998, Zhang Niina Ning 2002), and cannot be stranded because they are phonologically dependent.³ But the clitic analysis has been proposed only for monosyllabic postpositions. Disyllabic items such *yíqián* ‘before’, *yíhòu* ‘behind’ cannot be clitics, since they may occur independently as adverbs, just like their English counterparts:

- (13) Zhāngsān yǐqián lái -guo Bǎilí.
Zhangsan before come-EXP Paris
'Zhangsan has been to Paris before.'

Nevertheless, disyllabic postpositions are also unable to strand their complements under topicalization (cf. (14b,c) and relativization (cf. (14d)), exactly like their prepositional and monosyllabic postpositional counterparts.

- (14) a. Tā yào [PostP chūxī yìqián] huí jiā.
3SG want new.year's.eve before return home
'He wants to go home before New Year's eve.'
- b. *[TopP Chūxī [TP tā yào [PostP [e] yìqián] huí jiā.
new.year's.eve 3SG want before return home
(*'New Year's eve, she wants to go home before.')
- c. *[TopP [Nèi ge dìqū] [TP wǒ xiǎng [PostP [e] yǐwài] mei yǒu
that CL district 1SG think beyond NEG exist
Zhōngguó rén zhù].
Chinese live
(*'That district, I don't think there are any Chinese people living beyond.')

³ Huang, Li, and Li (2009:21–22) explicitly reject the clitic analysis of postpositions.

- d. *[_{DP} [_{TP} [_{PostP} [e] yǐwài] měi yǒu Zhōngguoren zhù] de nèi ge dìqū]
 beyond NEG exist Chinese live SUB that CL district
 ('that district where there are no Chinese people living beyond')

3.2.2 Distribution of PP

In Modern Mandarin, only arguments are allowed in postverbal position. Adjuncts occur exclusively preverbally, to the right or to the left of the subject. Previous research on postpositions focuses on PostPs expressing spatial location, but below we provide data exemplifying all three types of location: spatial, temporal, and abstract. We shall see that these differences condition the distribution of PostPs.

3.2.2.1 *Adjunct PPs* In the sentence-initial topic position to the left of the subject, PostPs and PrePs of all types are acceptable, encoding spatial, temporal, or abstract location.

Spatial location:

- (15) a. [_{PostP} Zhuōzi shàng], nǐ kěyǐ fàng shū , [_{PostP} yǐzi shàng] nǐ
 table on 2SG can put book chair on 2SG
 kěyǐ fàng dàyī.
 can put coat
 'On the table, you can put the books, and on the chair, you can put the coat.'
 b. [_{PreP} Zài Shànghǎi] tā yǒu hěn duō péngyou.
 at Shanghai 3SG have very much friend
 'In Shanghai, she has a lot of friends.'

Temporal location:

- (16) a. [_{PostP} [Jǐ -ge yuè] yǐqián]tā jiù qù Shànghǎi le.
 several-CL month before 3SG then go Shanghai PART
 'Several months ago, he went to Shanghai.'
 b. [_{PostP} [Jīn -nián nián-chū] yǐlái], tā yǐjīng chū -le
 this-year year-beginning since 3SG already go.out-PERF
 sān-cì chāi.
 3 -time errand
 'Since the beginning of this year, he has already been three times on business trips.'
 (17) [_{PreP} Zài nà ge shíhòu] wèntí hái bù yánzhòng.
 at that CL time problem still NEG serious
 'At that time, the problem was not that serious yet.'

Abstract location:

- (18) [PostP Yuánzé shàng] nǐmen kěyǐ zhèyàng zuò.
 principle on 2PL can this.way do
 ‘In principle you can do it this way.’ (Ernst 1988: 229, (19))
- (19) [PreP Zài zhè fāngmiàn] nǐ yào duō bāngzhù tā.
 at this respect 2SG need much help 3SG
 ‘In this respect, you have to help him more.’

In the preverbal position to the right of the subject, temporal, or abstract location (including abstract means) can be denoted by PostPs (20a–c) or PrepPs (21a–b):

- (20) a. Tā [PostP [jǐ -ge yuè] yǐqián] jiù qù Shànghǎi le.
 3SG several-CL month before then go Shanghai PART
 ‘He went to Shanghai several months ago.’
- b. Tā [PostP [jīn -nián nián-chū] yǐlái] yǐjīng chū -le
 3SG this-year year-beginning since already go.out-PERF
 sān-cì chāi.
 3 -time errand
 ‘He has already been on business trips three times since the beginning of this year.’
- c. Nǐmen [PostP yuánzé shàng] kěyǐ zhèyàng zuò.
 2PL principle on can this.way do
 ‘You can in principle do it this way.’
- (21) a. Wèntí [PreP zài nà ge shíhòu] hái bù yánzhòng.
 problem at that CL time still NEG serious
 ‘The problem was not that serious yet at that time.’
- b. Nǐ [PreP zài zhè fāngmiàn] yào duō bāngzhù tā.
 2SG at this respect need much help 3SG
 ‘In this respect, you have to help him more.’

However spatial PostPs in this position are limited to a goal or directed motion interpretation:

- (22) a. Nǐ [PostP wòshì lǐ] bù néng fàng diànlú.
 2SG bedroom in(side) NEG can put electric.stove
 ‘You cannot put an electric stove in the bedroom.’
- b. Lái, wǒmen [PostP fānzhuō shàng] liáo.
 come 1PL dining.table on chat
 ‘Come, let’s chat at the table.’

Thus non-path, locational PPs in this position require the preposition *zài* ‘in, at’:

- (23) Tā [PreP zài zhuōzi xià] / *[PostP zhuōzi xià] kàndào-le yī-zhī lǎoshǔ.
 3SG at table under table under see -PERF 1-CL mouse
 ‘He saw a mouse under the table.’

Huang, Li, and Li (2009:13–14) notice the unacceptability of certain PostPs in the position between the subject and the verb and use this as an argument against analyzing PostPs as adpositions. Instead, they set up a special category L(ocalizer), ‘a deviate of N’ (2009: 21). Citing the data in (24), they argue, ‘If L[ocalizer] were a postposition, there would be no reason why it should not behave like one, and its presence in (11b) [= (24b)] would be enough to introduce the nominal *chéng* ‘city’ just like *outside* does in English.’⁴

- (24) a. Tā *(zài) nàge chéngshì jǔbàn-guo yī-ge zhǎnlǎnhuì.
 he P that city hold -GUO a CL exhibition
 ‘He held an exhibition *(in) that city.’
 b. Tā *(zài) chéng wài /lǐ jǔbàn-guo yī-ge zhǎnlǎnhuì.
 he P city outside/ inside hold -GUO a CL exhibition
 ‘He held an exhibition outside/inside the city.’
 (= Huang, Li, and Li’s (2009: 13) (11a–b); their glosses and translation)

However the Localizer analysis is too crude to capture the complete distribution, since as we saw in (22) PostPs may indeed appear in the position between the subject and the verb, under an appropriate interpretation. We account for this fact in section 3.3.

3.2.2.2 *Argument PPs* In postverbal position, PrePs, Circumpositional Phrases and PostPs all occur.⁵

- (25) a. Tā jì -le [DP yī-ge diànnǎo] [Prep gěi Mǎlì].
 3SG send-PERF 1 -CL computer to Mary
 ‘He sent a computer to Mary.’

⁴ In fact, *chéngwài* ‘suburbs, city outskirts’ and *chénglǐ* ‘inner city, center city’ are compound nouns (that is, N⁰s), not phrases (cf. Lü Shuxiang et al. 2000: 360 for more N-*lǐ* compounds). This is shown by the fact that they can be embedded in larger compounds, e.g. *chénglǐrén* ‘city inhabitant’. Furthermore, being a bound morpheme, *chéng-* cannot occur on its own, e.g. as a modifier subordinated to the head noun by *de*, in contrast to *chénglǐ*:

- (i) Hé zài [N⁰ chénglǐ] de nánfāng.
 river be.in city.interior SUB south
 ‘The river is to the south of the (inner) city.’
 (i) *Hé zài chéng de nánfāng.
 river be.at city SUB south

⁵ Y-H Audrey Li (1990: 4) takes the possibility of PostPs to function as complements (27–28) as evidence for the nominal status of postpositions, because in her approach adpositional phrases are banned from case positions. This forces her to analyse the phrases headed by *gěi*, *dào*, and *zài* in contexts like (25)–(26) as VPs instead of as PrePs notwithstanding their nonverbal properties, such as incompatibility with aspectual suffixes such as *-le* PERFECTIVE and *-guo* EXPERIENTIAL.

- b. Wǒ yǐjīng dǎ -guo diànhuà [Prep dào [DP tā jiā]].
 1SG already make-EXP phone to 3SG home
 ‘I already phoned his home.’
- (26) Tā xiě -le [DP jǐ -ge zì] [Prep zài hēibǎn shàng].
 3SG write-PERF several-CL character at blackboard on
 ‘He wrote several characters on the blackboard.’
- (27) a. Tā [V^o zuò-dào]-le [PostP yǐzi shàng] yǐhòu, yǐzi jiù kuàidiào-le.
 3SG sit -arrive-PERF chair on after chair then collapse-PERF
 ‘After he sat down on the chair, the chair collapsed.’
 b. Tā -de gùshi [V^odēng -zài] -le [PostP bàozhǐ shàng].
 3SG-SUB story publish-be.at -PERF paper on
 ‘His story got published in the newspaper.’
- (28) Tā [V^o zǒu -jìn]-le [PostP jiàoshì lǐ].
 3SG walk-enter-PERF classroom in(side)
 ‘He entered the classroom.’

As the position of the perfective aspect suffix *-le* indicates, in (27a) and (b) the verbs *dào* and *zài*—homophonous with the prepositions *dào* and *zài*—are part of the verbal compound. Accordingly, (27a–b) indeed involve PostPs in object position, and not PrePs.

Unlike VP-internal complement position, subject position allows us to distinguish between PostPs and PrePs on the one hand, and between PostPs and DPs on the other. PostPs occur in the subject position of locative inversion sentences like (29a), existential *yǒu* ‘exist’ (29b),⁶ and copular *shì* with an adverb of quantification (29c).

- (29) a. [PostP Chēzi shàng] pā-zhe yī-zhī māo.
 car on lie-DUR 1-CL cat
 ‘On the car is lying a cat.’
 b. [PostP Wūzi lǐ] yǒu hěn duō rén.
 room in(side) have very much people
 ‘There are many people in the room.’
 c. [PostP Shān -pō shàng] quán shì lǐzhishù.
 mountain-slope on all be chestnut.tree
 ‘All over the mountain slope there are chestnut trees.’

⁶ Existential *yǒu* ‘exist, there is’ as an unaccusative verb is distinct from the transitive verb *yǒu* ‘have, possess’:

- (i) Tā yǒu sān-liàng qìchē
 3SG have 3 -CL car
 ‘He has three cars.’

Simple DP subjects are unacceptable in these positions:

- (30) a. *[_{DP} Wūzi] yǒu hěn duō rén.
 room have very much people
 b. *[_{DP} Chēzi] pā-zhe yī-zhī māo].
 car lie-DUR 1-CL cat
 c. *[_{DP} Shān -pō] quán shì lizishù.
 mountain-slope all be chestnut.tree

At the same time, certain of these contexts distinguish between PostPs and PrePs. In the locative inversion context (29a), the locative preposition *zài* ‘at’ is unacceptable:

- (31) *[_{PreP} Zài chēzi shàng] pā-zhe yī-zhī māo.
 at car on lie-DUR 1-CL cat

Similarly, while PostPs are acceptable as subjects of adjectival predicates, PrePs are disallowed in this position:

- (32) a. [(**Zài*) wūzi lǐ] hěn gānjìng.
 at room in(side) very clean
 ‘It is very clean in the room.’
 b. [(**Zài*) lúzi qián] hěn nuǎnhuó⁷
 at stove in.front.of very warm
 ‘It is very warm in front of the stove.’

The copula *shì* enables us to distinguish between DPs, PostPs, and PrePs. DP subjects are of course completely acceptable; PostPs are of marginal or variable acceptability, depending on the speaker, while PrePs are completely unacceptable:

- (33) a. [_{DP} Bìlú] shì jiāli zuì nuǎnhuó de dìfāng.
 fire.place be home most warm SUB place
 ‘The fire place is the warmest place in our home.’

⁷ There is an alternative parsing of (32b) available for some speakers leading to its acceptability [_{TOPP} [Zài lúzi qián] [_{TP} *pro* hěn nuǎnhuó]] ‘In front of the stove, it is warm.’ When embedded in a relative, however, the *zài* PP cannot be construed as occupying topic position, and the sentence is ungrammatical:

(i) [_{DP} [(**Zài*) lúzi qián] hěn nuǎnhuó de nà-jiān fáng] shì kètīng
 at stove in.front.of very warm SUB that CL room be living.room
 ‘The room where it is very warm in front of the stove is the living room.’

- b. ?/√_[PostP] Lúzi qián] shì zuì nuǎnhuo de dìfāng.⁸
 stove in.front.of be most warm SUB place
 ‘In front of the stove is the warmest place.’
- c. *[PreP Zai lúzi qián] shì zuì nuǎnhuo de dìfāng.
 at stove in.front.of be most warm SUB place
 (‘In front of the stove is the warmest place.’)

Summarizing, both PrePs and PostPs may appear in complement position after the verb. PostPs may occur as the subjects of locative inversion, adjectival, and marginally of copular predicates, whereas PrePs are disallowed in these positions.

3.2.2.3 *PPs as constituents of DP* Both PrepP and PostP can be embedded in DP followed by *de*, but in the case of PrePs, this possibility is limited to DPs with relational head nouns. Examples such as (34) show that Li Y.-H. Audrey’s (1990: 5) general ban on *[PP *de* N] is too strong.⁹

- (34) a. [_{PreP} guānyú Chomsky] de kànfǎ
 concerning Chomsky SUB opinion
 ‘the opinions about Chomsky’
- b. [_{PreP} duì Lǐ xiānshēng] de tàidu
 towards Li Mr. SUB attitude
 ‘the attitude towards Mr. Li’
- (35) a. *[_{PreP} duì Lǐ xiānshēng] de huà
 towards Li Mr. SUB talk
 (‘the words addressed to Mr. Li’)
- b. *[_{PreP} cóng Běijīng] de rén
 from Beijing SUB person
 (‘a person from Beijing’)

⁸ More examples showing the marginal status of sentences with a PostP in the subject position of the identificational copula:

- (i) ?/√Yào shuì jiào, [_{PostP} xīngkōng xià] shì zuì hǎo de dìfāng
 want sleep sleep star under be most good SUB place
 ‘If you want to sleep, under the stars is the best place.’ (=based on Li Y.-H. Audrey (1990:30; (29c))
- (ii) ?/√ [_{PostP} Wǔfàn yǐhòu] shì zuì hǎo de xiūxi shíjiān
 lunch after be most good SUB rest time

‘After lunch is the best time for a rest.’

⁹ Ernst (1988: 239, footnote 10) also challenges the overall ban against PP modifiers and provides the following examples, but does not notice that the pattern is limited to relational nouns:

- (i) duì guójiā de rè’ài
 towards country SUB love
 ‘love of (one’s) country’
- (ii) guānyú zhè-jìan shì de wèntí
 about this-CL matter SUB problem
 ‘the problem with this matter’

- (36) a. *[_{PreP} gēn gǒu] de xiǎohái
 with dog SUB child
 ‘the child with the dog’
 b. gēn Lǐ xiānshēng de guānxi
 with Li Mr. SUB relation
 ‘the relation with Mr. Li’

No such restriction is observed in the case of PostP modifiers, which are compatible with non-relational (37) and relational nouns (38) alike:

- (37) a. [_{DP} [_{PostP} Cāochǎng shàng / wūzi lǐ] de rén] dōu shì
 sports.ground on/ room in(side) SUB person all be
 tā-de xuéshēng.
 3SG-SUB student
 ‘The people on the sports ground/in the house are all her students.’
 b. [_{DP} [_{PostP} Wǔ-diǎnzhōng yǐhòu] de dìtiě], rén tài duō.
 5 -o’clock after SUB subway person too much
 ‘The subway after five o’clock, there are too many people.’
 c. Wǒ bù xǐhuān [_{DP} [_{PostP} bā-diǎnzhōng yǐqián] de kè]].
 1SG NEG like 8-o’clock before SUB class
 ‘I don’t like classes before 8 o’clock.’
 d. Zhè shì [_{DP} [_{PostP} luóji shàng] de cuòwù].
 this be logic on SUB mistake
 ‘This is a logical error.’
- (38) a. [_{DP} [_{PostP} xuéxiào lǐ] de guānxi]
 school in(side) SUB relation
 ‘the relations within the school’
 b. [_{DP} [_{PostP} luóji shàng] de guānxi]
 logic on SUB relation
 ‘logical relations’
 c. [_{DP} [_{PostP} lǐlùn shàng] de máodùn]
 theory on SUB contradiction
 ‘theoretical contradictions’

Note that any XP, including clauses, can function as modifier subordinated to the head noun by *de* (cf. Paul 2007 and references therein).

3.2.3 Complements of *P*

In addition to DP complements, both prepositions and postpositions may select TP. This fact again distinguishes postpositions from nouns, because the complement clause of a noun head such as *xiāoxi* ‘news’ in (39) must be subordinated to the latter by *de*:

- (39) [DP [TP Liú Xiáobō dé Nuòbèi'ěr jiǎng] *(de) xiāoxi].
 Liu Xiaobo obtain Nobel prize SUB news
 'the news that Liu Xiaobo obtained the Nobel prize'

TP complements of prepositions (40–41) and postpositions (42–43) may denote temporal or abstract location:

- (40) [PreP Zìcóng [TP tā líkai Běijīng]], wǒmen yīzhí méi jiàn miàn.
 since 3SG leave Beijing 1PL always NEG see face
 'Since he left Beijing, we haven't met anymore.' (Lü et al. 2000: 695)
- (41) Wǒ zuò zhèi-jiàn shì [PreP gēn [TP nǐ zuò nèi-jiàn shì] méi yǒu guānxi.
 1SG do this-CL matter with 2SG do that-CL matter NEG have relation
 'My doing this has nothing to do with your doing that.'
- (42) [PostP [TP Tā kǎoshàng dàxué] (*de) yǐhòu] dàjiā dōu hěn gāoxìng.
 3SG enter university SUB after everybody all very happy
 'After he succeeded in entering the university, everybody was very happy.'
- (43) [PostP [TP pro Chī yào] yǐwài]] hái děi dǎ jǐ zhēn.
 eat medicine besides still must beat several needle
 'Besides taking medicine, it is also necessary to get some injections.'

However prepositions and postpositions show a crucial difference with respect to complement selection. As we have seen, prepositions may select PostPs (44), but prepositions may not select PrePs (45).¹⁰ Postpositions do not take any kind of PP complement (46).

- (44) a. [PreP zài [PostP cūnzi lǐ]]
 in village in(side)
 'in the village'
- b. [PreP cóng [PostP zhuōzi shàng]]
 from table on
 'from on the table'

¹⁰ Comparatives seem to be the only possible exception to this generalization, where *bǐ* 'compared to' and *gēn* 'with, as' may select PrePs:

- (i) Tā [duì nǐ] bǐ [duì wǒ] gèng qíguài.
 3SG towards 2SG BI towards 1SG even.more bizarre
 'He's even more bizarre to you than to me.'
- (ii) Tā [duì nǐ] gēn [duì wǒ] yíyàng qíguài.
 3SG towards 2SG GEN towards 1SG equally bizarre
 'He's as bizarre to you as to me.'

We might adopt Lin Jo-Wang's (2009) analysis, where *bǐ* is not a preposition, but the head of a degree phrase shell which itself is adjoined to the AP. Degree° can select NPs and PPs.

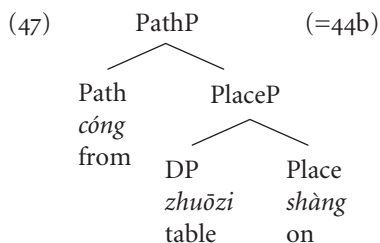
- (45) a. *[_{PreP} cóng [_{PreP} zài [cūnzi lǐ]]]
 from in village in(side)
 ('from in the village')
- b. *[_{PreP} cóng [_{PreP} zài [zhuōzi shàng]]]
 from in table on
 ('from on the table')
- (46) a. *[_{PostP} [_{PreP} gēn gǒu] yǐwài]
 with dog except
 ('except with dogs')
- b. *[_{PostP} [_{PostP} [dì'èrcì shìjiè dàzhàn] yǐhòu] yǐlái]
 second world war after since
 ('since after world war II')

The fact that prepositions select PostPs but not the opposite is one of the implicit reasons why postpositions have been regarded as a type of noun. But as we have seen throughout this section, the analysis of postpositions as nouns fails to account for numerous facts: the inability of postpositions of any kind to be stranded, their ability to occur as subjects in locative inversion contexts, and their ability to take TP complements without *de*. In the next section we show how an articulated PP structure accounts for the properties of both types of adposition, and also help explain the linear order asymmetries of PrepPs and PostPs.

3.3 The internal structure of pre- and postpositional phrases

In the previous section, we argued that prepositions and postpositions both instantiate the category P, and in particular that the latter are not nouns. However, we have also seen that there are a number of specific differences between prepositions and postpositions. In this section we account for those differences within an articulated P structure.

In an insightful discussion, Svenonius (2007) observes that Chinese prepositions denote path, while postpositions denote place; in other words the same distribution that we saw in (4). Svenonius also notices that postpositions form a closer bond with their DP complement than prepositions. In the articulated PP structure developed by Svenonius (2007) and later work (e.g. the papers in Cinque and Rizzi 2010b), a projection headed by adpositions denoting path dominates a projection denoting place. We exemplify this with (44b):

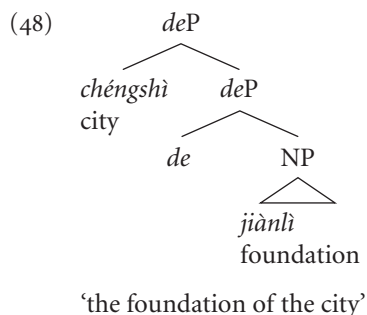


Given the generalization that prepositions denote path and postpositions denote place, this structure explains why prepositions select postpositions, but postpositions do not select prepositions. What remains to be explained is the language-particular property that path is denoted by prepositions and place by postpositions.

Two dimensions of explanation are relevant. The first is diachronic: as we show in detail in section 3.5, the historical sources for postpositions are nouns, while the historical sources for prepositions are verbs. NPs in Chinese are head-final, while VPs are head initial, throughout the history of the Sinitic family. As we showed in section 3.2, postpositions are not nouns; the cross-categorical parallel between the constituent order properties of nouns and postpositions is a consequence of their diachronic relation.

The second dimension of explanation has to do with the derivation of head-final and head-initial order in the synchronic grammar. As noted at the outset of this article, this ordering disharmony is one of the best-known features of Chinese syntax. Unnoticed, to our knowledge, is the fact that there is a systematic difference between head-initial and head-final categories with respect to how we might expect them to interact with case. The head-initial categories are PrepP, VP, and TP (based on the clause-initial position of tense and modal auxiliaries). All three of these categories are involved in licensing case: verbs and prepositions, as we have seen, take DP complements to their right, while T licenses DP subjects in its specifier.

The head-final categories are PostP, NP, and CP.¹¹ The latter two are not expected to check case features. Arguments of N in Mandarin appear with *de*, labelled SUBORDINATOR in this article; whatever the categorial identity of *de*, its distribution indicates that it bears an EPP feature requiring its specifier to be filled; it is also reasonable to suppose that it checks the case feature of nominal arguments of N.¹²



¹¹ Extending Lee Hun-Tak's (1986) analysis of the sentence-final interrogative *ma* as C to all sentence-final particles in Mandarin Chinese, Paul (2009; to appear) provides extensive evidence for a three-layered head-final split CP in matrix clauses and the existence of two exclusively subordinating head-final C's, viz. *dehua* in conditional clauses and *de* in propositional assertion (in addition to the subordinating C *de* heading relative clauses; cf. Lisa L.-S. Cheng 1986). This leaves a very narrow window for asserting, as does Dryer (2009), that subordinating clause-final Cs do not occur in VO languages. But even this circumscribed generalization does not hold up for earlier stages of Chinese such as Classical Chinese (2nd c. BC–2nd c. AD) where e.g. the interrogative C *hu* is attested in embedded questions with robust matrix VO order (cf. Djamouri et al. 2009).

¹² For a number of recent (but very divergent) proposals for *de*, cf. Cheng & Sybesma (2009), Li Y.-H. Audrey (2007), Paul (2007, 2012), Simpson (2001), Tang C.-C. Jane (2007), Zhang Niina Ning (2010), among others.

The fact that the other two head-final categories do not license case suggests an account for postpositions. Postpositions select DP arguments, but they are unable to check the case feature of their complement. Thus the complement moves to the specifier of P, where its case is checked either within the higher verbal projection or by a preposition:

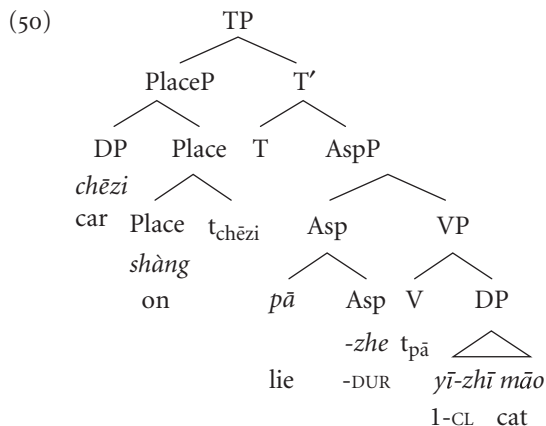
- (49) a. [_V zǒu -jìn]-le [_{PlaceP} jiàoshì [[_{Place} lǐ] t_{jiàoshì}] (=28)
 walk-enter-PERF classroom in(side)
 ‘enter the classroom.’

- b. [_{PathP} cóng [_{PlaceP} zhuōzi [[_{Place} shàng] t_{zhuōzi}]]] (=47)
 from table on
 ‘from on the table’

The hypothesis that postpositions fail to license case on their own explains other facts that we have observed. First, we saw in 2.2.2 that PostPs, but not PrePs, can appear in various types of subject position: subject of locative inversion predicates (29a), subject of *yǒu* ‘exist’ (29b), subject of copular *shì* with an adverb of quantification (29c), of adjectival predicates (32), and marginally of the copula (33). PreP subjects are ruled out in all of these contexts. This is because in PostP subjects, the complement of the postposition, after being raised to the specifier of PP, is available to check its case feature with T. In PrePs the case feature of the DP complement is checked within the PP projection, and is unavailable to check the casefeature of T.¹³ The basic configuration for PostP subjects is shown for the locative inversion example (29a).¹⁴

¹³ This discussion brings into focus interesting differences between Chinese and English. A full discussion of these differences is beyond the scope of this paper, but we touch on two. In English, locative inversion PP is held to check the EPP feature of T, but the case and other phi features of T are checked by the postverbal associate (the notional subject) (Collins 1997). If we are right about Chinese postpositions, the PostP subject checks both the EPP, and indirectly through its complement, the case feature of T. It is tempting to speculate that this difference may be related to the absence of elaborated phi-features (person, number, gender, morphological case) in Chinese. This in turn may be related to a reduced role for Agree targeting phi features. The second difference has to do with subjects of the copula. The possibility of PP and CP subjects of the copula in English suggests that T with copular predicates need not bear a case feature. The facts that we have discussed suggest that this is not the case in Chinese.

¹⁴ Inherently locative nouns such as *shàngmiàn* ‘top, surface’ are likewise acceptable in subject position with locative inversion (cf. (12d) above); being DPs, they check the case feature of T. The unacceptability of DPs such as *wūzi* ‘room’, *chēzi* ‘car’, *shānpō* ‘mountain slope’ as subjects in the locative inversion structure (cf. (30a–c) above) is due to their semantics: they do not denote locations.



‘On the car is lying a cat.’

As we saw in 2.2.1, bare PostPs, that is, PostPs without a preceding preposition, may appear sentence-initially or between the subject and the verb. We can specify these positions a bit more precisely: time and abstract place PostPs, like other phrasal adjuncts, appear in three positions: sentence-initial topic position, the ‘internal’ topic position below the subject but above negation and auxiliaries (Paul 2002, 2005), or VP-adjoined position between auxiliaries and the verb:

- (51) a. (Chúxī yǐqián) tā (chúxī yǐqián) yào (chúxī yǐqián)
 New.Year’s.eve before 3SG NY’s eve before want NY’s eve before
 huí jiā.
 return home
 ‘She wants to go home before New Year’s Eve.’
 b. (Yuánzé shàng) nǐmen (yuánzé shàng) kěyǐ zhèyàng zuò.
 principle on 2PL principle on can this.way do
 ‘In principle, you can do it this way.’
 c. Nǐmen bù néng [lǐlùn shàng] zhèyàng shuō, [shíjì shàng] què
 2PL NEG can theory on this.way speak reality on but
 nàyàng zuò.
 that.way do
 ‘You cannot in theory speak this way but then in practice do it that way.’

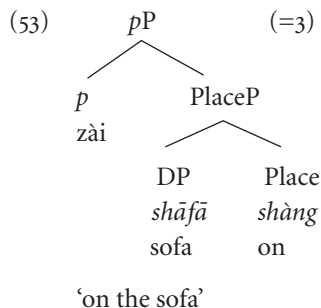
Subcategorized spatial location PostPs occupy the first two of these, but not the VP-adjoined position.

- (52) a. Nǐ [_{PostP} wòshì lǐ] bù néng fàng diànlú. (=22a)
 2SG bedroom in(side) NEG can put electric.stove
 ‘You cannot put an electric stove in the bedroom.’

- b. Nǐ bù néng [_{PreP} *_(zài) [_{PostP} wòshì lǐ]] fàng diànlú.
2SG NEG can in bedroom in(side) put electric.stove
'You cannot put an electric stove in the bedroom.'

This makes sense if we assume that subcategorized spatial location PostPs like *wòshì lǐ* ‘in the bedroom’ in (52) are moved from an underlying position inside VP. The DP complement of the PostP checks its case feature within the verbal projection, then undergoes A’ movement to one of the two topic positions. Only non-subcategorized, adjunct PostPs may be base-generated in the VP-adjoined position (51c). Thus adjunct PostPs have much the same distribution as bare NP adverbs in English (Larson 1985), and presumably are subject to the same analysis.¹⁵

The distribution of the preposition *zài* ‘in, at’ provides further support for the generalization that postpositions do not check case. *Zài* is anomalous among prepositions in that it appears to denote place, rather than path. It also is the most ubiquitous prepositional component of circumpositional patterns, as we see from examples such as (3), (23), and (44). We have seen that *zài* is disallowed in contexts where the case feature of the postpositional complement is checked (cf. 31–32), such as the subject PostP examples in (29), but it is required where the case feature of the complement would not otherwise be checked, such as the VP-adjoined position in (23) and (52b). We suggest that *zài* in circumpositional PPs is a functional preposition: it checks the case features of the postpositional complement where these would not otherwise be checked. On this view, the postposition assigns the [location] thematic role to the complement; *zài* heads a functional projection *pP* and checks the case feature of the complement DP.



The occurrence of both PostPs and PrePs in the context __ *de* NP can be explained by the assumption that the subordinator *de* can check the case of the item in its specifier

¹⁵ In English as well, place prepositions + bare NP adverb have the same distribution as bare adverbs on their own: (*Before/After*) *yesterday Kim was upset*. Also like Chinese, the combination path preposition + bare adverb does not occur: **to/from yesterday*. These facts suggest that place + bare adverb is simply a subtype of bare adverb.

(cf. (48)).¹⁶ The restriction of PP modifiers of NP to PlaceP—thus to PostP in the case of non-relational nouns—appears superficially to be a difference between Chinese and English, as shown by examples like (35–36a). However, PathP modifiers of NP also show distinct behaviour from PlaceP modifiers in English: in particular, they are islands for extraction:

- (54) a. Who did you see a *a letter to/ \sqrt{a} reference to? (cf. 35b)
 b. What did you encounter *a child with/ \sqrt{a} connection with? (cf. 36a)

This contrast suggests that PathP modifiers of NP in English are embedded in additional structure, perhaps a reduced relative clause, which blocks extraction of the PathP modifier. The availability of such a structure in English, but not in Chinese, permits PathP modifiers in the former language.

Summarizing the proposals in this section, we have seen that the core property of Chinese PPs, the fact that prepositions select PostPs but postpositions do not select any kind of PP, is explained by the articulated PP structure in (47). The core property of PlaceP in Chinese, that it is postpositional, is explained by the assumption that this projection belongs to a set of categories in Chinese that do not check the case of their complements. This analysis in turn explains the ability of PostPs but not PrepPs to occur in positions where case is checked, such as a variety of subject positions, and in circumpositional constructions with the preposition *zài*.

3.4 Chinese disharmony in a harmonic world

We have shown that the disharmonic constituent order properties of Chinese PPs follow from two independently motivated principles: the articulated structure of PP, and the generalization that the set of head-final projections in Chinese do not contain a case-checking head. According to this generalization, head-final categories are that way because their complements move to a higher position for case-driven reasons.¹⁷ Our account made no use of cross-categorical constituent order generalizations. Disharmonic order in Chinese PPs is the consequence of a hierarchical universal ([Path [PlaceP]]), a language-particular property (the absence of a case-checking head), and a derivational universal (uninterpretable case features must be checked).

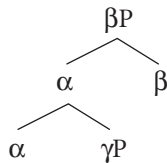
¹⁶ Note that the assumption that *de* can but need not check case is independently required in Chinese, as *de* licenses not only DP possessors (which presumably bear a case feature) but relative clauses (cf. 39) and adjectival modifiers (which presumably do not).

¹⁷ We note here that we have not attempted to account for the head-final nature of CP. This cannot be due to case considerations, on the normal assumption that TP does not require case. Many other possible explanations come to mind, such as the possibility that transposition of TP around C is a case of pied-piping, that is, a mechanism for moving operators in TP to Spec,CP in languages such as Chinese which lack *wh*-movement. We leave this as a suggestion, as the issue is beyond the scope of this paper.

Current research, in particular the research collected in this volume, suggests that this approach to constituent order generalizations – accounting for them in terms of independently motivated hierarchical and derivational generalizations – represents the future in the field of word order typology. To take a prominent example, the Final-over-Final Constraint (FOFC) proposed by Holmberg (2000) and developed by Biberauer, Holmberg, and Roberts (2008b, 2009, 2010) rules out certain combinations of head-final and head initial order across categories, but it is stated (and motivated) as a derivational generalization.

The FOFC rules out a specific subtype of disharmony: the case where a head-initial phrase α is immediately dominated by a head-final phrase β , where α and β are non-distinct in categorical features (Biberauer, Holmberg, and Roberts 2010):

(55)



The FOFC correctly predicts the constituent order disharmonies in Chinese PPs: a head-initial category (PrepP) may select a head-final category (PostP=PathP), but not vice versa. If we constrain ourselves to the facts of Chinese, it is not immediately clear how to choose between the account presented here, based on the hierarchical universal [Path [PlaceP]] and case-driven movement, and the FOFC (if indeed such a choice is required). As observed in footnote 11, clause final subordinating complementizers in Chinese may raise an empirical issue for the FOFC, but we leave this issue for future research.

An assessment of the issue requires a comparison of disharmonic and circumpositional PPs in Chinese and other languages. We must verify two things: first, whether the underlying Path > PlaceP hierarchy generalizes across ‘disharmonic’ PPs in other languages; second, whether the derivational possibilities from underlying [Path[Place P]] in Chinese show any comparability to other languages.

The answer to the first question is yes. West Germanic PPs as studied by van Riemsdijk (1990), Koopman (2000, 2010) Oosthuizen (2000), de Vos (this volume), Biberauer (2008a), and den Dikken (2003, 2010) all confirm a basic structure where a PP whose head denotes path or direction of motion embeds a PP whose head denotes location. We illustrate with the well-known German data in (56–58):

- (56) unter [DP der Brücke] durch
 under the_{DAT} bridge_{DAT} through
 ‘through under the bridge’

- (57) an [DP dem Bahnhof] vorbei
 at the_{DAT} station_{DAT} beyond
 ‘past the station’
- (58) an [DP dem Fluss] entlang
 at the_{DAT} river_{DAT} along
 ‘along the river’

As van Riemsdijk shows, and other authors concur, the constituency relations in these constructions are [PostP [PreP Prep DP] Postp]:

- (59) [PostP [PreP unter der Brücke] durch]
 under the_{DAT} bridge_{DAT} through
 ‘through under the bridge’

The most direct piece of evidence for this constituency is that the postpositions in these examples do not select DPs to their left; that is, **der Brücke durch*, **dem Bahnhof vorbei* and similar examples are systematically disallowed. In contrast, the PPs, e.g. *unter der Brücke* ‘under the bridge’, occur independently. Thus, in circumpositional PPs such as (56–58), path-denoting postpositions select place-denoting PrepPs. The fact that the postposition *qua* Path head heads the entire circumposition is confirmed by contexts where a higher head s-selects for Path; in such contexts the postposition cannot be dropped:

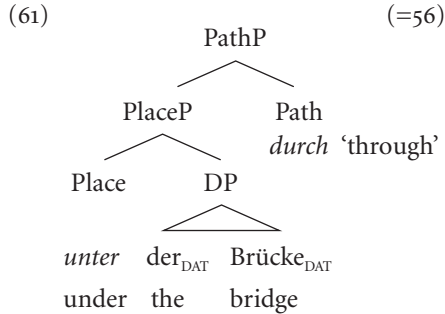
- (60) der Weg an dem Bahnhof *(vorbei) / unter der Brücke *(durch)¹⁸
 the way at the_{DAT} station_{DAT} beyond/ under the_{DAT} bridge_{DAT} through
 ‘the way past the station/through under the bridge’

In the German circumpositional data above, location-denoting Ps are prepositional (P–DP), while path-denoting Ps are postpositional (PreP–P). De Vos (this volume) describes a yet more straightforward pattern in Afrikaans, where even in simplex PPs, PostPs generally denote path of directed motion, PrePs place of static location.¹⁹ As we have seen, Chinese is the mirror image of this: in Chinese, location-denoting Ps are postpositional (DP–P), while path-denoting Ps are prepositional (P–DP). If the Chinese and West Germanic structures are mirror images of one

¹⁸ Note that without *vorbei* ‘beyond’ and *durch* ‘through’, respectively, (60) is marginally acceptable under the reading: ‘the way at the station/under the bridge’ i.e. with ‘station’ and ‘bridge’ as Place, not Path.

¹⁹ De Vos uses this correlation between order and meaning in Afrikaans to motivate an account based on PF linearization. According to this account, Path heads bear an uninterpretable feature checked by their DP complement, and checkers of an uninterpretable feature must precede the checkee. We are sympathetic with De Vos’s attempt to develop an account of PostP ordering that does not appeal to EPP-driven movement, but the correlation between Path and an uninterpretable feature forcing ‘DP–Path’ order cannot be a universal parameter, as mixed languages like German have both path-denoting postpositions and prepositions (*zu* ‘to’, *von* ‘from’ *nach* ‘to(wards)’, *durch* ‘through’), while Chinese, as we emphasize above, is the reverse of the Afrikaans situation.

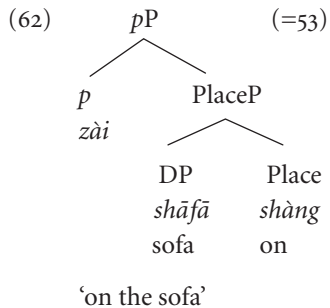
another, the latter would appear to be a *bona fide* example of the structure banned in (55); that is, a head-initial phrase immediately dominated by a head-final phrase:



Whether these data from German invalidate the FOFC or not depends on the status assigned to PlaceP. If it is analyzed as distinct in categorial features from PathP, the FOFC may be maintained. But whatever analysis that is adopted must capture the following generalizations that hold for Chinese and German: (1) both PathP and PlaceP (regardless of the location of their head) have the broader distribution of PPs; (2) the relevant hierarchical universal is [Path[PlaceP]].

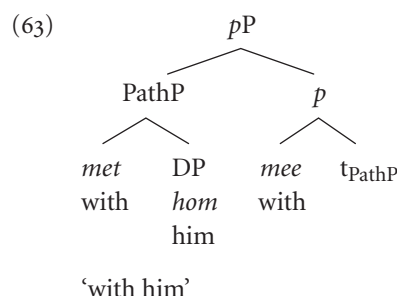
What about the derivation of the mirror-image orders in Chinese and West Germanic? Previous treatments of postpositional and circumpositional orders in West Germanic (e.g. Biberauer 2008) posit an EPP feature on the postposition to force movement of the complement DP or PreP complement to its left.²⁰ It is clear that a case-driven account of postpositional ordering such as we have developed for Chinese does not extend to West Germanic circumpositional phrases, since in examples like (56–58) dative case on the DP is checked by the preposition.

A hint about the relevant parametric difference is provided by the identity of ‘light’ *p* heads in Chinese versus West Germanic circumpositional phrases. In Chinese, as we showed in section 3.3, *prepositional* light *p* merges with *postpositional* PlaceP, as in (62):



²⁰ In strict Minimalist terms, an EPP feature is required to force movement in our account of Chinese post- and circumpositions as well. The account is not solely dependent on the EPP, however, in that a case checking requirement is also satisfied by the movement in question; if an EPP feature is not present, the case feature on the DP is not checked and the derivation crashes.

In West Germanic, *postpositional* light *p* merges with *prepositional* PathP, as shown in the Afrikaans example (63) adapted from Oosthuizen (2000) (cf. de Vos (this volume, example 5)):²¹



De Vos argues for an agreement relation involving the *p* head in (63) (also cf. van Riemsdijk 1990: 240); the form *mee* is described as an ‘agreeing form’ of the adposition, and the relation is construed in terms of asymmetric feature checking of an uninterpretable feature on *p* by the complement DP. In versions of Minimalism (Chomsky 1995a), the relation between the fronted PathP and the postposition could be construed as a case of Spec–Head Agreement. The relevant parametric difference is an independently motivated one: presence or absence of agreement features. While agreement features play a role in West Germanic, they do not in Chinese. The light *p* *zài* ‘in, at’ in Chinese is merged to check the case features of the DP complement, which it does without requiring movement to its specifier. West Germanic light *ps*, in contrast, force movement, under conditions suggestive of Spec–Head Agreement.

3.5 History

As we stated in section 3.3, there are two dimensions to explaining the difference between prepositions and postpositions in Chinese languages: a synchronic dimension and a diachronic one. The objective of this section is to outline the diachronic dimension. Put simply, postpositions are diachronically derived from nouns; prepositions derive from verbs, or have always been prepositions. (Note that PrePs are attested from the earliest sources (13th c. BC), cf. Djamouri and Paul 1997, 2009). In what follows, we briefly outline the history of postpositions, whose existence is attested from the Western Han on (1st c. BC). In contrast to previous studies focusing

²¹ While we adopt (63) as the structure for West-Germanic circumpositional phrases, the example itself appears ill-chosen. Note that in German, the corresponding sequence ‘with XP with’ only arises through stranding of a separable prefix, as in *mit-kommen* ‘with-come’ = ‘come with, accompany’: *Komm_i [PreP mit mir] mit-t_{komm}* ‘Come with me.’ By contrast, it is unacceptable within a DP: [_{DP} der Tanz [_{PreP} mit mir] (*mit)] ‘the dance with me’. The crucial status of NP complement position as a diagnostic site for distinguishing adpositions and homophonous separable verb prefixes was pointed out by van Riemsdijk (1990: 234).

on spatial location only, we provide data illustrating spatial and temporal location. We show that the analysis proposed above for PPs in Modern Mandarin holds for earlier stages of the language as well. In particular, no PrePs are attested in subject position, contrasting with numerous instances of existential sentences with PostP-subjects.

3.5.1 Syntactic properties of location nouns

Postpositions were derived via reanalysis from location nouns such as 上 *shàng* ‘top’, 下 *xià* ‘bottom’, 前 *qián* ‘front, anteriority’, 後 *hòu* ‘posterity, posteriority; rear’, etc. It is semantically unsurprising that location nouns develop into adpositions denoting place. As illustrated in the data given below, being nouns, these items could be modified, occur on their own and be selected as complements by prepositions. Thus, in (64) 後 *hòu* ‘posteri(ori)ty’ is modified by the adjective *líng* ‘good’, while (65) and (66) show the location nouns *shàng* ‘top’ and *zhōng* ‘middle, center’ preceded by the possessive pronoun *qí*:

- (64) 甯冬甯後 (*Huang zi li* 黃子鬲 Early Springs and Autumns period, 8th–7th c. BC)
 [DP *líng zhōng*] [DP *líng hòu*]²²
 good perpetuation good poster(ori)ty
 ‘[May this vessel bring his owner] a fine perpetuation and a fine posterity.’

- (65) 蠶妾在其上 (*Zuozhuan* 左傳, Xi 僖 23, 4th c. BC)
 Cán qiè zài [DP *qí shàng*].
 silkworm servant be:at 3POSS top
 ‘A silkworm picker woman was located above them [i.e. up in the tree].’

- (66) 立于其中 (*Liji* 禮記 chap. 13, Yuzao 玉藻, 4th–3rd c. BC)
 Lì yú *qí zhōng*.
 stand at 3POSS middle
 ‘[The king] stood in its middle.’ (*It* refers to the half-open door.)

(67)–(70) below also involve modified NPs, with the modifier NP subordinated to the head noun by the genitive particle *zhī* (roughly corresponding to Modern Mandarin *de* discussed in section 3.3):

- (67) 王用弗忘聖人之後
 wáng yòng fú wàng [DP *shèngrén zhī hòu*].
 king use NEG forget sage SUB poster(ori)ty
 ‘The king will use [this vessel] in order not to forget the descendants of the sages.’
 (*Shi Wang ding* 師望鼎, Middle of the Western Zhou period, 9th c. BC)

²² This is one of the earliest examples attested for *hòu* as noun.

- (68) 爰有寒泉，在浚之下。
 Yuán yǒu hán quán zài [DP jùn zhī xià].
 then have cold spring be:at Jun SUB bottom
 ‘And then there is a cold spring, at the bottom of the Jun river.’ (*Shijing* 詩經 32/3, *Guofeng Beifeng, Kaifeng* 國風邶風, 凱風, 8th c. BC)
- (69) 帷幕之外，目不能見十里之前 (*Huainanzi* 淮南子 9/6, 2nd c. BC)
 [Wéimù zhī wài] mù bù néng jiàn [DP shí lǐ zhī qián].
 curtain SUB outside eye NEG can see ten mile SUB front
 ‘Outside the curtains, the eye cannot see farther than ten miles ahead.’
- (70) 三月之後 (*Guanzi* 管子 85-9/3, 1st c. BC)
 [DP sān yuè zhī hòu] ...
 three month SUB posteri(ori)ty
 ‘After three months...’

In the examples above, *hòu* ‘posteriority, rear’, *qián* ‘anteriority, front’, *wài* ‘outside’ *xià* ‘bottom’ are clearly nouns because their modifier is subordinated by the genitive particle *zhī*. Naturally, such a complex NP ‘NP *zhī* N’ can also be the complement of a preposition (cf. (71)–(73)):

- (71) 子姓兄弟立于主人之後 ... (*Yili* 儀禮, chap. 15; ca. 6th c. BC)
 Zǐxìng xiōngdì lì [PP yú [DP zhǔrén zhī hòu]] ...
 sons brothers stand at host SUB rear ...
 ‘The descendants and brothers stand at the rear of the host [of ceremony] ...’
- (72) 故加衣於君之上 (*Hanfeizi* 韓非子, chap. 7, 2/4, 3rd c. BC)
 Gù jiā yī [PP yú [DP jūn zhī shàng]].
 therefore add clothes on lord SUB top
 ‘And then he put some clothes on top of the lord.’
 (Context: The lord is lying drunk on the floor.)
- (73) 今乃欲審堯、舜之道於三千歲之前 ... (*Hanfeizi* 韓非子 50, 1/4, 3rd c. BC)
 Jīn nǎi yù shěn yáo shùn zhī dào [PP yú [sānqiān suì
 now then want investigate Yao Shun sub way at 3000 year
 zhī qián]]
 SUB anteriority
 ‘Now if one wants to investigate the Ways of Yáo and Shùn 3000 years ago ...’

Bare *qián*, *hòu*, *shàng*, *xià* can likewise be selected as the complement of a preposition, again confirming their nominal status at this stage:

- (74) 小臣二人執戈立于前，二人立于後。 (*Liji* 禮記·22·2/33, 4th c.–3rd c. BC)
 Xiǎo chén èr rén zhí gē lì [PP yú qián], èr rén
 little official two man hold spear stand at front two man
 lì [PP yú hòu].
 stand at rear
 ‘Two assistants holding spears were standing in front [of the ruler],
 and two at the rear.’
- (75) 形立於上，影應於下
 Xíng lì [PP yú shàng] yǐng yìng [PP yú xià].
 shape stand at top shadow respond at bottom
 ‘The shape stands at the top and the shadow responds at the bottom.’
 (*Chunqiu Fanlu* 春秋繁露, chap. 20, Bao wei quan 保位權, 2nd c. BC)

Finally, locative NPs can occur on their own, e.g. as the subject in an existential construction:

- (76) 馬知後有輿 (*Han shi waizhuan* 韓詩外傳·2·11/1, 2nd c. BC)
 Mǎ zhī hòu yǒu yú.
 horse know rear exist chariot
 ‘The horse knew that behind there was a chariot.’

Since previous studies do not provide criteria for choosing between a location noun versus a postposition, (that is, Place) analysis of these items, let us have a closer look at the environments where they appear. In examples (77)–(80) below, the location noun heads a complex NP where the modifying NP is simply juxtaposed with the head noun in the configuration [DP NP N], a structure generally available for nominal modification at that time.²³ As to be discussed in section 3.5.2, it is most likely this structure which permitted the reanalysis of the (location) head noun as a postposition.

- (77) 馬邊縣男頭。馬後載婦女。
 [DP mǎ biān] xuán nán tóu [DP mǎ hòu] zài fù.
 horse side hang man head horse rear carry woman
 ‘Men’s heads were hanging from the flanks of the horses, and women were carried on the croups of the horses.’
 (Cai Yan 蔡琰, *Bei fen shi* 《悲憤詩》 Poem of Sorrow and Anger, 3rd c. AD)

邊 *biān* ‘side’ and 後 *hòu* ‘rear’ here clearly refer to the body parts of the horses. Thus 馬邊 *mǎ biān* ‘horses’ flanks’ and 馬後 *mǎ hòu* ‘horses’ croups’ are interpreted as

²³ The structure [DP [modifier–NP] N] is attested since the earliest sources (13th c. BC). The structure with the genitive particle *zhī* [DP [modifier–NP] *zhī* N] appears much later, i.e. around the 7th c. BC (cf. Djamouri 1999).

complex NPs, not as PostPs meaning ‘at the side of the horses’ and ‘behind the horses’, respectively.²⁴

Similarly in (78) and (79), the context indicates that 馬後 *mǎ hòu* refers to the rear of the horse (and not to a general location behind the horse), and 房中 *fáng zhōng* to ‘the middle of the room’ (rather than to a general location inside the room).

(78) 御者執策立于馬後。

Yùzhě zhí cè lì [PP yú [DP mǎ hòu]].

driver hold whip stand at horse rear

‘The driver was holding a whip, standing at the rear of the horse.’

(Yili 儀禮, chap. 13 *Ji xi li* 既夕禮 *Obsequies of an ordinary officer*, compiled in 2nd c. BC)

(79) 夫人副禕立于房中。(Liji 禮記, chap. 14, Mingtang wei 明堂位, 4th c.–3rd c. BC)

Fūrén fù huī lì yú fáng zhōng.

wife adorn dress stand in chamber middle

‘His wife in her adornment and dress stood in the middle of the chamber.’

Finally, in (80), the contrastive parallelism between 其下 *qí xià* ‘its bottom’ (in the main clause) and 山上 *shān shàng* ‘top of a mountain’ (in the preceding conditional clause) indicates the NP status of the latter. The fact that 上 *shàng* in the second sentence occurs on its own confirms the nominal status of *shàng* in this sentence.

(80) 山上有緒者其下有鐵, 上有鉛者其下有銀。(Guanzi 管子 23, 1st c. BC)

Shān shàng yǒu zhě zhě qí xià yǒu tiě

mount top exist hematite NOM 3POSS bottom exist iron

²⁴ In fact, this kind of interdependence between interpretation and categorial status can be nicely illustrated using the item *zhōng* from Modern Mandarin. The location noun *zhōng* ‘middle’ can head a complex NP and be selected by a postposition such as *yǐlái* ‘since’ (cf. (i)). A PostP headed by *zhōng* ‘in, during’, by contrast, cannot function as the complement of another postposition (cf. (ii)), the selection of a PostP complement by a postposition being excluded:

(i) [PostP [NP jiǔyuè zhōng] yǐlái]
 september middle since

‘since mid-september’

(ii) *[PostP [PostP jiàqī zhōng] yǐlái]
 holidays during since

(iii) [PostP jiàqī zhōng]
 holidays during

‘during the holidays’

(iv) [PostP jiàqī yǐlái]
 holidays since

‘since the holidays’

shàng yǒu qiān zhě qí xià yǒu yín.
 top exist lead NOM 3POSS bottom exist silver

‘If on the top of a mountain there is hematite, then there is iron at its bottom. If on the top there is lead, then there is silver at its bottom.’

3.5.2 Reanalysis of location nouns as postpositions

The reanalysis of location nouns as postpositions occurred around the 1st c. BC in the modification structure ‘[NP–modifier] [location noun]’ without the genitive particle *zhī*. The data suggest that the complement position of prepositions favoured the reanalysis of this sequence as ‘[NP–complement] postposition’.

- (81) 女子為自殺於房中者二人。(Shiji 史記 5.16, 1st c. BC)

Nǚ wéi zì shā [PreP yú [PostP fáng zhōng]] zhě èr rén.
 woman be self suicide at room in NOM two person
 ‘[After the death of their husband] There were two women who killed themselves in their room.’

- (82) 一比丘在房中臥 (Shi song lǜ 十誦律 58, 5th c. AD)

Yī bǐqiū [PreP zài [PostP fáng zhōng]] wò.
 one monk at room in sleep
 ‘A monk was sleeping in the room.’

- (83) 既覺洗浣於房前曬。(Mishasaibu 彌沙塞部, 五分律, 5th c. AD)

Jì jué xǐhuàn yú fáng qián shài.
 after arise wash at room in.front.of sun
 ‘After he had woken up and washed himself, he sunned himself in front of the room.’

In (81–83), the context indicates clearly that *zhōng* and *qián* do not refer to the ‘center’ or the ‘façade’, but to a general location inside or in front of the room, respectively. Further research is required to confirm that the reanalysis of location nouns took place first in the complement position of prepositions, resulting in the circumpositional constructions described in section 3.2. Note, however, that the prepositions attested in (81–83) are *zài* ‘in, at’, analyzed as light *p* in section 3.3, and *yú* ‘in, at’, a preposition with a similarly broad range of place-denoting meanings in earlier Chinese. The hypothesis that location noun > P reanalysis took place first in the complement position of these prepositions can explain why the reanalysis did not take place earlier, despite the fact that the modification structure without *zhī* [DP NP [location–N]] is attested from the earliest sources, over a millennium prior to the data in (81). Bleaching of the semantic content of *zài* and *yú* led to their reanalysis as the light *p* in (53); once this reanalysis takes place, the location thematic role is assigned by the postposition, while DP case is checked by *p*.

In the specific case of *hòu* ‘posteriority, rear’, temporal location ‘after X’ could at first only be expressed by a complex NP with the subordinator *zhī*: XP *zhī hòu* (cf. (70)), whereas for the spatial location, both structures, XP *zhī hòu* (cf. (71)) and XP *hòu* (cf. (77)) are attested. From the Western Han period on (1st c. BC), we observe that ‘XP *hòu*’, without the genitive *zhī*, can now denote both spatial *and* temporal location (84–85): we take this as an indication that the reanalysis of the noun *hòu* ‘posteriority, rear’ as a postposition ‘behind, after’ has occurred by this time.

- (84) 二年後伐越，敗越於夫湫。(Shiji 史記, Wu Zixu liezhuan 伍子胥列傳, 1st c. BC)

[_{PostP} Èr nián hòu] fá yuè bài yuè yú fúqiū.
 two year after fight Yue defeat Yue at Fuqiu
 ‘After two years, he attacked the Yue and defeated them at Fuqiu.’

- (85) 閏當在十一月後 (Hanshu 漢書, Lü li zhi 律曆志, 2nd c. AD)

Rùn dāng zài [_{PostP} shíyī yuè hòu].
 leap:month must be:at eleven month after
 ‘The leap month must occur after the eleventh month.’

3.5.3 Properties of PostP in Late Han through Middle Chinese (c.1st BC–c.10th AD)

Drawing on data from across a large time frame, from the emergence of postpositions in the 1st c. BC to the 10th century AD, this section examines the properties of PostP.²⁵ We show that Postps—like PrePs—may occupy the sentence-initial topic position, may appear in preverbal adjunct position (between the subject and the verb) and be subcategorized for as an argument and hence occur in the postverbal position (reserved for arguments). Importantly, this distribution is observed up to modern times.

- (86) 城河上為塞。(Shiji 史記, Qin Shihuang benji 秦始皇本紀, 1st c. BC)

[_{TP} Chéng [_{PostP} hé shàng] wéi sài.
 fortification river on make protection
 ‘Fortifications were built for protection along the river.’

- (87) 此日山上雲氣成宮闕... (Ma Dibo 馬第伯, 1st c. AD)

[_{TopP} [Cǐ rì] [_{PostP} shān shàng]] [_{TP} yún qì chéng gōngquè]].
 that day mountain on cloud mist form palace.building
 ‘That day, on the mountain, the cloud mist formed a palace [...].’

- (88) 和尚百年後向什麼處去? (Zutangji 祖堂集 16-1-18, 10th c. AD)

Héshàng [_{PostP} bǎi nián hòu] xiàng shénmo chù qù?
 monk 100 year after toward what place go
 ‘After one hundred years (after your death) to which place will you go?’

²⁵ For a detailed discussion of PrePs in earlier stages of Chinese, see Djamouri and Paul (2009).

While in (86), the adjunct PostP 山上 *shān shàng* ‘on the mountain’ occupies the topic position to the left of the subject, the adjunct PostPs in (87) and (88) 河上 *hé shàng* ‘along the river’ and 百年後 *bǎi nián hòu* ‘after hundred years’, respectively, occur in the preverbal position to the right of the subject.

- (89) 時有天即接石置山頂上。 (*Shisan seng canfa* 十三僧殘法, chap. 3, 5th c. AD)
 Shí yǒu tiān jí jiē shí zhì shān -dǐng shàng.
 once exist heaven succeed send stone put mountain-summit on
 ‘If one day Heaven were to send a stone, he would put it on a mountain summit.’
- (90) 城在山上。 (*Shuijing zhu* 水經注 chap. 7, 6th c. AD)
 Chéng zài shān shàng.
 city be.at mountain on
 ‘The city is in the mountains.’

In (89) and (90) the PostPs 山頂上 *shān-dǐng shàng* ‘on a mountain summit’ and 山上 *shān shàng* ‘in the mountains’ are arguments subcategorized by the verb and therefore occupy the postverbal position.

So far we have illustrated the properties PostPs share with PrePs in earlier Chinese. However, there also exist a number of specific differences between them. In this respect the situation observed for post-Han Chinese resembles that described for Modern Mandarin in section 3.2 above.

The first difference is that PrePs are not attested in the subject position of existential sentences (cf. (92)), while for PostPs, this is a very common structure:

- (91) 山上復有山。 (Li Ling 李陵, *Gu jueju* 古絕句, 1st c. BC)
 Shān shàng fù yǒu shān.
 mountain on still have mountain
 ‘Beyond the mountain there are still mountains.’
- (92) *[_{PP} 在/于(於)/自 NP] 有 NP
 zài/yú /zì NP yǒu NP
 at/to/from N have N
 (at/to/on/from N there is N)

Secondly, while PostPs can function as modifiers subordinated to the head noun by *zhī* ‘PostP *zhī* N’ (93), no corresponding structure with a PreP modifier seems to be attested (94):

- (93) 宜昏飲, 此水上之樂也。 (*Guanzi* 管子·83·11/5, 1st c. BC)
 Yí hūn yǐn cǐ [DP [_{PostP} shuǐ shàng] zhī lè] yě.
 suit evening drink this water on SUB pleasure PART
 ‘Since it was an attractive place for drinking in the evening, this then became a popular form of amusement by the waterside.’

(94) *[_{DP} PreP *zhi* N]

Last, but not least, while PostPs can be complements of PrePs (cf. (81) and (83) above), no examples of a PreP as the complement of a preposition are attested (95):

(95) * [_{PP} 在/于(於)/自 [_{PP} 在/于(於)/自 NP]]
 zài/yú /zì zài/yú/zì NP
 at/to/from at/to/on/from NP

In this section we have described the emergence of postpositions from location nouns, and subsequent to this reanalysis, the differences between postpositions and location nouns, on the one hand, and postpositions and prepositions, on the other hand. We have seen that in earlier Chinese no PrePs are attested in subject position, contrasting with the numerous instances of existential sentences with PostP-subjects. Furthermore, PostPs can function as modifiers subordinated to the head noun by *zhi*: ‘PostP *zhi* N’, while no cases with PP modifiers are attested. Last, but not least, no prepositions selecting a PreP complement were found. Thus with respect to these three properties, PostPs (from the 1st c. BC onwards) and PrePs behave like their counterparts in Modern Mandarin.

3.6 Conclusion

Within the typological literature, the VO language Chinese has long been known for its ‘disharmonic’ and ‘mixed’ nature. The co-existence of Postpositional Phrases and Prepositional Phrases since the 1st c. BC is one of the numerous phenomena illustrating this property. A careful study shows that Postpositional Phrases (PostP) and Prepositional Phrases (PrePs) instantiate the same basic category, PP; more precisely, neither type of P belongs to the category N or V, as has sometimes been suggested. The differences between these two types of PP reflect a hierarchical universal ([Path [PlaceP]]) and a language-particular property of Chinese (the absence of phrase-final heads with the ability to check case). Postpositions denote static location, that is, place. Their DP complements check case through movement to the left edge of PlaceP; case is assigned by a path-denoting preposition, the light *p* *zài*, or a higher verbal head. The place-denoting semantic property of postpositions and their inability to check case bear a diachronic relation to their origin as nouns, but these properties have been integrated into an articulated PP structure where postpositions function as the head of PlaceP, fully consistent with the hierarchical and derivational principles of Universal Grammar.

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