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The Cartography of Spatial Adpositional Phrases in Mandarin and Cantonese

A dissertation presented

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Chi Fung LAM

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Abstract

In this dissertation I investigate some issues on Spatial Preposition Phrases in Mandarin and Cantonese from the cartographic approach. In Chinese and some other languages Circumpositions instead of only Prepositions are used.

First of all, I justify the existence of the category Pr(eposition) in Mandarin by several diagnostic tests, and discover, by considering relativization, the microparametric variation on the Stative V/Locative Pr: *zai* in various varieties of Mandarin, *hai* in Cantonese, *lAʔ (lAʔ)* in Shanghai dialect, and *niangb dit* in Eastern Guizhou Miao (a language from Miao-Yao/Hmong-Mien group). The microparametric variation is then accounted for by the hypothesis that the transitive stative verb is actually a fushion of the intransitive stative verb and a locative preposition, the failure to permit relativization (or preposition stranding) is always due to the existence of a locative preposition, no matter it is an independent morpheme or one fused in the transitive stative verb.

Second, the richer Postpositions in Cantonese are studied. The most prominent discovery is the PLACE classifier *dou*, which may support the assertion that each Spatial PP embeds a DP_{PLACE} which is selected by an Adposition of Locative, an idea advocated in Cinque (2010). Another Postposition discussed is Axial Part. It is shown that in Chinese Axial Part has more complex structure, that consists of the element conveying directional sense

and another noun-like element *min* (*mian* in Mandarin) that behaves slightly similar to *dou* but not exactly. Different from traditional views on Chinese, where 'Preposition' Stranding is always prohibited, I show that some Circumposition Stranding is possible.

Third, some languages from Tibeto-Burman and Tai-Kadai provide evidence to support my claim that PLACE element like *dou* is actually a Classifier. These languages have the canonical word order of Noun > Demonstrative > Classifier, or Classifier > Demonstrative > Noun, and therefore are suitable candidates for my diagnostic tests.

In short, the study in this thesis relies primarily on Cantonese, Mandarin and English. Contributions from other languages include Shanghai and (Sin-on) Hakka, which are Chinese varieties; (Eastern Guizhou) Miao from Hmong-Mien group, Naxi and Bai from Tibeto-Burman group, Chadong from Tai-Kadai group. The cartography of spatial adpositional phrases thus obtained can be demonstrated by the following functional sequence and the Cantonese example.

The functional sequence:

$$Pr_{LOC} > Deictic > (Nume) > CL > \ldots Deg \ldots > \ldots AxPart > Ref_{Ground} > N_{PLACE}$$

An example of derivation with Cantonese data

$[_{PrP}Pr_{Loc}\,[_{DP}[_{ZP}[_{YP}[_{RefP}DP_{Grd}[_{NP}place]]]_iY^0[_{XP}AxPtPt_i]_j\,Z^0\,[_{DegP}MeasP\,t_j]_k[_{DeicP}Deic[_{ClP}CLt_k]$
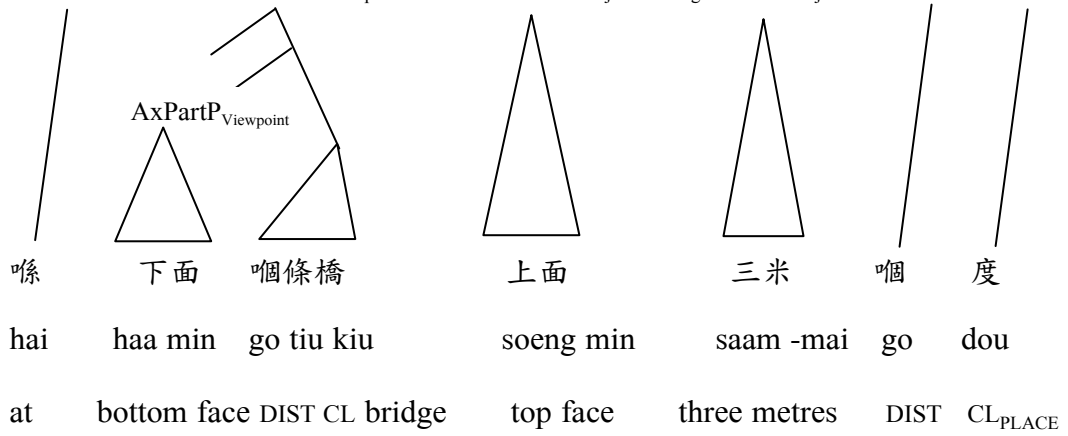
AxPartP$_{Viewpoint}$

喺	下面	嗰條橋	上面	三米	嗰	度
hai	haa min	go tiu kiu	soeng min	saam -mai	go	dou
at	bottom face	DIST CL bridge	top face	three metres	DIST	CL_{PLACE}

'at down there, three metres above that bridge'

3

Chapter 1

The Cartographic Approach to the Syntax of Spatial PPs

1.1   The Cartographic Approach

1.1.1   The X-bar Theory

During late 1960s through 1970s Transformational Generative Grammar invented X-bar schemata for the configuration of lexical categories, N(oun), V(erb), and A(djective) (Chomsky 1970; Jackendoff 1977). Since the relative orders on the surface between the H(ead) and the Spec(ifer), and between the H and the Compl(ement) were supposed to be parametrically determined by the language in question, there are four possible configurations due to directionality. Chomsky (1970) captured the generalization shared by those three lexical categories by using a variable notation X, thus we have:

(1)

```
        XP                          XP
       /  \                        /  \
      X'   Spec                  X'    Spec
     /  \                       /  \
    X    Compl             Compl    X
```
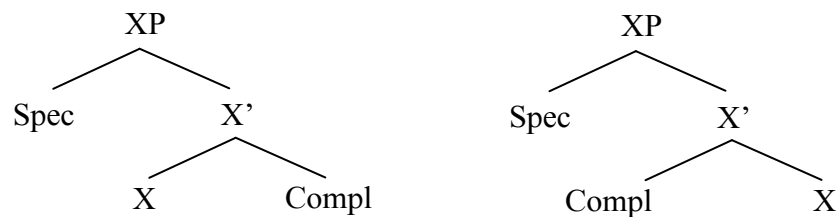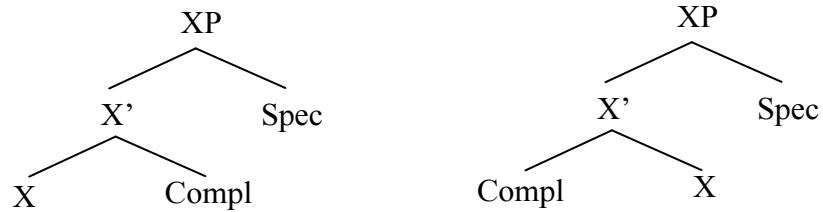
While such X could be realized as N, V, and A in Chomsky (1970), later in Jackendoff (1977) and Chomsky (1981) the generalization was extended to include P(reposition), which was conceived as a lexical category in their theoretical attempts to a typology of lexical categories, which made use of two features, namely [N] and [V], with positive and negative values for each of them, and the four lexical categories so generated.[1]

(2)   N = [+N, −V]

       V = [−N, +V]

       A = [+N, +V]

       P = [−N, −V]

---

[1] The three categories, N, V, and A, classified by two features suggested in Chomsky (1970) leaves a gap. Although suggesting P to be the gap, Jackendoff (1977:31-33) actually develops another feature system in which N and V fall into one natural class, whereas in Chomsky's (1970, 1981) system N and V are not in the same natural class (as shown in this array). Besides, Jackendoff's (1977:31-33) system is much more elaborated in that many more features are suggested so as to include other categories, e.g. Adverb, Article, Quantifier, Particle, etc.

At this stage many other constituents were filled into the Specifiers of these lexical categories. For instance, [Spec, N] can be a Determiner, [Spec, V] an Auxiliary Verb, and [Spec, A] and [Spec, P] Adverbs. Neglecting the four possible configurations due to directionality as shown in (1), the following diagrams demonstrate each of the four lexical categories that share the same X-bar schema:

(3)

```
                          NP
              ┌────────────┴────────────┐
         Spec_N (Det)                   N'
        ┌────┼────┐                  ┌───┴───┐
     Preart      Poss               N        PP
       │          /\                │        /△\
       │        NP   \              │       /    \
       │        /△\   \             │      /      \
    several  of  John  's         proofs  of the theorem
```
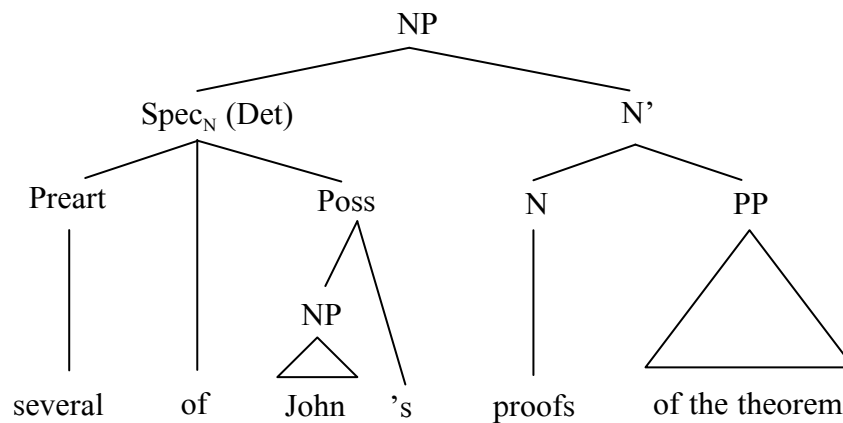
[_NP several of John's [_N' proofs [of the theorem]]

(Jackendoff 1977:38)[2]

---

[2] This example originally came from Chomsky (1970:211) but the one adapted here is from Jackendoff's (1977) revised one. In this and the following examples the old-fashioned notations, $\overline{X}$ and $\overline{\overline{X}}$, in the original text are replaced by the then more popular ones, X' and XP.

(4)

```
                        S
              ┌─────────┴─────────┐
             NP                   VP
              │          ┌─────────┴─────────┐
            John     [Spec, V']             V'
                         │           ┌───────┴───────┐
                      [past]         V              NP
                                     │          ╱───────╲
                                   prove      the theorem
```
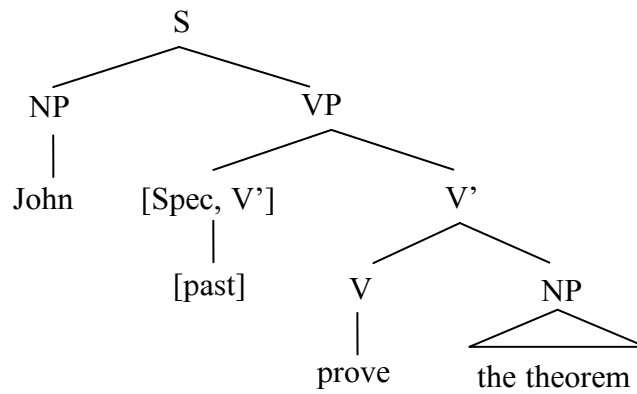
John [_VP_ (past) [_V'_ prove [the theorem]].

(Chomsky 1970:211)[3]

(5)

```
                    AP
          ┌──────────┴──────────┐
        Spec                    A'
          │             ┌────────┴────────┐
          │             A                PP
          │             │            ╱────────╲
        rather       envious        of Poirot
```
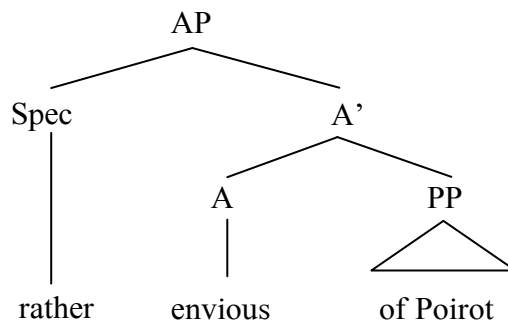
[_AP_ rather [_A'_ envious [of Poirot]]]

(Haegeman 1994:102)

---

[3] Chomsky (1970) supposed [Spec, V'] to be an Auxiliary Verb. I add a bracket to the 'past' feature, i.e. [past], to distinguish it from lexical items.

(6)

```
                    PP
           _____|_____
         Spec                    P'
          |              _____|_____
          |             P                  NP
          |             |                 /\
        right        across            the bridge
```
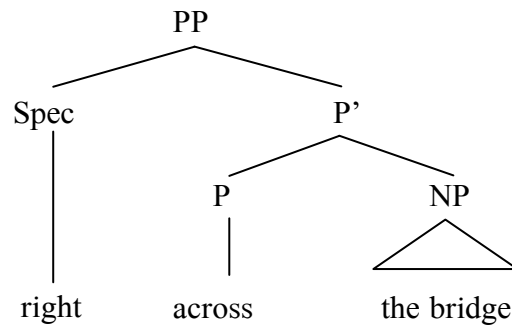
[PP right [P' across [the bridge]]]

(Haegeman 1994:103)

Since only those four categories are subject to the X-bar schema, there are many 'exocentric' structures, in the sense that a node dominating two nodes does not inherit from either of the two. For instance, in (4) the sentence node S, dominating NP and VP, is not projected from either phrase. Furthermore, in (3) the Determiner or [Spec, NP] not only is exocentric, but also dominates three nodes. The unrestricted structure of the Specifier allows it to accommodate 'unlimited' number of modifiers, such as Article, Quantifier, Possessor, etc. Obviously there are lots of deficits in such syntactic structure. First, *several of John's* does not actually form a constituent that modifies *proofs of the theorem.* Second, it cannot reflect the scoping relations among various elements. A quantified nominal, including a partitive like *several of,* consists of a quantifier and a restriction (e.g. Keenan 2011). The restriction in question should be *John's proofs of the theorem,* which is broken up structurally, however.

In short, the permission of exocentricity and n-ary branching leads to flatter structures than what would be seen later in the generative grammar, which

is not so satisfactory with respect to syntactic properties of particular elements, structural consistency as well as logical scoping.

1.1.2 The Outburst of Functional Projections

Since late 1970s or early 1980s within the school of transformational generative grammar, there were a series of research generalizing the X-bar template of syntactic structure from lexical categories (N, V, A and P in Chomsky's sense) to lots of functional categories. Bresnan (1970) introduced the label COMP(LEMENTIZER) to refer to cover subordinating conjunctions such as *that*, infinitival particle *for*, Wh-words in interrogatives, relative pronouns such as *what*, *that*, and the empty element as in matrix declarative sentences.

(7)　　The Deep Structure involving the node COMP

Embedded Clauses

Relative clause

Embedded Question

NP
  N   S'
      COMP   S
      -*WH*

VP
  V   S'
      COMP   S
      + *WH*

Non-embedded Clauses

Declarative   Interrogative

        S'   S'

COMP   S   COMP   S
                                          + *WH*
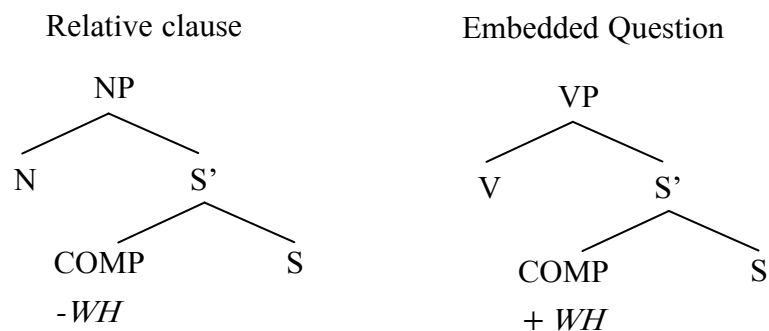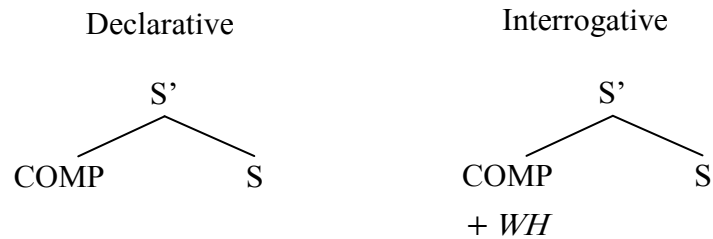
                                                    (Bresnan 1970:319)

Chomsky (1981) applied the X-bar schema to INFL(ECTION), a node to
accommodate the verbal inflection, and IP was considered to be the complete
declarative sentence, traditionally S, in which the Subject is situated at [Spec, IP].
Since then, the traditional concept 'Clause' has been conceived as a 'Phrase' as
well, thanks to the X-bar theory.

(8)   The structure of IP

                        IP

        Subject NP   I'

                        I   VP
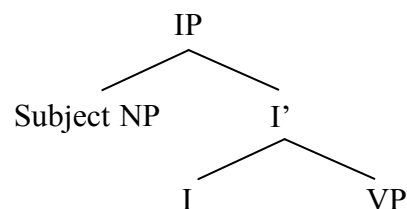
        Chomsky (1986) further applied the X-bar schema to COMP, hence CP,
replacing the traditional label S'. At the stage the whole clause became
completely endocentric in the sense that VP is embedded in IP, which is in turn
embedded in CP.

(9)

```
                    CP
                  /    \
               Spec     C'
                      /    \
                     C      IP
                          /    \
                       Spec     I'
                              /    \
                             I      VP
                                   /  \
                                   ⋮
```
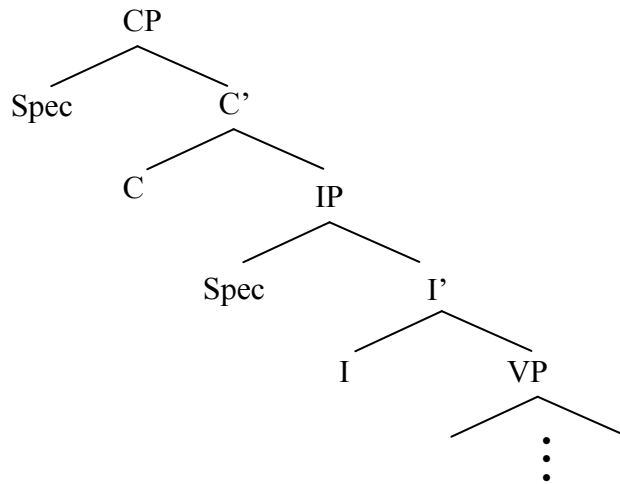
Such trend kept onging to late-1980s and led to the split of DP (Abney 1987), the split of IP (Pollock 1989), the split of CP (Rizzi 1997), and the universal Cinque's hierarchy of Adverbs (Cinque 1999). Such approach to syntactic structure in generative grammar was coined the name 'Cartography' since 1999, whose nature and purpose can be summarized as:

(10)   '… the so-called "cartographic approach," which seeks to determine the number, type, and layering of the functional heads in clause structure as well as in the internal structure of nominal expressions and other phrases.'

<div align="right">(Brugè et al 2012)</div>

The pursuit in splitting one (traditionally single) projection into many is induced by the hypothesis that one feature, presumably one morphosyntactic property, maps one-to-one onto one syntactic head, and one node or one word comprising

more than one feature would then be attributed to head/phraseal movements. Under this maxim the 'atoms' of syntactic operations are morphosyntactic features instead of morphemes or words.

(11)   'One useful heuristic principle which has guided much cartographic work is the maxim "one (morphosyntactic) property – one feature – one head". This guideline does not exclude the possibility that featurally complex heads may arise in syntax, but they cannot be "atoms" of the syntactic computations, they can only arise through derivational procedures, namely head movement, which may create a complex conglomerate of features by moving featurally simple heads into other heads (it does not matter here whether head movement literally extracts a head from its projection, or is a kind of phrasal movement "in disguise").'

(Cinque & Rizzi 2010a)

A stronger, more ideal and presumably more simplistic version of such 'one head-one feature' hypothesis is that the morphosyntactic features are actually semantic features as well, and hence the module where syntactic computations operate will be S(ynactic)-M(orphological)-S(emantic) (Starke 2010). The semantic features in such SMS module is confined to formal semantics and all other semantic contents, including the conventional assigning of the lexical meanings to lexical items, the encyclopedic knowledge, all cognitive capacities devoted to pragmatic meanings, etc., must come from another module of our

cognition. This very idea, together with other theoretical details (e.g. the exclusively post-syntactic lexical insertion, the Spell-out driven movement) and technical operations (the Superset Principle, the Elsewhere Condition, etc.) has been developing in the last decade and was coined the name 'Nanosyntax' by Michal Starke (See e.g. Caha 2009; Starke 2009, 2010, 2011, Pantcheva 2011). Apparently, it is not so easy to distinguish formal semantic knowledge from encyclopedic one and to consider all formal semantic features to be syntactic. However, whether such extremely strong theory of Cartography is correct or not all depends on the empirical investigation in the future.

A milestone of the cartographic project is the outburst of functional projections on the IP/CP domain (esp. Cinque 1999). Different from the traditional view on Adverbs, which are adjuncts, 'freely' inserted in a clause and thus do not have any universal orders among them. However, Cinque (1999) notices that crosslinguistically there is a universal hierarchy for different kinds of Adverbs:

(12)   The universal hierarchy of clausal functional projections

[frankly Mood~speech act~ *[fortunately* Mood~evaluative~ [*allegedly* Mood~evidential~

[*probably* Mod~epistemic~ [*once* T(Past) [*then* T(Future) [*perhaps*

Mood~irrealis~ [*necessarily* Mod~necessity~ [*possibly* Mod~possibility~ [*usually*

Asp~habitual~ [*again* Asp~repetitive(I)~ [*often* Asp~frequentative(I)~ nterested in

[*intentionally* Mod~volitional~ [*quickly* Asp~celerative(I)~ [*already* T(Anterior) [*no*

longer Asp~terminative~ [*still* Asp~continuative~ [*always* AsP~perfect(?)~ *[just* Asp~retrospective~

[*soon* Asp~proximative~ [*briefly* Asp~duratve~ [*characteristically(?)*

Asp~generic/progressive~ [*almost* Asp~prospective~ [*completely* Asp~SgCompletive(I)~ [*tutto*

Asp~PlCompletive~ [*well* Voice *[fast/early* Asp~celeratlve(II)~ [*again* Asp~repetitive(II)~

[*often* Asp~frequentative(II)~ [*completely* Asp~SgCompletive(II)~

(Cinque 1999:106)

Despite that apparently the cartographic project intentionally 'discovers' more and more functional projections, which are getting more and more subtle and resembling to semantic features, I prefer to insist the suggestion in Borer (2005) that I re-state as the following way:[4]

---

[4] The original statements are as follows (Borer 2005, Volume 1, 16):

a. True of UG: a unique syntactic representation α entails a unique semantic representation α'.

b. Not true of UG: a unique semantic representation α' entails a unique syntactic representation α.

(13)   The Syntax-Semantics Mapping

One syntactic structure can be assigned no more than one semantic interpretation, but one semantic interpretation can be obtained from more than one syntactic structure.

(14)   Possible and Impossible Syntax-Semantics Mappings

Syntactic representation   Semantic representation

one-to-one

a ⟶ A

b ⟶ B

*one-to-many

c ⟶ C1
    ⟶ C2

many-to-one

d1 ⟶ D
d2 ⟶
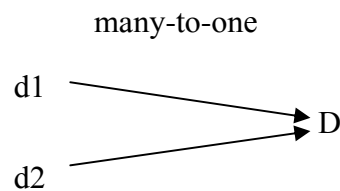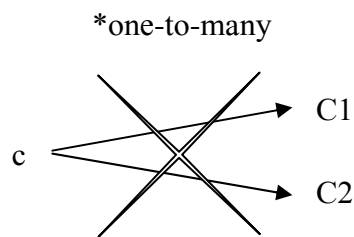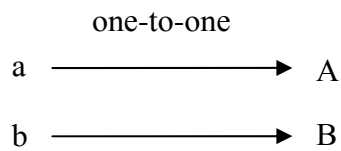
As for the possibility that more than one syntactic structure can map to the same semantic interpretation, Borer (2005, Volume 1:16, footnote 9) provides the

following example, in which the Subjects in all three sentences have the same 'generic interpretation':

(15)   Same Generic Interpretation from Different DPs

        a. [Cats] bite when you irritate them.

        b. [A cat] would bite if you irritate it.

        c. [The cat] bites when it feels threatened.

I will attribute to this notion when discussing the Viewpoint Particles in English and the AdpPs with embedded Axial Parts in Cantonese in Section 3.6.

1.2   Recent Study on the Cartography of Spatial PPs

The recent study on spatial PPs has two principal roots. The backbone is the theoretical approach to syntactic issues since mid-1980s, which was soon coined the *new comparative syntax* (Haegeman 1997; also Kayne 2005a), or later the *cartographic approach* after 1999 (Cinque 1999, 2001, 2010; Rizzi 2004, etc.). The other root is the so-called *conceptual semantics* developed by Jackendoff (1983, 2007, etc.), which provides new insights for the study of comparative syntax on spatial PPs.

From syntactic perspective, the study of PPs can be roughly divided into two directions. The *external* syntax of PPs concerns where and how they are projected or contructed in a larger structure, especially the clausal one (e.g. Kayne 2005d), and their relations with other constituents, including VP, DP, or other PPs (e.g. Schweikert 2005[2004]; Cinque 2006b; Takamine 2010). In the

spirit of Cinque's (1999) that Adverbs can be arranged in a hierarchy, Schweikert (2005[2004]) tests PPs in the German Mittelfeld and comes to the following hierarchy:[5]

(16)   Evidential > Temporal > Locative > Comitative > Benefactive >

        Reason > Source > Goal > Malefactive > Instrumental / Means /

        Path > Matter > Manner

                                                    (Schweikert 2005[2004]:132)

The other direction of the research is the *internal syntax* of PPs, which asserts that PP is not a single, homogeneous, simple projection of P, but has complicated internal layering, hence the Split P hypothesis, just like those of the Split DP, Split CP, etc. in previous research. This thesis will principally investiage the internal syntax of the spatial PPs in Mandarin and Cantonese. What follows now is a brief preliminary introduction to the recent research on the internal syntax of PPs.

1.2.1   Conceptual Semantics (Jackendoff 1983, 1996)

In his idea of conceptual structure of spatial relations Jackendoff (1983) decomposes the spatial PPs (Preposition Phrases, or in general Adposition Phrases) into different layers according to some ontological conception about

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[5] A possible derivation process of the Complements of Verbs (e.g. Arguments) and Circumstantial PPs (i.e. Adverbials) is discussed in details in Cinque (2006), which is skipped in this thesis.

space. Latter in Landau & Jackendoff (1993) and Jackendoff (1996) further introduce the 'axes' of the region defined by the Ground DP.

1.2.1.1 Distinguishing among THING, PLACE, and PATH

A common noun or noun phrase is considered as a THING. Some Ps are functions mapping a THING to a PLACE, and some other subclass of Ps are functions mapping a PLACE to a PATH. Since such classification of Ps involve a sequence of mappings, the phrases they project do not simply mutually exclusively competing the same syntactic slot, as what was perceived previously in the literature. In the latter, all PPs are structurally homogeneous.

(17)   Path and Place relations

      a. *in the room*: $[_{\text{PLACE}}\ \text{IN}\ ([_{\text{THING}}\ \text{ROOM}])]$

      b. *into the room*: $[_{\text{PATH}}\ \text{TO}\ ([_{\text{PLACE}}\ \text{IN}\ ([_{\text{THING}}\ \text{ROOM}])])]$

      c. *through the cheese*: $[_{\text{PATH}}\ \text{VIA}\ ([_{\text{PLACE}}\ \text{IN}\ ([_{\text{THING}}\ \text{CHEESE}])])]$

1.2.1.2 The concept of Axial Part

In addition to the above distinction between PLACE and PATH Prs, we may also be concerned with the so-called 'Axial Part', which refers to the class of spatial axes of an object; in English this refers to *top*, *bottom*, *front*, *back*, *sides* and *ends*, but excludes the 'standard parts' such as *handle*, *wing*, or *leg*, since the former identify a certain region with respect to the Ground DP's 'axes' but do not have a particular shape, whereas the latter are actually objects that have distinctive shapes (Landau & Jackendoff 1993; Jackendoff 1996). We may say,

using the concept of THING/PLACE distinction, Axial Parts are PLACE whereas Standard Parts are THING.

1.2.1.3 Axial Part as a Distinctive Category in Typological studies

Although probably never using the term 'Axial Part' some typological works do recognize such notion. However, the distinction between Axial Parts and Standard Parts pointed out by Landau & Jackendoff (1993) and Jackendoff (1996) should not be conceived to mean that a Standard Part can never be an Axial Part. On the contrary, Hagège (2010:163-4) notices that some Adp(osition)s come from 'body parts', some other relational nouns, or common nouns that could naturally induce certain typical axes. Table (18) displays the nouns that most frequently grammaticalized into Adps and the Adps derived from them (the last row is included for completeness of the citation, though the items inside are not spatial) and some concrete examples from various languages are provided in Table (19).

(18)   Grammaticalization of Nouns into Adps

	N	Adp
a.	*Body parts*	
	'head'	'on', 'above'
	'foot'	'under'
	'face', 'eye', 'mouth', 'forehead', 'breasts'	'in front of', 'near'
	'back'	'behind'
	'hand'	'from'
	'side', 'flank', 'ear'	'beside, near'
	'stomach', 'belly', 'heart', 'mouth'	'in', 'within'
b.	*Portions of space and relational object parts*	
	'top', 'surface', 'north'	'above'
	'bottom', 'base', 'ground', 'south'	'below'
	'front part'	'in front of'
	'back part'	'behind'
	'edge'	'beside'
	'inside'	'inside of'
	'outside'	'outside of'
	'middle'	'among', 'between'
c.	*Environmental landmarks*	
	'sky'	'above'
	'river bank'	'across, beyond'

d.	*Abstract notions*	
	'trace'	'after'
	'thing', 'affair', 'word'	'because of; instead of; like; of'

(19)   Examples

Meaning of Adp	Source N	Language
'above'	'head' *wi*	Jacaltec
	'head' *kân*	Hausa
	'sky' *me:l*	Tamil
	'surface' *mâ*	Kpelle
'inside'	'heart' *ini* 'stomach' *či:hi*	Mixtec
	'stomach' *pan*	Cakchiquel
	'mouth' *lá*	Kpelle
'behind'	'rear' *pi:che*	Hindi
	'back' *puṭhe*	Gujarati
'from'	'hand' *yée*	Kpelle

The relevant data of various varieties of Chinese will be discussed in Sections 3.4 through 3.4.4.

1.2.2 Svenonius (2006, 2008a, 2010)

While Jackendoff's (1983) preliminary 'layering' of the spatial Ps refers to conceptual semantic structure, Koopman (2000/2010) considers this layering a syntactic phenomenon and attempts to study the structure of Dutch PPs, in which PlaceP, PathP, DegP, etc. are in hierarchical relation. Following this line of syntactic research, Svenonius (2006, 2008a, 2010 and other works) focuses on English spatial PPs and Verb Particles, together with data from other languages, suggests analyses of the syntactic structure of spatial PPs. Some simplified versions are shown in (20) and (21), and I give the functions of each head in (22):

(20)

```
              PlaceP
             /      \
          Place      KP
            |       /    \
            |      K      DP
            |      |      /\
         outside  of   the house
```

(Svenonius 2010:130)

(21)

```
                    PlaceP
                   /      \
               Place      AxPartP
                 |        /      \
                 |    AxPart      KP
                 |      |        /   \
                 |      |       K     DP
                 |      |       |      △
                 in   front    of   the house
```
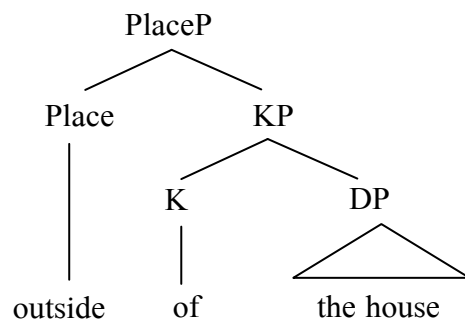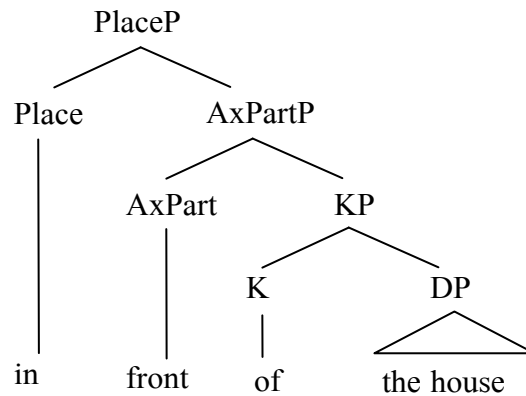
(Svenonius 2010:131)

(22) a. Ground DP is the THING to be referred to,

  b. K is a function from the Ground DP to a Region (sometimes

  called Eigenspace),

  c. Axial Part is a function from the Region to a subpart of the

  Region and,

  d. Place introduces the Figure DP.

In fact, in Svenonius' idea, even Place is a combination of many projections. If Place is further split up, there are at least Loc, Deg, and p, as shown in (23) and the functions of each of these heads in (24), where Meas(ure)P, being occupied by a quantifier of length, is the Spec of DegP:

23

(23)

```
                    pP
                 ╱      ╲
               p         DegP
               │      ╱       ╲
              at   MeasP        Deg
                   ╱▔╲       ╱       ╲
              ten meters   Deg        LocP
                                    ╱      ╲
                                  Loc       AxPartP
                                          ╱        ╲
                                     AxPart          KP
                                        │         ╱      ╲
                                     behind      K        DP
                                                        ╱▔▔╲
                                                     the house
```
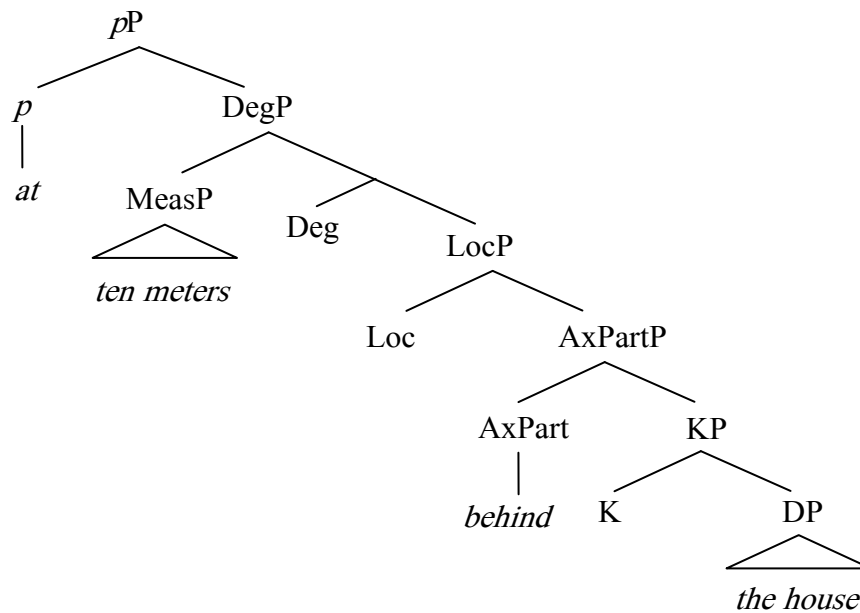
<div align="right">(Svenonius 2010:134)[6]</div>

(24)   Place is further split into:

  a.   Loc maps the Region (i.e. the subpart of the Eigenspace chosen by the Axial Part) to a Vector Space,

  b.   Deg is a function from the Vector Space to a Region (i.e. identifying the endpoints of the vectors) and,

  c.   *p* introduces the Figure DP.

Note that however, Place in Svenonius' framework is different from the Place noun that I am going to suggest in the following chapters.

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[6] I slightly modify the tree diagram(s) shown in Svenonius (2010:134) for ease of illustration. First, the distinction between Deg and Deg_μ is neglected. Second, I provide the lexical item 'at' for *p*.

1.2.3 Cinque (2010a)

Summarizing the contributions in the volume featuring Spatial PPs, Cinque (2010) comes to the following conclusion on the cartography of spatial PPs. While the number, types, and layering of the functional heads are not the same as Svenonius' (2010), the spirit and idea are similar. However, there is one foundational difference between them, namely in (25) there is a PLACE noun, which is not the Ground DP and is silent in English (Kayne 2005b) and many other languages, and many functional projections in (23) are within DP_{PLACE} in (25). In Chapter 3 I will attempt to show that Chinese data seem to support such 'DP_{PLACE} approach'.

(25)   The fine structure of spatial PPs by Cinque (2010a)

$[_{PPdir}$ $[_{PPstat}$ $[_{DPplace}$ $[_{DegP}$ $[_{ModeDirP}$ $[_{AbsViewP}$ $[_{RelViewP}$ $[_{RelViewP}$ $[_{DeicticP}$ $[_{AxPartP}$ X^o $[_{PP}$ $P[_{NPplace}$ 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				

Cinque (2010a:10)

As in Cinque (1999) the exhausting of the functional sequence does not necessarily require that in any language there indeed exists a case in that all projections are overt (it is very likely impossible, if not absolutely). Likewise,

the long sequence suggested in Cinque (2010a) or any other attempts are not fully realized by any language including Cantonese, which I will primarily investigate in this thesis. However, there is another thereotical controversy, namely whether the projections in such rich functional sequence indeed all project, even when some projections are covert in the expression. Cinque (1999, Chapter 6) and Cinque (2010a:18, note 25) consistently believe that they do, for the reason that it is very common a phenomenon that the semantic meaning of an expression that we interpret is more than what the overt element could presumably convey (provided that pragmatic and non-linguistic materials are consciously recognized and removed). To demonstrate this assertion, Cinque (1999:131) discusses the following examples. Superficially, (27) contains more grammatical categories (hence information) than (26), since the former has overt elements to indicate Voice, $Asp_{progressive}$, $Asp_{perfect}$, Neg, and $Mod_{epistemic}$, all of which (27) lacks.

(26)   Prices rise.

(27)   Prices must not have been being raised.

However, as matter of fact, language users do assign 'default values' to those non-overt projections so as to interpret (26) as active (rather than passive), generic (rather than progressive), positive (rather than negative), declarative rather than (interrogative), etc. In other words, the projections are all already there and the default values will be automatically read as such whenever there

are no overt elements to turn the default values to 'marked values', which would be the case in (27). In short, (26) and (27) would be conceived as structurally equally complex underlying. Therefore, Cantonese data in this thesis actually do not exhaust these projections; some are covert and others perhaps are realized in another kind of construction, though the semantic representations should be the same (see (13)).

Chapter 2

Prepositions in Chinese

This chapter gives a description of the constructions involving spatial adpositions Mandarin Chinese. Since Mandarin is a highly analytic language in the sense that it very much lacks overt inflectional markings, each category in Chinese can be controversial. In the literature of traditional Chinese linguistics there is even a saying of *ci-wu-ding-lei*, meaning 'words do not have fixed categories.' In particular, some morphemes seem to appear as a verb in a case and a preposition in another, for instance, without change in the superficial form. Similarly some other morphemes seem to behave as a noun and a postposition. The first section is to justify the claim that adpositions do exist in Chinese which have different distributions from verbs. Afterwards, constructions involving spatial adpositions will be demonstrated.

2.1   Adpositions in Mandarin

In Mandarin a spatial expression is normally realized as a phrase in which a preposition (P) is followed by a Ground[7] nominal (DP_{Ground}), which is then

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[7] The term Ground refers to the object that is used as the reference landmark for the location of the Figure, which is the object whose location is at issue in spatial expressions

followed by a localizer (L), where localizer is a term used in Chinese literature referring to elements like Postpositions (to be further investigated in Chapter 3):

(28)   P > DP$_{Ground}$ > L

(29)   在箱子裡（面）

zai xiang-zi   li   (mian)

At box   inside face

'in the box'

(30)   在圖書館前（面）

zai tu-shu-guan qian (mian)

At library   front face

'in front of the library'

When a nominal is referred to spatially, a localizer is obligatorily required, as seen in the previous examples, except when the nominal is already a 'place expression', namely a place name, or a common noun which inherently or pragmatically denotes a place.

(e.g. Jackendoff , Talmy 1985, Svenonius 2010). For instance, the table is the Ground and the book is the Figure in the expression The book is on the table.

(31) 在北京

zai Beijing

At Beijing

'in Beijing'

(32) 在圖書館

zai tu-shu-guan

At library

'in the library'

(33) Place expressions

a. Place names:

e.g. Beijing

b. Common nouns inherently or pragmatically denoting a place:

e.g. library (inherently), table (pragmatically)

The adpositions in Mandarin, which include the prenominal elements in (28)-(30), i.e. prepositions, and the postnominal ones, i.e. postpositions (i.e. localizer in Chao 1968), work together as the prepositions in English. The prepositions are always monosyllabic whereas the postpositions can be monosyllabic or disyllabic. A disyllabic postposition is actually a monosyllabic postposition that encodes spatial or directional meaning, followed by a noun-like element, most typically *mian*, meaning 'face, surface' (but there are some others indeed). From now on, I adopt the abbreviations Pr, Po, and Adp for prepositions, postpositions, and adpositions respectively, as used in Hagège (2010). Therefore, the

Circumposition construction in (28) can be restated as follows:

(34)   Pr > DP$_{Ground}$ > Po

2.2   Adpositions in Cantonese

The basic spatial expressions in Cantonese are very similar to those in Mandarin. They are alike in that there is a Circumposition construction, where a DP$_{Ground}$ is sandwiched by a Preposition and Postposition:

(35)   Pr > DP$_{Ground}$ > Po

(36)   喺個箱入（面）

hai go soeng   jap   *(min)

At   CL box   inside   face

'in the box'

(37)   喺圖書館前（面）

hai tou-syu-gun   cin   *(min)

At library   front   face

'in front of the library'

(38)　喺香港

　　　hai Hoeng Gong

　　　At Hong Kong

　　　'in Hong Kong'

(39)　喺圖書館

　　　hai tou-syu-gun

　　　At library

　　　'in the library'

At first sight the only difference of Cantonese from Mandarin in spatial expressions is that the 'face' morpheme in the Pos is optional in Mandarin but obligatory in Cantonese. However, we will see later that there are other differences not only in the Pos (in next chapter) but also in the Prs (in this chapter). The superficially similar Prs, the Mandarin *zai* and the Cantonese *hai* will be shown to have subtle difference.

2.3　Prepositions are distinct from Verbs

Historically Prs evolved from Vs in Chinese, and although the verbal function of most Prs has vanished, that of some others still remains and in these cases the Prs have the same form as the Vs they derive from. In what follows in this section although mainly Mandarin data (some from Old Chinese) will be discussed, the arguments can be well applied to Cantonese. In the next section, focus will be put on the difference between Mandarin *zai* and Cantonese *hai*, and

based on that I will elaborate an conjecture on their underlying structure and provide more evidence from Shanghai dialect and (Eastern Guizhou) Miao.

The morphemes *zai*, literally 'to stay, to be situated at' and *yong*, literally 'to use', are two of the typical examples, in which (40) and (42) display the prepositional use, and (41) and (43) the verbal use.

(40)　　他在圖書館看書。

Ta　zai tu-shu-guan kan shu.

3.SG ZAI library　　see book

'He is reading in the library.'

(41)　　他在圖書館。

Ta　zai　tu-shu-guan.

3.SG ZAI library

'He is staying in the library.'

(42)　　他用手機看書。

Ta　yong　shou-ji　　kan shu.

3.SG YONG mobile.phone see book

'He is reading a book with a mobile phone.'

(43)　　他用手機。

　　　　Ta　yong　shou-ji.

　　　　3.SG YONG mobil.phone

　　　　'He is using a mobile phone.'

In principle there are two possible ways to tackle this phenomenon. The first way is to consider all Prs to be a subset of Vs. The other is that Prs independently form a category different from Vs and the morphemes that behave like Prs in some cases and like Vs in others are homophones. I will show that the latter option is more plausible by several reasons, some of which being adopted from Djamouri & Paul (2009).

2.3.1　　Predication

Although some morphemes can act as both Prs and Vs, as shown above, most Prs can never be used as Vs.[8] For instance, the Pr *cong* 'from' nowadays cannot act independently as a verb.

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[8] Djamouri & Paul (2009) shows that even in ancient Chinese, namely in Shang inscriptions (11th-13th c. BC), there existed the independent category of Pr, which however would not be gone through further, since my concern here is only the synchronic study of contemporary Mandarin.

(44)   *他從北京。

   *Ta [$_{PP}$ cong Beijing]

   3.SG   from Beijing

   (Intended meaning: 'He is from Beijing.')

                               (Djamouri & Paul 2009:207)

(45)   他從北京回來了。

   Ta [$_{vP}$[$_{PP}$ cong Beijing] [$_{vP}$ huilai-le]]

   3.SG   from Beijing   return-PERF

   'He has returned from Beijing.'   (Djamouri & Paul 2009:207)

Instead, *cong* can be a bound morpheme in many compound verbs with meanings derived from 'follow'. For example,

(46)   我跟從他的做法。

   Wo   gen-cong   ta   de zuo-fa.

   1.SG follow-CONG 3.SG DE do-way

   'I follow his way/practice.'

(47)   我聽從他的命令。

   Wo   ting-cong   ta   de ming-ling

   1.SG hear-CONG 3.SG DE command

   'I obey his command.'

A further and relevant observation on predication is that a VP but not a PrP can

be a 'secondary predicate':

(48)　　他有幾個學生會說中文/ *從北京。

　　　　Ta　 you　 ji　 -ge xuesheng [vP hui shuo zhongwen] /*[PP cong Beijing]

　　　　3.SG have several-CL student　　　 can speak Chinese　 /　 from Beijing

　　　　'He has several students who can speak Chinese/several students from

　　　　Beijing.'　 (Djamouri & Paul 2009:207)

The two postnominal phrases in English, 'who can speak Chinese' and 'from Beijing', are a modifier of the Head noun '(several) students'. The English translation may leave us a clue that the 'secondary predicate' in Mandarin perhaps is a post-nominal relative clause, a construction that seems to be weird given that modifiers including relative clauses in Mandarin are canonically prenominal.[9] The prohibition of a PrP modifying a NP does not solely occur in this case, namely a postnominal construction. In fact, almost all PrPs cannot be a prenominal modifier. The only exception is *guanyu* 'about', which can be a prenominal modifier.[10]

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[9] Another possible analysis is to consider the tail 'can speak Chinese' to be in another clause in which the Subject, referring to the 'students', is elided, and the second clause is adjoined to the first clause. However, I think the 'relative clause' analysis is appropriate while the 'two-clause' analysis merely describes the historical source of such construction, given that in native speakers' mind the sentence is holistic, either phonologically or syntactically.

[10] Perhaps *zai* is another exceptional example. However, *zai* itself is a verb as well (to be

more profoundly studied later in this chapter):

(i)　　在威尼斯的香港人

[$_{PP}$ Zai Weinisi] de Xianggang ren

ZAI Venice DE Hong Kong person

'The Hong Kong person (who is) in Venice'

The genuine counter-example, I think, is 對 *dui*, a semantically empty Pr:

(ii)　　對威尼斯的看法

[$_{PP}$ Dui Weinisi] de kan-fa

DUI Venice DE see-method

'The viewpoint on Venice'

(iii)　　對學生的照顧

[$_{PP}$ Dui Xuesheng] de zhaogu

DUI student　DE care

'The caring of the students'

The Pr 對 *dui* is so special that need a further and separate investigation (e.g. Huang, Li, & Li 2009). Considering the facts that *dui* selects Direct Object exclusively, applies only to deverbal nominals, and does not itself have any semantic content, it probably belongs to another kind of "Prepositions" (which could be considered to occupy a different position of the functional sequence from the spatial Prs, from a cartographic perspective. However, it is not a spatial Pr and so will not be further studied here.

(49)   關於威尼斯的故事

[_{PP} Guanyu Weinisi] de gushi.

About   Venice DE story

'Stories about Venice'

Furthermore such PrP cannot occur as a verb complement in the clausal domain, and so it exclusively modifies nominals. In (50) the PrP modifies *gushi* 'story' and in (51) while English allows *about Venice* to be the complement of the verb *talk*, the Mandarin corresponding PrP *guanyu Weinisi* does not.

(50)   讓我們講講關於威尼斯的故事。

Rang wo-men jiang jiang [_{DP} [_{PP} guanyu Weinisi] de gushi].

Let   1.PL   talk   talk   about   Venice   DE story

'Let us talk stories about Venice.'

(51)   *讓我們講講關於威尼斯。

*Rang wo-men jiang jiang [_{PP} guanyu Weinisi].

 Let   1.PL   talk   talk   about   Venice

(Intended meaning: 'Let us talk about Venice.')

Let us return the observation that basically in Mandarin PrPs do not modify nominals. The prohibition of the PrP *cong Beijing* 'from Beijing' in (48) (the ungrammatical example being extracted as (52) below) is consistent with the fact that such PrP does not modify a nominal, independent of whether the PrP is pre- or post-nominal. To rescue (52) a verb has to be inserted so that the PrP would

38

then be interpreted as its adjunct (in a postnominal relative clause), as shown in (53) and (54).

(52)   *他有幾個學生從北京。

       *Ta   you   ji   -ge xuesheng [PP cong Beijing]

       3.SG have several-CL student   from Beijing

       'He has several students from Beijing.'   (Djamouri & Paul 2009:207)

(53)   他有幾個學生從北京來。

       Ta   you   ji   -ge xuesheng [vP [PP cong Beijing] lai]

       3.SG have several-CL student   from Beijing come

       'He has several students who is coming from Beijing.'

(54)   他有幾個學生是從北京來的。

       Ta   you   ji   -ge xuesheng [vP shi [vP [PP cong Beijing] lai]   de]

       3.SG have several-CL student   be   from Beijing   come DE

       He has several students who are from Beijing.'

In short, PrPs are different from VPs in that they cannot be predicates, neither primary nor secondary.

2.3.2   Modifications of Advs and Neg

Adjuncts, including PrPs, DPs, null-subject adverbial clauses, occupy the position between the Subject and the main verb. Superficially, like VPs, the alleged PrPs can be modified by adverbs and negation markers, as shown in (55)

and (56). The adverb and negation marker right precede the PrPs, which lead to an illusion that they are modifying the PrPs.

(55)   我已經給瑪麗打了半個小時的電話。

Wo [vP [adv yijing [vP [PP gei Mali] [vP da-le ban-ge xiaoshi de dianhua]]]

1.SG   already   to Mary   make-PERF half-CL hour SUB phone.call

'I have already talked to Mary on the phone for half an hour.'

(Djamouri & Paul 2009:204)

(56)   他不在上海學法文。

Ta   bu [vP [PP zai shanghai] [vP xue fawen]]

3. SG NEG   in   Shanghai   study French

'He does not study French in Shanghai.'   (Djamouri & Paul 2009:205)

However, when preposed to the sentence-initial Topic position, the PrPs do not allow the modification of an adverb or negation (Djamouri & Paul 2009), whereas a VP certainly allows. The PrPs in (55) and (56) are preposed to a Topic position in (57) and (58) respectively. The modification of adverb and negation are not allowed, even though the semantics does not pose any difficulty.

(57)　（*已經）給瑪麗，我已經打了半個小時的電話。

(*yijing) [PP Gei Mali], wo [vP [adv yijing

[vP da-le ban-ge xiaoshi de dianhua]]

already　　to Mary　　1.SG　　already

make-PERF half-CL hour SUB phone.call

'To Mary, I have already talked on the phone for half an hour.'

(Djamouri & Paul 2009:205)

(58)　（*不）在上海他不學法文，他學漢語。

(*bu) [PP Zai shanghai] [TP ta　　bu xue　　fawen], [TP ta　xue　hanyu]

NEG　　in　Shanghai　　3.SG NEG study French　3.SG study Chinese

'In Shanghai, he does not study French, [but] he studies Chinese.'

(Djamouri & Paul 2009:205)

A more prominent example is that a PrP that modifies a NP (traditionally speaking, a Noun Complement in English) cannot be negated.

(59)　他買了幾本（*不）關於 Chomsky 的書。

Ta　mai-le　ji　-ben [NP [PP (*bu) guanyu Chomsky] de shu]

3.SG buy-PERF several- CL　　　　NEG about　Chomsky SUB book

'He bought several books (not) about Chomsky.'

(Djamouri & Paul 2009:205)

2.3.3　　Yes-No Interrogatives in A-not-A form

In Mandarin one way to pose Yes-No questions is make use of the construction called 'A-not-A form', where A refers to a predicative element (or only part of it) in the corresponding declarative sentence, basically an auxiliary verb (e.g. modal, the dummy *shi* 'be'), a lexical verb or an adjective, as if it provides the two possible options (A or not A) to choose. As Serial Verb Construction is very common in Mandarin, one could suspect whether we can sort out which is the 'main verb'. In (60) there are three verbs, all in their canonical forms (without inflection or aspectual particles following them), V1, V2 and V3, where the first two has an overt Object, *pisa*'pizza'(O1) for *mai* 'buy' and *mama* 'mother' (O2) for *gei* 'give', hence the construction in (61).

(60)   他買披薩給媽媽吃。

    Ta   mai pisa   gei mama   chi.

    3.SG buy pizza give mother eat

    'He bought a pizza for his mother to eat.'

(61)   S   V1 O1   V2 O2   V3

Even though there is no overt grammatical element to indicate the finiteness of each verb, and hence the main verb seems to be obscured, there are syntactic operations that can indirectly reveal which is the main verb. When the declarative sentence is transformed to an A-not-A Yes-No interrogative sentence, only the first verb (V1) can be under the operation of A-not-A.

(62)　　他<u>買不買</u>披薩給媽媽吃？

　　　　Ta　*mai-bu-mai*　pisa gei mama　chi?

　　　　3.SG buy-not-buy pizza give mother eat

　　　　'Did he buy a pizza for his mother to eat?'

(63)　　*他買披薩<u>給不給</u>媽媽吃？

　　　　*Ta　mai pi-sa *gei-bu-gei*　　mama chi?

　　　　 3.SG buy pizza give-not-give mother eat

(64)　　*他買披薩給媽媽<u>吃不吃</u>？

　　　　 *Ta　　mai pisa　gei mama　*chi-bu-chi*？

　　　　 3.SG buy pizza give mother eat-not-eat

In fact, there are other legitimate ways to produce A-not-A questions, namely to insert an Auxiliary Verb between the Subject and V1, and conduct the A-not-A operation on the auxiliary. Yet my claim that in a serial of verbs the A-not-A operation is always acted on the first verb still works well in these examples, if Auxiliary Verbs are considered as a subclass of Verbs.

(65)　　他<u>是不是</u>買披薩給媽媽吃？

　　　　Ta　*shi-bu-shi*　mai pisa gei　mama chi?

　　　　3.SG be-not-be　buy pizza give mother eat

　　　　(Literal meaning: 'Is it true that he buys a pizza for his mother to eat?')

(66)　他<u>有沒有</u>買披薩給媽媽吃？

　　　Ta　*shi-mei-shi*　mai pisa　gei　mama chi?

　　　3.SG have-not-have buy pizza give mother eat

　　　'Has he bought a pizza for his mother to eat?'

(67)　他<u>會不會</u>買披薩給媽媽吃？

　　　Ta　*hui-bu-hui*　mai pisa　gei　mama chi?

　　　3.SG will-not-will buy pizza give mother eat

　　　'Will he buy a pizza for his mother to eat?'

Now let us turn to a sentence in which a preposition phrase precedes a verb. If the preposition *cong* is a verb of any type, it should be able to have the A-not-A form but it turns to be not the case. In order to transform it to the A-not-A question, we may insert the auxiliary verb *shi* 'be', which is then made A-not-A form.

(68)　他從香港來威尼斯。

　　　Ta　cong　Xianggang　lai　Weinisi.

　　　3.SG from　Hong.Kong　come Venice

　　　'He came to Venice from Hong Kong.'

(69)   *他從不從香港來威尼斯？

Ta   cong-bu-cong   Xianggang lai   Weinisi?

3.SG from-not-from Hong.Kong come Venice

(Intended meaning: 'Did he come to Venice from Hong Kong.')

(70)   他是不是從香港來威尼斯？

Ta   shi-bu-shi   cong   Xianggang   lai   Weinisi?

3.SG be-not-be   from   Hong.Kong   come Venice

'I came to Venice from Hong Kong.'

2.3.4   Preposition stranding

Prepositions in Mandarin, different from verbs, must have their Objects overtly realized. In other words, preposition stranding in relativization, which is permitted in English, is prohibited in Mandarin. On the contrary, verbs in Mandarin do allow their Objects to be relativized. In (71) *yisheng* 'doctor', i.e. the object of the verb *gen* 'follow', can be extracted out of the relative clause, leaving a relativized gap. On the contrary, in (72) the object of the preposition *gen* 'with', a homophone of the verb *gen* 'follow', cannot be relativized.

(71)   護士每天跟著的醫生姓張。

[NP [TP Hushi mei -tian gen   -zhe Ø] de yisheng] xing Zhang

        nurse every-day follow-DUR   SUB doctor   call Zhang

'The doctor whom the nurse follows every day is called Zhang.'

(Djamouri & Paul 2009:208)

(72)　　*我跟不熟的那個人。

　　　　*[_NP_ [_TP_ wo [_PP_ gen Ø] bu　shou　　de]　nei-ge ren]

　　　　　　　1.SG　　with　　NEG familiar SUB that CL person

　　　　(Intended meaning: 'the person I'm not familiar with')

　　　　　　　　　　　　　　　　　　(Djamouri & Paul 2009:208)

(73)　　*張三，我跟不熟。

　　　　*Zhangsani [_TP_ wo [_PP_ gen Ø] bu shou]

　　　　Zhangsan　　1.SG　　with　　NEG familiar

　　　　(Intended meaning: 'Zhangsan, I'm not familiar with.')

　　　　　　　　　　　　　　(Huang 1982:499/Huang 1998:355 (109a-b))

Related to the preposition stranding is the license of the ellipsis of the Object under an understood context. Djamouri & Paul (2009) suggest that *zai* 'to be at' in (74) allows an elided Object owing to its verbal status, whereas *zai* 'at' in (75) does not since it is a preposition, which always requires an overt Object.

(74)　　我剛才去了一趟，他沒在（家）。

　　　Wo gangcai qu-le　　yi-tang, ta　　mei [$_{vP}$ zai　(jia)]

　　　1.SG just　　go-PERF one-time 3.SG NEG　　be.at[11] home

　　　'I just went there, he wasn't at home.'　(Lü et al. 2000: 230)

(75)　　他每天在*（家）睡午覺。

　　　Ta mei -tian [$_{vP}$ [$_{PP}$ zai *(jia)] [$_{vP}$ shui wujiao]]

　　　3.SG every-day　　at　　home　sleep nap

　　　'He takes a nap at home every day.'　(Djamouri & Paul 2009:208)

Concerning the above two observations I would like to add two remarks, even though I basically agree with their diagnostics. First, there could be an impression that the examples are highly selective in that the Vs (probably followed by an Aspect suffix) always occupy the final position in the vP (or TP) just containing them, and the Prs always do not, however. One may then suspect whether the final position makes a crucial difference in this issue. Nevertheless, I am going to show that it is not the case. Such conjecture is stated as follows:

(76)　　The Object can be relativized or elided if it originates from the final position of a vP (or TP).

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[11] The gloss is *be* in the citation in Djamouri & Paul (2009:208). However, I prefer to use *be.at*, so as to distinguish it from the copular verb *shi* 'to be'.

Although in Mandarin most likely PrPs occupy a position between the Subject and the Verb, some actually has to be postverbal. There are two kinds of situation where the PrP is postverbal, namely when the Pr is a preposition inherited from Old Chinese, in which the PrP constructed was prominently postverbal. The typical examples are *yu* 'at' and *zi* 'from' (Sun 1996; Peck 2011). For example, (77) is drawn from a text of Old Chinese in which the PrP is postverbal. The sentence in (78) is a translation of it to Modern Chinese (Mandarin) in which the PrP is preverbal. The Pr *yu* is replaced by *zai* (although the latter was also used in Old Chinese). It turns out that nowadays in Mandarin there are two co-existing forms, (79) representing the modern one and (80) the old and formal one.

(77)   齊宣王見孟子於雪宮。

Qixuan wang jian Mengzi [$_{\text{PrP}}$ yu xue   gong].[12]

NAME king   meet NAME   at snow palace

'The king Xuan of Qi met Mencius at the Snow Palace.'

(4th c. BCE, 孟子, 梁惠王下, cited from Peck 2011:6)

(78)   齊宣王在雪宮裡接見孟子。

Qixuan wang [$_{\text{PrP}}$ zai xue gong -li]   jie-jian   Mengzi.

NAME   king   at snow palace inside receive-meet NAME

---

[12] The original citation does not have the bracketing and the labelling.

(79)　　他在這個城市出生。

　　　　Ta [_PrP zai zhe ge　　chengshi] chu-sheng.

　　　　3.SG　at　PROX CL city　　out-be.born

　　　　'He was born in this city.'

(80)　　他生於這個城市。

　　　　Ta　sheng [_PrP yu zhe　ge chengshi].

　　　　3.SG be.born　　at PROX CL city

　　　　'He was born in this city.'

The postverbal PrP in (80) is a feasible construction to test for the conjecture mentioned above, i.e. (76), namely whether the final position licenses the relativization and ellipsis of the Object. It turns out that these are not possible. Although in both (71) and (81) the relativized Object is in the final position of the TP, only the former is grammatical. Likewise, (74) licenses the elided Object whereas (82) does not. Accordingly, the claim made by Djamouri & Paul (2009) for the distinction between Vs and Prs is still held.

(81)　　*他生於的這個城市很古老。

　　　　[_DP [_TP Ta　sheng　yu Ø] de　zhe　ge chengshi] hen gulao.

　　　　　　3.SG be.born at　　SUB PROX CL city　　very ancient

　　　　(Intended meaning: 'This city in which he was born is very ancient.'

(82)　　他生於這個城市，我也生於 ＊（這個城市）。

Ta　　sheng [PrP yu zhe ge　chengshi], wo　ye

sheng [PrP yu *(zhe ge chengshi)].

3.SG be.born　　at PROX CL city　　　　1.SG also

be.born　　at　PROX CL city

(Intended meaning: 'He was born in this city and I was born in this city

too.'

The other kind of PrP that I would like to mention is those obligatorily postverbal. This case often occurs when the V is a verb of posture, situation, or placement.

(83)　　他躺在這個地方。

Ta　　tang zai　zhe ge　　difang.

3.SG lie　　at　PROX CL place

'He lies in this place.'

(84)　　他住在這個城市。

Ta　　zhu zai　zhe ge　　chengshi.

3.SG live at　　PROX CL city

'He lives in this city.'

(85) 他把咖啡放在那個教室。

Ta ba kafei fang zai na ge jiao-shi.

3.SG BA coffee put at   DIST CL teach-room

'He put the coffee in that classroom.'

The relativization of the Object of the Pr in each of the above three sentences leads to ungrammaticality:

(86) *他躺在的這個地方很髒。

*[DP [TP Ta tang zai Ø] de zhe ge difang] hen zang.

3.SG lie at   SUB PROX CL place very dirty

(Intended meaning: 'This place in which he lies is very dirty.')

(87) *他住在的這個城市很漂亮。

*[DP [Ta zhu zai Ø] de zhe ge chengshi] hen piaoliang.

3.SG live at   SUB PROX CL city   very beautiful

(Intended meaning: 'This city in which he lives is very beautiful.')

(88) *他把咖啡放在的那個教室很小。

*[DP [Ta ba kafei fang zai Ø] de na ge jiao-shi]   hen xiao.

3.SG BA coffee put at   SUB DIST CL teach-room very small

(Intended meaning: 'That classroom in which he put the coffee is very small.')

On the other hand, the ellipsis of the Object of the Pr under an understood context is also not allowed:

(89)　　他躺在這個地方，我也躺在 ＊（這個地方）。

　　　　Ta　tang zai　zhe ge　difang, wo ye　tang zai　zhe　ge difang.

　　　　3.SG lie　at　PROX CL place　1.SG also lie　at　PROX CL place

　　　　(Intended meaning: 'He lies in this place and I lie in this place too.')

(90)　　他住在這個城市，我也住在 ＊（這個地方城市）。

　　　　Ta　zhu zai　zhe ge　chengshi, wo　ye　zhu zai *(zhe　ge chengshi).

　　　　3.SG live at　PROX CL city　　　1.SG also live at　　PROX CL city

　　　　(Intended meaning: 'He lives in this city and I live in this city too.')

(91)　　他把咖啡放在那個教室，

　　　　我卻把奶茶放在 ＊（那個教室）。

　　　　Ta　ba　kafei fang zai na　ge jiao-shi,

　　　　wo　que ba　nai-cha　fang zai *(na　ge jiao-shi).

　　　　3.SG BA coffee put at　DIST CL teach-room

　　　　1.SG　but BA　mik-tea　put at　　DIST CL teach-room

　　　　(Intended meaning: 'He put the coffee in that classroom but I put the tea with milk in that classroom.')

Therefore, the claim that Prs are distinct from Vs is held, no matter the corresponding PrPs are preverbal or postverbal.

2.4   Analyzing the locative Pr and stative V

From the discussion on preposition stranding in Section 2.3.4 we might think that there is a clear-cut distinction between Prs and Vs, which is particularly significant for those homophonous between V and Pr. On the one hand, Vs like 在 *zai*, 跟 *gen,* etc. admit stranding while their corresponding homophonous Prs never. Basically I agree with this distinction except for the case of 在 *zai* for the sake of the oddity aroused in the relativization with the verb *zai*. Following the above 'standard' view, the Object of the verb *zai* in (92) could be relativized without any grammatical problem. However, according to the intuitions of mine and my informants from Northern China[13] and Taiwan[14], the results can be complicated; hence the mark ? in (93):

(92)   去年他在那個城市。

Qu-nian   ta   zai   na   ge   cheng-shi.

Last.year   3.SG   be.at   DIST CL   city

'Last year he was in that city.'

---

[13] Thank Xi Chen and Jiao Wang for help.

[14] Thank Julia Su and Fiona Yen for help.

(93)　　　?去年他在的那個城市正舉辦電影節。

　　　　　? Qu-nian ta　*zai*　de　*na ge cheng-shi* zheng　ju-ban dian-ying jie.

　　　　　Last.year 3.SG be.at SUB DIST CL city　　right.now hold　film festival

　　　　　'The city in which last year he was is now holding a film festival.'

While only one of these informants totally accepts (93), other feel the oddity on 在 *zai* in such construction, but with different degree of acceptability. Being a Hong Kong Cantonese speaker and having least competence of Mandarin, I almost absolutely reject such construction. A reasonable conjecture is to attribute this to regional and dialectal influence.

2.4.1　　The difference between Mandarin *zai* and Cantonese *hai*

Since my conjecture about the inconsistent judgments on the relativization of the Object of *zai* in Mandarin is due to dialectal influence, I start with Cantonese, my own native language. In contrast with (93) in Mandarin, the corresponding expression in Cantonese, i.e. (97), is simply totally ungrammatical, despite that the Cantonese *hai* behaves as the Mandarin *zai* in many other cases, as shown in (94), where *hai* is a Pr, (95), where *hai* is a V, and (96), where the Object of the Pr *hai* is obligatory, as contrast with (79), (92), (75), and (93) respectively.

(94)　　　佢喺呢個城市出世。

　　　　　Keoi [PrP hai　li　go sing-si] ceot-sai.

　　　　　3.SG　　　at　PROX CL city　out-world

　　　　　'He was born in this city.'

(95)　　舊年佢喺嗰個城市。

Gau-lin　　keoi　*hai*　go　go　sing-si.

Last.year　3.SG　be.at　DIST CL　city

'Last year he was in that city.'

(96)　　佢每日喺 *（屋企）瞓晏覺。

Keoi mui-jat [vP [PP hai *(uk-kei)] [vP fan aan-gaau]]

3.SG every-day　　at　　home　　sleep nap

'He takes a nap at home every day.'　(Djamouri & Paul 2009:208)

(97)　　*舊年佢喺嘅嗰個城市舉辦緊電影節。

* Gau-lin keoi *hai*　ge　*go go sing-si* geoi-baan gan din-ying zit.

Last.year 3.SG be.at SUB DIST CL city　　hold　　PROG film festival

'The city in which last year he was is now holding a film festival.'

Another unexpected difference is that in (74) *jia* 家 'home' is optional, but in
(98) *uk-kei* is obligatory. Notice that in (74) Djamouri & Paul (2009) attributes
the license for the Object *jia* to be optional to the verbal status of *zai*. Now *hai* in
(98) is also a V but the Object *uk-kei* is obligatory. Therefore the verbal status is
not enough for this stative verb to stand alone.

(98)　　我頭先去咗一次，佢唔喺 ＊（屋企）。

　　　　O　tau-sin　heoi zo　　jat ci,　　keoi m [$_{vP}$ hai *(uk-kei)].

　　　　1.SG just　　go-PERF　one-time 3.SG NEG　be.at home

　　　　'I just went there, he wasn't at home.'

Furthermore, there is a prominent observation on the transitive *zai* in that the Object can never be omitted, no matter how clear the syntactic and pragmatic contexts are. A modification of (92) is (99) in which the Object of the V *zai* is always required. In this example the V *zai* looks similar to the V *hai*, though.

(99)　　去年他在那個城市，他靜靜地在 ＊（那個城市)。

　　　　Qu-nian　　ta　　　zai　　na　ge　cheng-shi,

　　　　ta　　jing-jing　de　zai　　*(na　ge cheng-shi).

　　　　Last.year　3.SG　　be.at　DIST CL　city

　　　　3.SG　calm calm DE　be.at　　　DIST CL city

　　　　'Last year he was in that city, he calmly was (in that city).'

To account for these differences between *zai* and *hai*, I make a conjecture, namely that the transitive stative V is underlying a combination of the intransitive stative V and a Locative Pr, i.e. (100), and the transitive *zai* and *hai* (i.e. (98) and (99)) always require an overt Object to satisfy the requirement of the Pr inside them, and the *zai* in (93) is in fact intransitive and the relative clause is a 'gapless' one. People feeling odd with (93) do not have the intransitive *zai* in their lexicon (at least for this use of *zai*).

(100)　　$V_{Intr} + Pr \rightarrow V_{tr}$

In Sections 2.4.3 and 2.4.4 I will provide further (possibly) supporting evidence for the above conjecture from Shanghai dialect of Chinese and Eastern Guizhou Miao. However, before going to these languages, the nature of the so-called 'intransitive' *zai* will be further investigated.

2.4.2　　Analyzing the Intransitive *zai*

Since, in my analysis, the transitive verb *zai* is $V_{intr} + Pr_{LOC}$, and the English *here* and *there* are $Pr_{LOC} + DP_{PLACE}$, some insights may be obtained through scrutinizing the English *here* and *there*.

2.4.2.1　　Insights from analyzing *Here* and *There*

Roeper (2007:86) mentions the large *here* versus small *here* distinction.

(101)　　When we start to drive to Michigan from Massachusetts I like to sit here in back, but when we get near there I like to sit up there in front. I don't know why I like to sit here here and there there.

　　　　　　sit [''small'' *here*] [''large'' *here*]

　　　　　　　　　　seat　　　　state

　　　　　　　　　　　　　　　Roeper (2007:86)

(102)   Imagine a visitor from Japan discussing etiquette:

   a.   *There* we put our shoes *here*.

   [Japan]   [near door]

   b.   *Here* you put your shoes *there*.

   [USA]   [on rack]

Roeper (2007:86)

These two positions for the phrase *here* or *there* are actually corresponding to the traditional Complement (the 'small' one) / Adjunct (the 'big' one) distinction. In Cinque (2006) the VP (actually containing only the lexical Verb) merges the Complement PPs earlier than the Circumstantial PPs (actually all the DPs first, before the Ps, for details see Cinque (2006:157-8)). Therefore the hierarchy appropriately matches the possible positions that are provided by Roeper (2007). In (102) the VP moves across the Direct Object and the Goal PP (the 'small' *here/there*) but does not raise past the Circumstantial PP$_{LOC}$.

(103)   Circumstantial PP$_{LOC}$ [… [VP [Complement DP$_{LOC}$ (PP$_{LOC}$) … [~~VP~~

In (101) the VP *sit* raises across the 'small' *here* and pipe-pieds across the 'big' *here*, hence a mirror image of the Merge order

(104)   VP < Comp PP$_{LOC}$ < Circum PP$_{LOC}$

is on the surface, namely

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(105)   [[VP [Comp PP$_{LOC}$] … [Circum PP$_{LOC}$ [… [~~VP [Comp PP$_{LOC}$~~ [~~VP~~

In a nutshell, no matter *here/there* or Chinese transitive verb *zai* originates from the higher or lower positions, they are 'transitive' in the sense that they all select certain DP as their Complements. Let us turn to the usages of *there* in English. There are at least five distinct uses of the English *there* suggested by Roeper (2007):

(106)   Five uses of *there*

a.	"There!"	Expression of satisfaction (just tied shoes)
b.	"There, there."	Words of comfort
c.	"There is an elephant."	Presentational (or pointing) there (links to nonlinguistic context)
d.	"There are no elephants."	Existential there
e.	"(We went to the zoo.) An elephant was there."	Locative discourse link (links to some earlier locative in the linguistic context)

Roeper (2007:81)

In fact, among these five uses the first two are not relevant to our spatial issues and so will be ignored in the following discussion. In example (e) *there* can also be realized as *in there* (certainly possible with other spatial Prs), in which *there*

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refs to *that place* (or *the place of zoo*).

(107)   An elephant was *in* there.

So we may assume that in (e) there is actually a silent Pr_{LOC}.

(108)   An elephant was IN there.

Both the presentational *there* in (c) and the discourse anaphora *there* in (e) are 'linkers' (non-linguistic and linguistic, respectively); the former is called 'exophoric use' and the latter 'anaphoric use' in Diessel (1999:162). The two entities that these linkers link are Figure and Ground, in Talmy's (1985, 2000) terms. It is quite clear that the *there* in any of (c), (d), and (e) is not a Circumstantial PP and so the so-called 'big' *there* is irrelevant here. Instead, they all are Complements, thus the 'small' *there*. But (d) is different from (c) and (e) in that it is underlying one-place. The *there (be)* in (d) merely asserts that something exists but Ground is not an issue. Hence, not only that no Circumstantial DP is involved, but also no Argumental DP_{LOC} is required. In other words the *there* is expletive. While someone may simply treat the three *there*'s as unrelated morphemes, I prefer to unify them.

First, (c) and (e) both have a 'linker'. In fact, (c) can be re-phrased as (109), which resembles (108):

(109)   There is an elephant *in there*.

The final *in there* in (108) and (109) is a Complement PP$_{LOC}$, embedding the
Ground, and the initial *there (be)* in (109) resembles the initial *there (be)* in (d),
which encodes the notion of 'existence'. Therefore, (c) actually may have two
different syntactic analyses but have the same semantic-pragmatic outcomes
(with the pointing action). The first analysis is that the only initial *there* in (c) is
the expletive for the existence verb and thus has no semantics, just like the *there*
in (d), and the Ground to be linked to is syntactically elided but pragmatically
provided by the pointing action. (Presumably a pointing action would be
obligatory. However, 'pointing' is just a convenient representative of any kind of
contextual, non-linguistic clue or knowledge.)

(110)   There$_{expletive}$ is an elephant [$_{PPloc}$ IN THERE]   *(☞).

The other analysis is that the initial *there* actually comes from the final
Complement PP$_{LOC}$ *in there*. Again pointing is obligatory:

(111)   [$_{PPloc}$ IN There] is an elephant [$_{PPloc}$ ~~IN there~~]   *(☞).

Both analyses are equally good and for the time being I do not see if there is any
way and any necessity to choose one between the two, but apparently (110)
reflects the more fundamental structure. Besides, I suggest that (e) actually has
the same underlying structure but pointing is not obligatory and probably even

non-preferable.

(112)   An elephant was ~~an elephant~~ [$_{PPloc}$ IN there]   (?? ☞).

Accordingly, the three kinds of *there*-clauses are in fact structurally related. The initial *(there) be* is an intransitive (accusative, actually) verb, which can be paraphrased with *(there) exist*. I argue that the intransitive *zai* actually corresponds to this element. Everybody knows the most famous saying of René Descartes', whose translation in Chinese (in fact, in the style of Classical Chinese) is in classical language, in which all speakers must accept the intransitive use of *zai* since it obviously refers to 'existence' in abstract sense and the saying itself is formal enough.

(113)   Cogito, ergo sum.   [Latin]

我思，故我在。

Wo si,   gu   wo zai.

I   think, therefore I   am.

Therefore, I think, it is this use of *zai*, namely merely referring to 'existence' but without a Ground DP as its Argument that provides its possibility to appear in a superficially 'genuine' relative clause but actually a 'gapless' relative. In Example (114), resembling (93), the 'head nouns' are places. In Example (115), in contrast, gapless relatives with *zai* as the Verb would be more likely accepted by all speakers, since they would be more naturally induced to consider this *zai*

to have the meaning of existence and not to select a locative argument, for the reason that the 'head noun' is not a locative.

(114)   ?他在的地方/房間

Ta   zai   de   difang / fangjian

3.SG be.at   SUB   place   room

'the place/room in which he was'

(115)   他在的時候/情況/感覺

Ta   zai   de   sihau / qingkuang / ganjue

3.SG be.at   SUB   time   situation   feeling

'the time / situation / feeling of his being present'

2.4.2.2   Insights from the Particle *suo*

Following Chiu (1995), Huang, Li & Li (2009:218-9) argue that the particle *suo* 所 in Mandarin relatives is an object clitic. Only the relatives with an accusative object that has moved out of it allow an optional *suo*, just before the main Verb. The examples (116)-(121) are selected from Chiu (1995), via Huang, Li & Li (2009:218-9). (116)-(120) show that *suo* appears only when an accusative object is relativized, but even in such case *suo* is optionally overt. (121) shows that since the resumptive pronoun cannot co-occur with *suo*, there must be a gap produced by movement.

(116) [李四(所)買 ＿ 的]那些書　　　　[accusative object relativization]

　　　[Lisi (suo) mai ＿ de] nei　xie shu

　　　Lisi　SUO buy　　SUB those CL book

　　　'the books that Lisi bought'

(117) [＿ (*所)來過的]那些人　　　　[subject relativization]

　　　[＿ (*suo) lai-guo　　de] nei　xie ren

　　　　　　SUO come-ASP SUB DIST CL people

　　　'those people who came'

(118) [李四(*所)跟他住過的]那個人　　　　　　[object of P]

　　　[Lisi (*suo) gen ta　zhu-guo de] nei ge ren

　　　Lisi　SUO with him live-ASP SUB DIST CL person

　　　'the person that Lisi lived with'

(119) [李四(*所)看到張三的]地方　　　　　[where]

　　　[Lisi (*suo) kan-dao　　Zhangsan de] difang

　　　Lisi　SUO see arrive　Zhangsan SUB place

　　　'the place where Lisi saw Zhangsan'

(120)   [李四(*所)看到張三的]時候   [where]

    [Lisi (*SUO) kan-dao   Zhangsan de] shihou

    Lisi   SUO   se arrive Zhangsan SUB time

    'the time when Lisi saw Zhangsan'

(121)   [我所看到(*他)的]那個人

    [wo suo kanguo (*ta) de] neige ren

    3SG SUO see-ASP him de DIST CL person

    'the person that I saw (him)'

Although in the literature within the school of generative grammar that specifically discusses this particle (e.g. Chiu 1995; Ting 2003; Huang, Li & Li 2009; Jiang, to appear) we can find a lot of examples where the particle *suo* 所 is optional and also quite many examples where it is forbidden, yet no examples where this particle is 'obligatory' can be found, which is a phenomenon quite unexpected, since it seems to indicate that this particle is syntactically totally redundant in the language.

(122)   Examples?

    (suo)   Yes

    (*suo)   Yes

    *(suo)   No

However, given my observation that for most speakers the Mandarin *zai* 在

does not allow its object to be stranded, which in my analysis is attributed to the fact this *zai* 在 is composed of an intransitive verb of existence and a locative preposition, and it is the latter that prevents the stranding of the object, the presence of the particle *suo* 所 rescues the otherwise ungrammatical stranding expressions. Examples (93) and (114), whose grammaticality is highly controversial for various Mandarin speakers, repeated as (123) and (124) respectively, become absolutely grammatical when the particle *suo* is added before *zai*.

(123)　去年他　？(所)在的那個城市正舉辦電影節。

　　　　Qu-nian ta　?(suo) *zai*　de　*na ge cheng-shi* zheng ju-ban dian-ying jie.

　　　　Last.year 3.SG SUO be.at SUB DIST CL city right.now hold film festival

　　　　'The city in which last year he was is now holding a film festival.'

(124)　他　？(所) 在的地方/房間

　　　　Ta　?(suo)　zai　de　　difang / fangjian

　　　　3.SG　SUO　be.at　SUB　place　　room

　　　　'the place/room in which he was'

In contrast, the originally highly acceptable examples in (115), namely those 'gapless' relatives become completely ungrammatical when the particle *suo* is added before *zai*:

(125)　　他(*所)在的時候/情況/感覺

　　　　Ta　(*suo)　zai　de　sihau / qingkuang / ganjue

　　　　3.SG　SUO　be.at　SUB　time　situation　feeling

　　　　'the time / situation / feeling of his being present'

All this indicates that the *zai* that allows relativization is, for most speakers in most cases, transitive since it obligatorily requires the presence of the object clitic *suo*, which in turn justifies the presence of a gap inside the relative clause but licenses the stranding of the object from *zai*, which is forbidden otherwise. As for such license it is still not so clear how it works but it seems to me that it is thanks to the properties of clitics.

2.4.3　Shanghai dialect

Other than Mandarin, Wu is the Chinese dialect of the largest population, of which Shanghai is one subdialect. In Shanghai there are three items corresponding to the Mandarin *zai* 在: *lAʔ* 辣, *lAʔ lAʔ* 辣辣, and *lAʔ hE* 辣海, all roughly meaning 'at, to be at, to be located at, to exist, etc.' (Chao 1986; Qian 1997:177; Xu & Shao 1997; Yang 1999). For my purpose in this section I will investigate only the first two items. Historically, the first item and the first morpheme of the second item, *lAʔ* 辣, actually has the same source with *zai* 在 in that there occurred a phonetic change on the initial consonant from [z] to [l]; and the second morpheme of the second item, *lAʔ* 辣, was originally a

Postposition for Place words (Qian 1997:177; Yang 1999). [15]

(126)   [zai [DP$_{Ground}$ lɑ]] → [lʌʔ [(DP$_{Ground}$) lʌʔ]] → [lʌʔ lʌʔ]

In some expressions *lʌʔ* 辣 and *lʌʔ lʌʔ* 辣辣 have the same distribution but different in others. First, both *lʌʔ* 辣 and *lʌʔ lʌʔ* 辣辣 can project a PrP, which precedes or follows a V.

(127)   辣辣房间里写。

[$_{PrP}$ *lʌʔ$_{11}$-lʌʔ$_{33}$* vɒ̃$_{22}$-kE$_{55}$ li$_{31}$]   ɕiʌ$_{334}$

At   room   inside write

'Write in the room.'   (Qian 1997:27)

---

^[15] But such process is not accepted by Xu & Shao (1997) as they argue that the Place meaning simply comes from the first *lʌʔ* but not the second, and that there is no evidence that a DP$_{Ground}$. is ever permitted. However, the diachronic issue is not deterministic to my synchronic analysis.

(128) 写辣辣黑板浪。

çiA$_{33}$ [$_{PrP}$ *lA?$_{55}$-lA?$_{33}$* hə?$_{33}$ pE$_{55}$ lɒ̃$_{31}$] [16]

write   at   black board top

'Write on the blackboard.'   (Qian 1997:27)

(129) 摆衣裳辣辣橱里。

pA$_{44}$?i$_{55}$-zɒ̃$_{23}$ [$_{PrP}$ *lA?$_{11/33}$-lA?$_{33}$*   z]$_{22}$ li$_{44}$]

put clothes   at   closet inside

'Put the clothes in the closet.'   (Qian 1997:27)

(130) 我辣跳板浪踏踏，看看会勿会坍下去。

ŋu   [$_{PrP}$ *lA?*   t'iɔ -pE   lɒ̃]   t'A? t'A?,

k'ø k'ø   ɦuE və? ɦuE   t'E   ho   tɕ'i.

1.SG   at   jump-board top   step step

look look   will not will   collapse   down go

'I tried stepping on the springboard, to see if it would collapse.'

(Qian 1997:53)

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[16] I think the transcription of 黑 'black' in the original text contains a tiny typo; *hə?$_{33}$* is here corrected to *hə?$_{33}$* , since an entering tone should be underlined to indicate its brevity, by convention.

(131)　小王辣（辣）中学里读书。

ɕiɔ wõ　　　[PrP *IAʔ (IAʔ)* tsoŋ -ɦoʔ li]　　doʔ sɿ.

little SURNAME　at (at)　middle-school inside　study-book

Little Wang studies in high school. (Qian 1997:178)

Second, both *IAʔ* 辣 and *IAʔ IAʔ* 辣辣 can be a transitive V, whose Object is a place expression.

(132)　侬今早辣屋里伐？　辣屋里个。

Noŋ tsin zɔ　[VP *IAʔ* [DP oʔ li]] VAʔ?　[VP *IAʔ* [DP oʔ li]] gəʔ.

2.SG today morning be.at home inside SFP　be.at home inside SFP

Were you at home this morning? (I) was at home. (Xu & Shao 1997:98)

(133)　我辣辣学堂里。

ŋu　[VP *IAʔ IAʔ* [DP ɦoʔ-dõ li]].

1.SG　be.at at　school inside

I am in the school. (Qian 1997:178)

However, *IAʔ* 辣 in Shanghai is different from the Mandarin *zai* 在 in that it cannot stand alone as a predicate nor an answer to a question (in other words an Object is obligatorily required), but nevertheless *IAʔ IAʔ* 辣辣 behaves like *zai* 在 in this aspect, at least superficially.

(134)   今早我辣辣嗒。

tsin   zɔ   ŋu   [_{VP} *lAʔ lAʔ*]   nɔ.

today morning 1.SG   be here/there SFP

'This morning I was here/there.' (Xu & Shao 1997:98)

(135)   儂今早辣辣伐？   辣辣个。

Noŋ tsin   zɔ   [_{VP} *lAʔ-lAʔ*] vA?   [_{VP} *lAʔ-lAʔ*] gəʔ.

2.SG today morning   be-at   SFP   be-at   SFP

'Were you here/there this morning?   (I) was here/there.'

(Xu & Shao 1997:98)

(136)   *儂今早辣伐？   辣个。

*Noŋ   tsin   zɔ   [_{VP} *lAʔ*] vA?   [_{VP} *lAʔ*] gəʔ.[17]

2.SG today morning be-at   SFP   be-at SFP

(Intended meaning: 'Were you here/there this morning? (I) was here/there.')   (Xu & Shao 1997:98)

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[17] Although before this example the authors put a question mark (?) instead of an asterisk (*), the description in the text clearly asserts that *lAʔ* 'cannot stand alone as a predicate nor an answer to a question'. I quote the original paragraph here: ""辣辣"和"辣海"都可以独立做谓语，也可以单独回答问题，而"辣"不行，它只有带上处所宾语后才可以说。可见"辣"不是个独立动词，或者从语义上说，它是不自足的，而"辣辣"和"辣海"在语义上已经自足。" (Xu & Shao 1997:98). If there was no typo or misuse of symbols, it could be that the authors thought that due to pragmatic factors such dialogue might still be 'possibly acceptable'.

There are two possible analysis for this *lAʔ lAʔ* 辣辣 with respect to the intransitive *zai* 在. First, it could be that the former is a fused morpheme that is EXACTLY equivalent to the latter. The other option is to analyze the first *lAʔ* 辣 as a transitive V and the second *lAʔ* 辣 as its Place Object (to some extent inheriting their historical structural relation depicted in (126) if that process is proven valid). This latter option echoes the Cantonese *hai dou* 喺度, which is also composed of a Pr *hai* 喺 and its Place Object *dou* 度. Since the Yes-No question in A-not-A form is used in both Cantonese and Shanghai, and in Cantonese there exists the construction *hai-m-hai dou* 喺唔喺度 'at-not-at there', it would be interesting to see if such construction is possible for *lAʔ lAʔ* 辣辣.

(137)   你去睇睇佢喺唔喺度。

lei   heoi tai tai [_{CP} keoi *hai*   m   *hai* [_{DP} *dou*]].

2.SG go   see see   3.SG be.at NEG   be.at   there

You go to see whether he is there or not.

It turns out that the negation marker cannot intervene between the two *lAʔ* 's. Therefore, the first analysis that the intransitive *lAʔ lAʔ* 辣辣 in Shanghai is indeed a fused morpheme that is EXACTLY equivalent to the intransitive *zai* 在 in Mandarin.

(138)　侬去看伊辣辣勿辣辣。

Noŋ　tɕ'i　k'ø [CP ɦi　*lAʔ lAʔ*　vəʔ　*lAʔ lAʔ*].

2.SG　go　see　3.SG　be there　NEG　be there

You go to see whether he is there or not. (Qian 1997:295)

(139)　*侬去看伊辣勿辣辣。

*Noŋ　tɕ'i　k'ø [CP ɦi　*lAʔ*　vəʔ　*lAʔ*　[DP *lAʔ*]].

2.SG　go　see　3.SG　be.at　NEG　be.at　there

You go to see whether he is there or not. (Qian 1997:295)

A reader who is familiar with both Cantonese and Shanghai may raise a logical problem in the above argument. A wider concern could be upon two competing constructions for Yes-No questions, namely [VO not VO] and [V not V O], admitted by both Cantonese and Shanghai. Thus, in addition to (137), which adopts [V not V O], Cantonese also admits [VO not VO], although this is of old fashion:

(140)　(?)你去睇睇佢喺度唔喺度。

(?)lei　heoi tai tai　[CP keoi　*hai dou*　m　*hai dou*].

2.SG go　see see　3.SG　be.at there　NEG　be.at there

You go to see whether he is there or not.

Therefore, the *lAʔ lAʔ* 辣辣 in (138) is not necessarily analyzed as one intransitive V but a VO combination which appears in the [VO not VO]

construction. If so, the possibility of the second option would not be totally eliminated. However, Xu (2003:143) states that for VO combinations, [V not V O] is used and 'occasionally, the object as well as the verb can be reduplicated.'

(141)　你抽不抽香烟？

　　　　Noŋ[¹³]　　*ts'ɣ*　　vəʔ　　*ts'ɣ*[⁵⁻³⁻¹]　　*ɕuaᵖi*？

　　　　you　　smoke　　not　　smoke　　cigarette

　　　　'Did you smoke or not?'

Since [V not V O] is a valid construction for VOs in Shanghai, if the *lAʔ lAʔ* 辣辣 in (138) is really a VO combination, (138) should not be totally forbidden. In contrast, in Cantonese, even though [VO not VO] is old-fashioned, (140) is highly acceptable (and actually can be heard among elders). The above facts naturally leads to the first option, namely the *lAʔ lAʔ* 辣辣 in (138) is a fused intransitive V.

2.4.4　Miao (Qindong Miao or Eastern Guizhou Miao)

Miao-Yao (or equivalently Hmong-Mien) is a linguistic group in Southeast Asia including mainland China, Thailand, Vietnam, etc. The Miao data given here are from Guizhou, a province in southwest China. The Locative V/Pr corresponding to Mandarin *zai*, Cantonese *hai*, and Shanghai *lAʔ* can be *niangb, dit,* or *niangb dit*. In fact, both *niangb* and *dit* can be a Pr, but only *niangb* can be a V.

(142) Mangx dad nail dub *dit* ghab-sot, ib hxot   wil   hot *dit* mangx nangx.

2.PL   take fish put at kitchen   one moment 1.SG cook at 2.PL   eat

'You put the fish in the kitchen, and in one moment I'll cook (it) for you

to eat.'   (Wang 1986:82)

(143) Mongx   dliat   *dit*   hangd nend.

2.SG   put   at   place DIST

'You put (it) in there.'   (Wang 1986:82)

(144) Laib vangl   *niangb dit*   ghab but   eb.

CL   village be.located at   side beside river

'The village is beside a river.'   (Wang 1986:82)

(145) Aib-Nil *niangb* Baif-Jenb duf   dud.

NAME   at   Beijing   study book

'Aib Nil studies in Beijing.'   (Wang 1986:101)

(146) Ad   Vob   *niangb* zaid dangl mangx.

Sister NAME at   home wait 2.PL

'Ms Vob waits for you at home.'   (Wang 1986:118)

(147)   Nongf *niangb* nongf zaid.

Self   be.at   self   home

'Everyone is at his home.'   (Wang 1986:102)

Applying my analysis in (100) to these data, I conjecture that in (144) *niangb* spells out the intransitive V of existence and *dit* the Locative Pr. However, with merely very limited materials such application has to be further scrutinized.

2.4.5   Summary of the Stative V/Locative Pr items in the Four Languages

The following summarizes my analysis for the Stative V/Locative Pr items in Mandarin, Cantonese, Shanghai and Miao.

(148)

	Intransitive Verb	Preposition	Object
		Transitive Verb	
Mandarin	*zai*		(*DP)
Mandarin	*zai* (throughout)		*(DP)
Mandarin		*zai*	*(DP)
Cantonese	*hai* (throughout)		*(DP)
Cantonese		*hai*	*(DP)
Shanghai	*lAʔ lAʔ*		(*DP)
Shanghai	*lAʔ*	*lAʔ*	*(DP)
Shanghai	*lAʔ* (throughout)		*(DP)
Shanghai		*lAʔ lAʔ*	*(DP)
Shanghai		*lAʔ*	*(DP)
Miao	*niangb*	*dit*	*(DP)
Miao	*niangb* (throughout)		*(DP)
Miao		*niangb*	*(DP)
Miao		*dit*	*(DP)

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Chapter 3

Postpositions and DP$_{PLACE}$ in Mandarin and Cantonese

3.1 Circumpositions in Chinese

As mentioned in Chapter 2, the spatial expressions in Mandarin and Cantonese are normally constructed in the sequence Pr > Ground > Po. We are going to see that the Po is actually much more complicated in structure, and the Ground and Po will be considered as embedded in a structurally complex DP$_{PLACE}$. Thus, in this chapter more attention will be paid on the lower part of the hierarchy, namely that below Pr$_{LOC}$ (i.e. Locative P[18], such as *at* in English, *zai* in Mandarin and *hai* in Cantonese), which in my proposal means DP$_{PLACE}$.

(149)   [Pr$_{LOC}$ [$_{DP\ place}$ … [Ground … [Po ...

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[18] Some authors such as Peter Svenonius and Marina Pantcheva are used to use the term 'Place P' instead. A clearer and perhaps more popular label is P$_{LOC}$, as shown in various articles in Cinque & Rizzi (2010b). Here when emphasizing the circumpositions of Chinese I prefer to use Pr$_{LOC}$, but otherwise P$_{LOC}$ may also be used to refer to the same thing in Chinese, anyway.

3.1.1 Cross-linguistic variation

There are certain similarities and differences between Chinese and English on the one hand, and between Mandarin and Cantonese on the other. In English, although a spatial expression can be realized as a preposition followed by a Ground DP, it is however not rare to have prepositional phrases comprised of a 'complex'[19] preposition followed by a Ground DP. A typical complex spatial preposition in English is formed in such a way that a noun-like place word is preceded by a 'simple' preposition and followed by another 'simple' preposition (very often *of*). That noun-like place word is sometimes called the Axial Part (Jackendoff 1983; Svenonius 2006, 2008; Cinque 2010a, Wu 2011, among others). Such element in English, to a certain extent, resembles the Chinese localizer. From the perspective of cartography such difference can be explained by the assumption that all these spatial expressions indeed have one and the same syntactic structure with so many projections that are sufficient to accommodate all overt elements in all natural languages (here merely Chinese and English), where the seemingly lacking elements are either silent (Kayne 2005a, 2005b, 2005c) or spelled out by other overt elements (Svenonius 2010:131).

Besides, the Axial Part in Mandarin and Cantonese consists of two elements, and thus is not morphologically simple and presumably has internal

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[19] 'Complex' prepositions here refer merely to those comprising of more than one morpheme on the surface, e.g. in front of, on top of, etc. Such term used here thus does not involve theoretical concerns such as the one in Cinque (2010), in which 'complex' preposition refers to a different set of prepositions, or Axial Parts.

syntax. The first element carries the directional meaning of the Axial Part, e.g. *li* means 'the inside part', and the second element, e.g. *mian*, literally means 'face' or 'surface'.

While in Mandarin the Axial Part has to be overt for a reference object to be a place, in Cantonese there is another option, namely to use *dou*. The place conveyed by DP-*dou* is so vague that it can refer to any place with reference to the object DP, as reflected in the English gloss. We shall explore this Cantonese *dou* before studying the structure of Axial Parts. But before doing these it is necessary to discuss classifiers in Chinese.

3.1.2 Mandarin and Cantonese as classifier languages

Chinese languages are classifier languages in the sense that nouns cannot be modified by numerals without the help of an overt classifier. The classifiers in Chinese are thus called numeral classifiers.[20] Some Cantonese nominals are given below:

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[20] Cinque (2006) and Cinque & Krapova (2007) argue that even in non-classifier languages the classifier phrase is projected as well by observing the properties of such noun-like elements as year in English and data from South East Asia in Simpson (2005). As Kayne (2005c) argues for the existence of silent Ns, e.g. year, hour, it is possible that some silent elements in even non-classifier languages are indeed classifiers.

(150) 呢張我尋日買嘅細書枱

Li   zoeng o   cam-jat   maai ge   sai   syu-toi

PROX CL   1.SG yesterday buy   SUB small   book-table

'This small desk that I bought yesterday'

(151) 嗰四個佢今朝撞過嘅老朋友

Go   sei go keoi   gam-ziu   zong gwo ge   lou pang-jau

DIST four CL 3.SG   today-morning crash EXP SUB   old friend

'Those four old friends whom he met this morning'

Hence the order of modifiers in a nominal can be summarized as follows:

(152) Dem > Nume > CL > RC > A > N

The absence of the Nume(ral) between Dem and CL, or just before a CL in the absence of Dem, is very often considered to be a deleted 'one'. Besides, classifiers can be reduplicated so as to operate as the distributive universal quantifier:

(153) 張張細書枱

zoeng zoeng sai   syu   -toi

CL   CL   small book-table

'Every small desk'

(154)　個個老朋友

　　　 go go lou pang-jau

　　　 CL CL old friend

　　　 'Every old friend'

As suggested by Zhang (2012) the syntagmatic perspective can help identify the classifiers in Chinese. From the above I summarize the following criteria for an element to be a classifier (in Chinese, at least):

(155)　Criteria for Classifiers

a.　Being able to follow a numeral

b.　Being able to follow a demonstative (with a silent numeral 'one')

c.　Being able to reduplicate to yield distributive universal quantification

d.　Not being able to follow a classifier, except in its own reduplication

e.　Being able to precede [Relative Clause - Adjective - Noun]

3.2　The Cantonese *dou*

Based on Katz & Postal (1964), Kayne (2005b) analyzes the adverb *here* and *there* as *this here place* and *that there place* respectively and the unpronounced *place* noun is represented as PLACE, which is supposed to exist also in such spatial expressions as *from behind the tree*:

(156)　John came out from PLACE behind the tree.　(Kayne 2005b:67)

3.2.1 *dou* is a PLACE related element

We have seen that in Cantonese but not in Mandarin there is a postnominal noun-like element that yields a locative meaning when combined with a Ground DP but contains no meaning of Axial Part. This element *dou* is often supposed to be a suffix and comparable to the Axial Part suffixes in the literature (e.g. Cheung 1972). The locative meaning of *dou* does not contain any sense of directional projection from the Ground DP as the Axial Parts do. But similar to Axial Parts, when the Ground DP is a place name or is conceived to have a relatively fixed location, *dou* becomes optional.

(157)　喺個箱度

hai go　soeng dou

At　CL　box　DOU

'at the place near the box (or inside it)'

(158)　喺圖書館（度）

hai tou-syu-gun (dou)

At library　　　DOU

'in/near the library'

The element not only has no meaning of Axial Part, but also can co-occur with it. This suggests that *dou* is likely in a different projection from that of Axial Part.

(159)　喺個箱度入面度

　　　hai　go　soeng　leoi-min　dou

　　　At　CL　box　inside-MIN DOU

　　　'(at the place) in the box'

In the following examples *anhong* 'bank' is ambiguous between the building of the bank (i.e. as a PLACE) or the abstract bank account (i.e. as a THING). However, the former reading is intended only when *dou* is present.

(160)　佢喺銀行度攞咗一千蚊出來

　　　keoi **hai** an-hong **dou** lo-zo　jat –cin　　man　ceot lei.

　　　3.SG at　bank　LOC take-PFV one thousand dollar　exit come

　　　'He took out one thousand dollars **in the bank / from the bank account**.'

(161)　佢喺銀行攞咗一千蚊出來

　　　keoi **hai** anhong lo-zo　jat –cin　　man　ceot lei.

　　　3.SG at　bank　take-PFV one thousand dollar　exit come

　　　'He took out one thousand dollars ***in the bank / from the bank account**.'

3.2.2 *dou* is a PLACE classifier

I argue that *dou* is a PLACE classifier based on the fact that *dou* satisfies all the criteria set in (155):

(162)　我淨係去咗兩度地方。

　　　　o　　zing hai heoi-zo　loeng dou　deifong.　(Nume > *dou* > N)

　　　　1.SG only be go　　PERF two　　DOU place

　　　　'I have only visited two places.'

(163)　你幾時來咗呢度架？

　　　　lei　gei-si　　lei　-zo　li　-dou　ga?　　(Dem > *dou*)

　　　　2.SG what-time come PERF　　PROX DOU .SFP

　　　　When did you come here?

(164)　度度地方都見到中國人。

　　　　Dou dou　　deifong dou gin dou zong-kwok jan.　　(able to reduplicate)

　　　　DOU DOU place　also see can China　　　person

　　　　'(One) can see Chinese people everywhere.'

(165)　*呢個度

　　　　*li　go dou　　(unable to follow a CL)

　　　　PROX CL DOU

As shown in the above data, the noun *deifong* 'place' can be overt and follow *dou*. Although when there is a reference object, *deifeng* and the numeral have to be silent, yet in the spirit of cartography, when no noun follows *dou* I assume a silent noun PLACE indeed exists. Assume as in Cinque (2010a) that the ground DP occupies the Specifier of NP$_{PLACE}$, we have the following structures:

(166)　三度地方

[_NumP_ saam [_ClP_ dou] [_NP_ deifong]

three　　DOU　place

'three places'

(167)　個箱度

[_ClP_ [_NP_ [_DP_ go soeng] PLACE]]_i dou … t_i]

　　　　　CL box　　　　DOU

'(at) the place near/in the box'

As a matter of fact, Chao (1968) suggests that in Mandarin *chu* (處) is a classifier for place. However, *chu* is normally used only in Classical Chinese and contemporary written Chinese, and not in contemporary Mandarin.

(168)　歸到鹽官處。

Gui dao yan guan chu.

Go-back to salt ministry place

'(The monk) went back to the salt ministry.'

(10th c. CE, 祖堂集, cited from Peck 2011:6)

In fact Cantonese still uses this *chu*, which is pronounced as *cyu* and colloquially *syu*. It is considered to be an 'older version' of *dou* (just from the perspective of grammatical function but having nothing to do with etymology); roughly speaking, some elder speakers still use *syu* and the younger almost always use *dou*, in daily conversation. Similar to Mandarin the Cantonese *cyu* is reserved to

formal uses. Yet there is a significant difference between the Mandarin *chu* and the Cantonese *cyu/syu*. Right after *cyu/syu* there can be the overt N 地方 *deifong* 'place', which reinforces that the cognate morpheme is more like a classifier in Cantonese than in Mandarin.

3.3   Ref(erence) P(hrase) over NP_{PLACE}

Given that the PLACE noun does exist, the next question concerns its structural relationship with the reference object. Wunderlich (1991) uses *eigenplace* to indicate the region occupied by a given referring object. Following this idea Kracht (2008) and Svenonius (2008a, 2010) assume the structure of spatial PP starts with a THING that is then turned to a PLACE by a function labelled as LOC (Kracht 2008:36):

(169)   [_{DIR} to [_{STAT} in [_{AXPART} front of [_{LOC} *e* [_{DP} Schumacher's car]]]]]

Similarly Svenonius (2010) postulates the existence of K(ase) P(hrase) and *of* in *in front of* is here supposed to spell out such K:

(170)   [_{PlaceP} in [_{AxPartP} front [_{KP} of [_{DP} the house]]]]

The semantics of this approach is that the Ground DP is itself an object and so in order to refer to location it has to be transformed to a set of points in space, i.e. a region or a place, which is the task of the upper projection.

A second approach comes from Botwinik-Rotem (2008) in that PLACE is the

head noun with the referring object as its Complement:

(171) $[_{\text{PPLOC}}\ P_{\text{LOC}}\ [_{\text{DP}}\ D\ [_{\text{NP}}\ \text{PLACE DP}]]]$

Pantcheva (2008) and Wu (2010) further claim that PLACE is incorporated in Axial Part:

(172) $[_{\text{PathP}}\ [_{\text{PlaceP}}\ [_{\text{DP}}\ [_{\text{NP}}\ \text{PLACE} + \text{AxPart}\ \text{DP}_{\text{Ground}}]]]]$

A last approach is to take an abstract PLACE as the starting point, just like the second approach, but consider the Ground DP to be a modifier of PLACE. Cinque (2010a:10)

(173) $\dots[_{\text{NPplace}}\ \text{DP}_{\text{Ground}}\ [\text{PLACE}]]$

In the second and the last approaches no function of transformation is required since the starting entity is intrinsically a place. Observing the PLACE classifiers in Cantonese discussed previously, the head at bottom of the structure of DP_{PLACE} should be a PLACE noun, therefore the first approach is denied. As for the second approach, the question is why the referring object, being a modifier of the undefined place, occupies the Complement position of the NP, which in turn suggests the head noun PLACE is not really the modifiee, since that Complement has its own internal structure and is selected by PLACE. It would swap the relationship between the two elements so that PLACE is modifying the

referring object, hence a variant of the first approach. Only the last approach is compatible with the Cantonese data.

Thus, my proposal is similar to Cinque (2010a) in that the structure of DP$_{PLACE}$ starts with PLACE. But nevertheless NP$_{PLACE}$ is then subsequently modified by a Ref(erence) P(hrase), i.e. the THING for reference, inspired by the word order variation of Modifier-Modifiee between Chinese, and Cinque (2010c)'s study on Greenberg's Universal 23. In Chinese nominals the head noun is final. In other words modifiers precede the head noun in Chinese. Following Cinque (2010b) adjectives are phrases (hence APs) occupying the Specifiers of dedicated functional projections above the head noun, and postnominal adjectives are the result of NP-raising. Similarly the RefP is like an AP, which modifies the NP$_{PLACE}$.

(174) 漢族地方

hon-zuk deifong   [Cantonese]

Han tribe place

'The place of Han'

(175) [$_{FP}$ hon-zuk [$_{NP}$ deifong]]

Therefore, the example with the silent PLACE and a reference object proposed in (167) will be revised as follows, where the ground DP now occupies the Specifier of RefP, whose Complement is the silent NP$_{PLACE}$:

(176) 個箱度

$$[_{ClP} [_{RefP} [_{DP} \quad \text{go soeng}] [_{NP} \text{PLACE}]]_i \quad \text{dou} \quad t_i]$$

$$\text{CL box} \qquad\qquad\qquad \text{CL}_{\text{PLACE}}$$

3.4 The Axial Parts in Chinese

In Sections 1.2.1.2 and 1.2.1.3 we see that in Landau & Jackendoff (1993) and Jackendoff (1996) a category in spatial expressions that encode the axes with respect to a certain object or person, namely Axial Parts, which are usually grammaticalized from nouns, especially relational nouns or more specifically body parts, can be clearly recognized and distinguished from common nouns that apparently have similar forms or meanings. Furthermore, such category is crosslinguistically attestable as supported by such typological works as Hagège (2010) (see (18)) in which some concrete examples in languages such as Jacaltec, Hausa, Tamil, Kpelle, Mixtec, Cakchiquel, Hindi, and Gujarati, as shown in (19) in Section 1.2.1.3.

Such grammaticalization is also attested in various varieties of Chinese. But among these varieties some are more characteristically salient. Compared to Mandarin and Cantonese, the Chinese dialect Sin-on Hakka[21] apparently is one

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[21] Both the spellings of *Hakka* and *Kejia* are the name for the group 客家, a variety of Chinese parallel with Cantonese, Wu, Southern Min, etc. *Hakka* is more popular in the traditional as well as Western literature, than *Kejia*, since *Hakka* sounds more closely to the native pronunciation (which is also shared by other southern dialects including Cantonese) than *Kejia*, which is the standard transcription in mainland China based on Mandarin. The data of Hakka here is from Huizhou subgroup spoken in Southern Guangdong, a province in

typical example (Chappell & Peyraube 2008:31-32) in which many Standard

Parts are used as a component of an Axial Part , which is realized as a Po.

(177)   Ns grammaticalized into Pos in Sin-on Hakka

	Adp	Adp meaning
a.	腳下　kyok^6 ha^1　foot bottom	'below'
b.	面頭　men^4 theu^2　face head	'above'
c.	內肚　nui^4 tu^3　insdie belly	'within'
d.	心內　sim^1 nui^4　heart inside	'within'
e.	外背　ngoi^4 poi^4　outside back	'outside'
f.	？背　ti^1 poi^4　? back	'inside'
g.	肚裡　tu^3 li^1　belly inside	'inside'

(Chappell & Lamarre 2005:88, via Chappell & Peyraube 2008:31)

(178)   在腳下放緊

tshoi^1 kyok^6 ha^1 fong^4 kin^3

at   below   place-DUR

'to put it down below'

(Chappell & Lamarre 2005:88, via Chappell & Peyraube 2008:31)

The following examples show that they are all Pos as they all follow a Ground

DP, which in turn follows a Pr, namely *tshoi*[1], which is a cognate of the

South China, cited from Chappell & Lamarre (2005), via Chappell & Peyraube (2008).

Mandarin *zai* (which is investigated in Chapter 2).

(179)　　（在）屋背

　　　　(tshoi¹) wuk⁶ poi⁴

　　　　At　　house back

　　　　'behind the house'

(180)　　（在）房肚裡

　　　　(tshoi¹)　fong²　　tu³ li¹

　　　　At　　　room　　belly inside

　　　　'inside the room'

The standard parts stated above are all body parts, including 'foot', 'face', 'head', 'belly', and 'back'. Although body parts can be used as Axial Parts, they are not necessarily so, even if they express certain spatial meaning when combining with a nominal. A fundamental consideration is productivity; a body part usually cannot indicate the same region of ANY object whereas an Axial Part is presumably ready for anything provided no other constraints are violated. For example, it is extremely restricted lexically when describing the end part of an object with 尾 *mei* in Cantonese. For this reason *mei* in the following grammatical examples is considered to be a relational noun that is expressing a spatial part of an object.

(181)　佢企喺街尾 ／ 隊尾 ／*河尾 ／*橋尾。

　　　　Keoi kei hai　kaai mei / doei mei / *ho mei / *kiu mei.

　　　　3.SG stand at　street tail / line tail / river tail / bridge tail

　　　　'He is standing at the end of the street / end of the queue / *end of the

　　　　river / *end of the bridge.'

Although Svenonius (2006) emphasizes the difference is that a relational N means a 'part' of an object whereas an Axial Part refers to the 'space' with respect to the part, sometimes it is not so trivial since when the object is inherently or pragmatically a location or a place word, the part will naturally be simultaneously the 'part' and the 'space'. Therefore, I think, the semantic meaning is not sufficient to be the criteria for a relational N to be an Axial Part. It must require syntactic diagnostic tests. However, these tests are most likely language particular (as those for English in Svenonius 2006). While the presence of the definite article is a test suitable for English, we can use the presence of classifiers (see (195) and (196) in Section 3.4.3) or tone change (see (183) and (186) in Section 3.4.2) for Cantonese.

3.4.1　The allomorphs of *min* in Cantonese

In Cantonese, 邊 *bin¹*, 便 *bin⁶*, and 面 *min⁶* are three productive Axial Part suffixes, which are very similar to each other in aspects of sound, meaning and distribution. In the literature no in-depth discussion on the differences or relationships among *bin¹*, *bin⁶*, and *min⁶* (there are however some preliminary descriptive works, e.g. Cheung 1972, Gao 1980, Li 1995, Yip & Matthews 1994),

therefore whether there is any syntactic significance among them is still not clear. For simplicity, I assume that they are actually allomorphs, and in the following I will just consistently use *min*, except in the cases where *bin^1* and *bin^6* has to be used instead of *min^6*.

(182) The formation of the Axial Parts in Cantonese[22]

	Cantonese		English
(a)	上 *邊/便/面	soeng {*bin^1/bin^6/min^6}	'top'
(b)	下 *邊/便/面	haa {*bin^1/bin^6/min^6}	'bottom'
(c)	前 ?邊/便/面	cin {?bin^1/bin^6/min^6}	'front'
(d)	後 ?邊/便/面	hau {?bin^1/bin^6/min^6}	'back'
(e)	左 邊/便/面	zo {bin^1/bin^6/min^6}	'left hand side'
(f)	右 邊/便/面	jau {bin^1/bin^6/min^6}	'right hand side'
(g)	裡 *邊/便/面	leoi {*bin^1/bin^6/min^6}	'inside'
(h)	入 *邊/便/面	jap {*bin^1/bin^6/min^6}	'inside'
(i)	外 *邊/便/面	oi {*bin^1/bin^6/min^6}	'outside'
(j)	對 *邊/*便/面	deoi {*bin^1/*bin^6/min^6}	'opposite'
(k)	側 邊/*便/*面	cak {bin^1/*bin^6/*min^6}	'beside'
(l)	旁 邊/*便/*面	pong {bin^1/*bin^6/*min^6}	'next to'
(m)	埋 邊/便/*面	maai {bin^1/bin^6/*min^6}	'further inside'
(n)	東 邊/*便/面	dung {bin^1/*bin^6/min^6}	'east'
(o)	南 邊/*便/面	lam {bin^1/*bin^6/min^6}	'south
(p)	西 邊/*便/面	sai {bin^1/*bin^6/min^6}	'west
(q)	北 邊/*便/面	bak {bin^1/*bin^6/min^6}	'north'

3.4.2   The Axial *min* and the common noun *min* in Cantonese

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[22] The table is based on my judgments (Cf. Cheung 1972). Subtle variation may occur due to speakers' background, e.g. age, family's origin, etc.

In Cantonese, the final syllable of nouns (thus including the sole syllable of monosyllabic nouns) can be changed to tone 2 if its underlying tone is not tone 2. Whether such change is obligatory varies among those nouns; in other words, given a particular noun of the type described above, the tone of the final syllable can be optionally changed to tone 2. However, in many cases such tone change can distinguish between different morphemes and thus obligatory. In our case of *min* there is a clear-cut distinction between the two tones in that the meaning of *min*^{6} (i.e. with the underlying tone) is 'face', a relational noun referring to a part of an object, whereas *min*$^{6-2}$ (i.e. with the changed tone) refers to the space at or projected from a face of an object and thus is presumably considered as a component of an Axial part.

(183)   個箱前後兩{*面 $^{6-2}$/面 ^{6}}都企滿晒人。

Go soeng cin hau   loeng {*min$^{6-2}$ / min^6}

dou kei   mun saai   jan.

CL box   front back two   MIN

also stand full   all   person

'At both front and back of the big box are full of people standing.'

(184)　　個箱前後兩個{面$^{6\text{-}2}$/*面^6}都畫滿晒塗鴉。

Go soeng cin hau   loeng-go {min$^{6\text{-}2}$ / *min^6}

dou waak mun saai tou-a.

CL box   front back two   CL   MIN

also paint full all   graffiti

'At both the front and back sides of the big box are full of graffiti painting.'

In principle, *min^6* in (183) can also refer to the space at the front and back of the box, so its semantics actually can entail that of *min$^{6\text{-}2}$* in (184). But due to the semantic restriction of the predicate it is not natural to admit such reading in this example.

In addition to the difference in semantics, a probably more striking difference between the two *min*'s is distributional, namely that the presence of a classifier before *min$^{6\text{-}2}$* in (184) and its absence before *min^6* in (183) are obligatory; in other words, the latter is able to follow a numeral whereas the former is not.

Another distributional difference is similar to the one just mentioned but now the classifier is replaced by a demonstrative.

(185) 個箱呢{*面 ⁶⁻²/面 ⁶}同嗰{*面 ⁶⁻²/面 ⁶}都企滿晒人。

Go soeng li   {*min$^{6-2}$/min^6} tung go {*min$^{6-2}$/min^6}

dou kei   mun saai jan.

CL box   PROX MIN   and DIST   MIN

also stand full all   person

'At both this side and that side of the big box are full of people

standing.'

(186) 個箱呢個{面 ⁶⁻²/*面 ⁶}同嗰個{*面 ⁶⁻²/面 ⁶}都畫滿晒塗鴉。

Go soeng li   go {min$^{6-2}$/*min^6} tung go go {min$^{6-2}$/*min^6}

dou waak mun saai tou-a.

CL box   PROX CL MIN   and DIST CL MIN

also paint full   all graffiti

'At both this side and that side of the big box are full of graffiti

painting.'

Again, the presence of a classifier before *min$^{6-2}$* in (186) and its absence before

min^6 in (185) are obligatory; in other words, the latter is able to follow a

demonstrative whereas the former is not.

3.4.3 Localizers in Cantonese and Mandarin: Nouns or not?

It is widely accepted in the study of Mandarin grammar that monosyllabic

localizers (Axial Part head, in my term mentioned above) are not nouns but

disyllabic localizers (i.e. Part + Axis, in my term) are nouns (Ernst 1988;

Peyraube 2003; Djamouri, Paul & Whitman 2011).

(187)   "Almost everybody would agree that disyllabic localizers are a subclass of nouns. Different from the monosyllables, they can be used alone as place words and they can be subjects or objects, or combined with nouns to express the position." (Peyraube 2003:183)

(188)   "Despite this, not everyone agrees with the judgement of place words as belonging to the category of nouns. It could be a case of an autonomous category of words, which, unlike common nouns, do not have the possibility of being modified by classifier phrases of the form Numeral + Classifier, but which may, by contrast, be objects of the prepositions *zài* 在 'at' or *dào* 到 'to' or have an adverbial function, precisely what common nouns are able to do." (Chappell & Peyraube 2008:17)

For instance, Djamouri, Paul & Whitman (2011) agrees with Ernst (1988) that the monosyllabic localizers, like prepositions, always require an overt complement (DP$_{Ground}$ in our case) whereas disyllabic localizers, being nouns, do not.[23]

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[23] But in fact the DP can be covert in some cases, especially in formal speech or written texts:

(i)   Gūgu zài [(mén) wài]   děng nǐ.

      Aunt at   door outside wait you

  'Aunt is waiting for you outside (the door).'

(189)　書在 [*（桌子）上]

　　　　Shū zài [*(zhuō zi) shàng].

　　　　book at　　table　　on

　　　　'The books are on the table.'

(190)　書在 [（桌子）上面]

　　　　Shū zài [(zhuō zi) shàngmiàn].

　　　　book at　table　　top

　　　　'The books are on the top (of the table).'

Another difference is the (dis)allowance of insertion of the subordinator *de*:

(191)　桌子（*的）上

　　　　zhuōzi (*de)　　shàng

　　　　table　　SUB　　on

　　　　'on the table'

(192)　桌子（的）上面

　　　　zhuōzi (de)　shàngmiàn

　　　　table　SUB　surface

　　　　'the top of the table'

The following observations seem to be strong enough to distinguish disyllabic localizers from Ns. First, there are no contexts where the disyllabic localizers are preceded by a classifier. Given that for any N it is always possible to have a certain preceding classifier; it is not likely that disyllabic localizers are nouns. Cantonese examples are clearer in that the possessive relationship is constructed by juxtaposing the CL-N phrases.

(193)　桌子的這個腿　　　　　　　　　　[Mandarin]

　　　　zhuozi de　zhe　ge　tui

　　　　table　DE　PROX　CL　leg

　　　　'this leg of the table'

(194)　*桌子的這個上面　　　　　　　　　[Mandarin]

　　　　*zhuozi de　zhe　ge　shang-mian

　　　　table　DE　PROX CL　top MIAN

　　　　Intended: 'this top of the table'

(195)　張枱隻腳　　　　　　　　　　　　　　[Cantonese]

zoeng toi　zek goek

CL　　table CL　leg

'the leg of the table'

(196)　*張枱個上面　　　　　　　　　　　　[Cantonese]

*zoeng toi　go soeng-min

 CL　　table CL top　MIN

Intended: 'the top of the table'

Second, the superlative markers *zui* in Mandarin and *zeoi* in Cantonese can precede the disyllabic localizers as a modifier. Normally such superlative marker can only modify adjectives and never nouns. It may further suggest that as in the modification of adjectives, above the disyllabic localizers there should be a DegP to accommodate the superlative marker.

(197)　在禮堂最後面　　　　　　　　　　　[Mandarin]

zai litang zui　hou-mian

At hall　most back MIAN

'at most back of the hall'

(198)　喺禮堂最後面　　　　　　　　　　　　　　　　[Cantonese]

　　　　hai laitong zeoi hau-min

　　　　At　hall　most back MIN

　　　　'at most back of the hall'

In short, I regard both monosyllabic and disyllabic localizers as Axial Parts, which are not common nouns, though they may co-occur with a PLACE noun, or theoretically speaking the Axial Part is embedded in the larger syntactic structure of DP$_{PLACE}$. The difference that monosyllabic localizers are bound and disyllabic ones are free does not necessarily reject their being projected in the same part of the functional sequence, since whether an element is an affix, a clitic, or a free form is generally not relevant to the syntactic nodes. For instance, Future Tense is spelt out by inflectional suffixes in Italian but a free form in English. Yet as a generative theory of syntactic structure it is more attempting to assume they spell out the same functional projection on the syntactic tree.

3.4.4　The difference between *min* and *dou*

Apparently, the bound morphemes *min* and *dou* both encode PLACE but actually they have many sharp and significant differences in distribution and have slight and subtle differences in semantics. First of all, only *min* can be a suffix to monosyllabic localizers to form compound Axial Parts. It is always impossible to replace *min* by *dou* in these terms (As for the details of the possible combinations for the Axial Parts, one may see (182)):

(199)   *dou* cannot replace *min* in Axial Parts

		Monosyllabic L + *min/bin*		Monosyllabic L + *dou*		English
(a)	上面	soeng min	*上度	*soeng dou		'top'
(b)	下面	haa min	*下度	*haa dou		'bottom'
(c)	前面	cin min	*前度	*cin dou		'front'
(d)	後面	hau min	*後度	*hau dou		'back'
(e)	左面	zo min	*左度	*zo dou		'left hand side'
(f)	右面	jau min	*右度	*jau dou		'right hand side'
(g)	裡面	leoi min	*裡度	*leoi dou		'inside'
(h)	入面	jap min	*入度	*jap dou		'inside'
(i)	外面	oi min	*外度	*oi dou		'outside'
(j)	對面	deoi min	*對度	*deoi dou		'opposite'
(k)	側邊	cak bin	*側度	*cak dou		'beside'
(l)	旁邊	pong bin	*旁度	*pong dou		'next to'
(m)	埋便	maai bin	*埋度	*maai dou		'further inside'
(n)	東面	dung min	*東度	*dung dou		'east'
(o)	南面	lam min	*南度	*lam dou		'south
(p)	西面	sai min	*西度	*sai dou		'west
(q)	北面	bak min	*北度	*bak dou		'north'

Second, although *min* itself literally does not contain any denotation of
directions or vector projections, when it combines with a demonstrative it
conveys a more specific sense than the combination of *dou* with a demonstrative.
When speakers use Deictic + *bin* they assumes there are two distinct and

opposite regions that is known for the speakers and hearers. In contrast, Deictic + *dou* does not necessarily have this presupposition among the language users. Therefore, for instance, when a speaker starts a phone call to a stranger, he or she never chooses Deictic + *bin* as the first words, which that would lead to weird feeling, but starting with Deictic + *dou* is very common.

(200)   呢邊

Li bin

'this side / this place / here'

(201)   嗰邊

Go bin

'that side / that place / there'

(202)   呢度

Li dou

'this place / here'

(203)   嗰度

Go dou

'that place / there'

3.4.5   Circumposition stranding

Examples like the one in (204) (Mandarin) and (205) (Cantonese) are very often used to support the claim that preposition stranding is completely forbidden in

Chinese. Notice that in these examples no Axial Parts or any kinds of Pos exist.

(204)　　*我跟不熟的那個人。

　　　　*[NP [TP wo [PP gen Ø] bu　shou　　de]　nei-ge ren]

　　　　　　1.SG　with　　NEG familiar SUB that CL person

　　　　(Intended meaning: 'the person I'm not familiar with')

　　　　　　　　　　　　　　　　　　　　(Djamouri & Paul 2009:208)

(205)　　*尋晚佢喺食飯嘅嗰個餐廳好浪漫。

　　　　*[TP cam　　　-maan keoi *hai*　　sik-faan ge　*go gaan tsaan-teng*]

　　　　hou long-maan.

　　　　　Yesterday-night　3.SG　be.at　　eat-rice SUB DIST CL restaurant

　　　　very romantic

　　　　'The restaurant in which last night he had meal is very romantic.'

From the cartographic approach to spatial AdpPs, an Adposition could be actually very complex. The Pr in Chinese is only from one particular projection along the functional sequence of PPs. Some other features spelt out as Pr in English are spelt out as Po in Chinese. In some cases with circumposition, the stranding is allowed.

(206) 尋晚佢喺入面（嗰度/度）食飯嘅嗰個餐廳好浪漫。

[TP cam -maan keoi [PrP *hai* [PoP t_i *jap min (go-dou / dou)*]]

sik-faan ge [DP *go gaan tsaan-teng*]] hou long-maan.

Yesterday-night 3.SG be.at inside face (DIST-

PLACE/PLACE)

eat-rice SUB DIST CL restaurant very romantic

'The restaurant in which last night he had meal is very romantic.'

(207) 尋晚佢喺上面（嗰度/度）影相嘅嗰條橋今日突然間冧咗！

[TP cam -maan keoi [PrP *hai* [PoP t_i *soeng min (go-dou / dou)*]]

jing-soeng ge *go tiu kiu*] gam-jat dak-jin gaan laam zo!.

Yesterday-night 3.SG be.at top face (DIST-PLACE/PLACE)

take.photo SUB DIST CL bridge today-day sudden-time collapse PERF

'The bridge on which last night he took photos suddenly collapsed

today.'

In (206) and (207) *go-dou* or *dou* is optional. In my intuition, using *dou* makes the sentence most fluent, the second best is to use *go-dou*, but the sentence is still grammatical even though both are absent.

Furthermore, if we take away the Axial Part but retain the Place elements *go-dou* or *dou*, the sentence is still grammatical. But interestingly the sentence as such would then be conceived as inserting a resumptive pronoun for the relativized Ground DP.

(208)　尋晚佢喺{嗰度/度}影相嘅嗰條橋今日突然間冧咗！

[$_{TP}$ cam　-maan　keoi　[$_{PrP}$ *hai* [$_{PoP}$ t$_i$　*{go-dou / dou}*]]

jing-soeng　ge　*go*　*tiu kiu*]　gam-jat　dak-jin gaan　laam　zo!.

　　Yesterday-night　3.SG　be.at　　(DIST-PLACE/PLACE)

take.photo　SUB　DIST CL bridge today-day sudden-time　collapse PERF

'The bridge on which last night he took photos suddenly collapsed today.'

From the 'traditional' perspective, 嗰度/度 *go-dou/dou* 'there' is the resumptive PRO for 嗰條橋 *go tiu kiu* 'that bridge'. In other words, the DP is wholly replaced by the 'pronoun':

(209)　嗰條橋 *go tiu kiu* 'that bridge' → 嗰度/度 *go-dou/dou* 'there'

Nonetheless, if the underlying syntactic structure of a spatial expression involves a DP$_{PLACE}$ where the Ground DP is but one of the modifiers of the silent PLACE, the whole replacement depicted in (209) is not valid, and the *trace* that I put in (208) is necessary.

　　From this perspective, a Common Noun may always underlyingly embed a Pronoun, which in turn always underlyingly embed an Functional Noun of some kind, such as PERSON, THING, TIME, PLACE, etc. (Kayne 2005b, 2005c, 2010a, 2010b; Cinque 2010c).

　　Therefore, however, we may assert that in fact

(210)   Chinese allows Circumposition Stranding (at least in some cases).

3.4.6   The Merge of Axial Part

After discussing some characteristics of the Axial Parts in Chinese, the following subsections attempt to determine the Merge position of Axial Part in the syntactic structure.

3.4.6.1   Axial Parts are not Possesees

It is well-known that Chinese is head-final in nominal domain (e.g. Huang 1982/1998). If my claim that the PoP is embedded in a nominal, namely DP_{PLACE}, is correct, one may suspect if the Axial Parts and the Ground DP can be reduced to a Possession relation. There are indeed some similarities between these two pairs of relationship. First of all, a Ground DP right precedes an Axial Part, and the Subordinator DE can be the linker between them.

(211)   條橋（嘅）上面   [Cantonese]

tiu   kiu   (ge)   soeng min

CL bridge SUB   top   face

'(at) top of the bridge'

(212)　橋（的）上面　　　　　　　　　[Mandarin]

qiao　(de) shang mian

bridge SUB top　　face

'(at) top of the bridge'

(213)　小強（嘅）阿媽　　　　　　　　[Cantonese]

Siu Koeng (ge)　　aa-maa

Little NAME (SUB)　mother

'Little Keung's mum'

(214)　小強（的）媽媽　　　　　　　　[Mandarin]

Xiao Qiang (de)　ma-ma

Little NAME (SUB)　mother

'Little Keung's mum'

While (206) and (207) show that circumposition stranding may be allowed for a Ground-Axial Part relation, (215) shows that it is not the case for the Possesser-Possessee relation:

(215)　*[$_S$ wo renshi t$_i$ muqin] de　neige ren$_i$

　　　I　know　mother DE　that man

'The man that I know [this] mother'

　　　　　　　　　　　　　(Huang 1982:500/Huang 1998:355 (111))

3.4.6.2   Axial Part is merged higher than Ground DP

There are two possible orders between Axial Part and Ground DP, depending on which is higher along the functional sequence of the split PP. In what follows I am going to justify that Axial Part is merged higher than Ground DP based on a theoretical argument.

Kayne (2012) notices the phenonmen that the ellipsis of a Numeral within a DP in English is subject to certain constraint.

(216)   Mary has four thousand dollars in her account, and John has four thousand (dollars) in his.   (Kayne 2012:78)

(217)   *Mary has four thousand dollars in her account, and John has thousand (dollars) in his   (Kayne 2012:78)

The constraint that the Noun it modifies has to be silent altogether can be summarized as:

(218)   Numerals cannot be left silent unless their (following) associated noun is also left silent.   (Kayne 2012:78)

Relevant to this constraint is Movement. There is a left branch effect when a Numberal is preposed and the Noun it modifies remains in-situ. Such movement is prohibited:

(219)   *_Three_ John has sisters.

Cinque (2012) extends this idea to every 'modifiers' in the functional sequence a nominal. Of many modifiers discussed in Cinque (2010), Cardinal Numerals, Ordinal Numberls, and Postnominal Adjectives are chosen below to exemplify. Among them the deletion of the postnominal Adjectives has significant theoretical implication, which suggests deletion is executed subject to the underlying universal syntactic structure.

Cardinal numerals

(220)   a.   Quei due studenti e questi ~~due studenti/ studenti~~

  Those two students and these ~~two students/students~~

  b.   Quei due studenti e questi *~~due~~ professori

  those two students and these *~~two~~ professors

Ordinal numerals

(221)   a.   La sua prima sconfitta e la mia ~~prima sconfitta/sconfitta~~ (non erano

  prevedibili)

  His first defeat and mine ~~first defeat/defeat~~ (were not foreseeable)

  b.   La sua prima sconfitta e la mia *~~prima~~ vittoria (non erano

  prevedibili)

  His first defeat and my *~~first~~ victory (were not foreseeable)

Post-nominal adjectives

(222)   a.   Le mie preoccupazioni principali e le sue ~~preoccupazioni~~

~~principali/preoccupazioni~~

My worries main and his ~~worries main/worries~~

b.   Le mie preoccupazioni principali e le sue paure *~~principali~~

My worries main and his fears *~~main~~

(223)   a.   Quei vasi cinesi lì e questi ~~vasi cinesi/vasi~~ qui

Those vases Chinese there and these ~~vases Chinese/vases~~ here

b.   Quei vasi cinesi lì e questi quadri *~~cinesi~~ qui

Those vases Chinese there and these paintings *~~Chinese~~ here

Such constraint can be extended and summarized as follows:

(224)   A modifier cannot be left silent (even if the head N (NP) is silent) in case some other modifier which is merged lower in the nominal extended projection than the silent modifier is pronounced   (Cinque 2012: 16)

Based on the movement mechanism and constraint proposed in Cinque (2005), the ungrammatical examples mentioned above are all due to that the deleted element does not include the bottom of the tree, namely including the NP and the inbetween projections.

(225)　尋晚佢喺嗰條橋上面影相，今日會喺~~嗰條橋~~下面影。

cam　　　-maan keoi [PrP hai　[DP go　tiu kiu]i [AxPartP soeng min　ti]]

jing-soeng, gam-jat　wui [PrP hai [AxPartP haa min　[DP ~~go　tiu kiu~~]]] jing.

Yesterday-night 3.SG　　at　　DIST CL bridge　　top　face

take.photo today-day will　at　　　bottom face ~~DIST CL bridge~~　take

'The bridge on which last night he took photos suddenly collapsed

today.'

(226)　尋晚佢喺嗰條橋下面影相，今日會喺教堂*~~下面~~影。

cam　　　-maan keoi [PrP hai　[DP go　tiu kiu]i [AxPartP haa min　ti]]

jing-soeng, gam-jat wui [PrP hai [DP gaau-tong]i [AxPartP *~~haa min~~　ti]] jing.

Yesterday-night 3.SG　　at　　DIST CL bridge　　top　face

take.photo today-day will　at　　church　　　　bottom face　take

'The bridge on which last night he took photos suddenly collapsed

today.'

Therefore, from (225) and (226) we conclude that Axial Part is merged higher
than Ground DP.

3.4.6.3　Axial Part is merged lower than *dou*

Consider the following example, where right after the Pr_LOC (*hai* 'at') is the

Ground DP (*go tiu kiu* 'that bridge'), which is followed by the Axial Part (*soeng*

min 'on top of'), which is then followed by the distal demonstrative and the

PLACE Classifier (*go dou* 'there').

(227) 佢喺嗰條橋上面嗰度影緊相。

keoi hai go   tiu kiu   soeng min go dou   jing-gan-soeng.

3.SG at   DIST CL bridge top   face DIST CL$_{PLACE}$ take-PROG-photo

'He is taking photos at there, on top of that bridge.'

Given the Pr$_{LOC}$ is higher than all the other elements in the spatial DP, and the Axial Part is merged higher than the Ground DP (but the latter then raises across the latter in the derivation). There are two possible orders between

(228)   AxPartP = [[Ground DP]$_i$ AxPart t$_i$]

and

(229)   DeicP = [Deictic CL$_{PLACE}$ PLACE].

The first possiblity is that

(230)   (Pr$_{LOC}$ >) AxPartP > DeicP.   (i.e. the same as the surface order)

An apparent support is the order of restrictive relative clause:

(231)   RC > Dem > Nume > CL > N

There are several problems that the AxPartP as defined in (228) is not likely a (reduced) restrictive relative clause. First, a 'normal' restrictive RC in Cantonese should allow the insertion of the subordinator *ge* (equivalently *de* in Mandarin).

(232) *佢喺嗰條橋上面嘅嗰度影緊相。

      *keoi hai go tiu kiu   soeng min   *ge*   go dou   jing-gan-soeng.

      3.SG at DIST CL bridge top face   SUB DIST CL_{PLACE} take-PROG-photo

      Intended: 'He is taking photos at there, on top of that bridge.'

(233) 我好鍾意佢尋晚影(嘅)嗰幅相。

      O hou zung-ji keoi cam-maan jing (*ge*) go fuk soeng.

      1.SG very like 3.SG yesterday night   SUB DIST CL photo

      'I love the photo that he took last night.'

Although without *ge* in (233) sounds a bit outdated and is becoming rarer and rarer, its absence should be acceptable for all speakers. In other words, the presence of *ge* in a restrictive RC in Hong Kong is more natural and common. In contrast, (232) simply reject the insertion of *ge* before the demonstrative.

    Second, the noun *soeng* 'photo' in (233) can be overt or covert, whereas the presumably silent PLACE noun is not allowed to pronounce in (232), although it can in some other cases as mentioned in (162), (164), and (166).

    Third, as matter of fact, the insertion of *ge* in (232) does not directly make it ungrammatical but the semantic meaning will be changed since we are forced to interpret the phrase *go tiu kiu soeng min* 'top of that bridge' as a 'modifier'

(reduced RC or whatever) of *go dou* 'there' ('that place'). While with the original non-RC structure the location of the photo taking is simply 'on the bridge', i.e. any area on the bridge, with the RC structure (i.e. with *ge*) the location would have to be determined by non-linguistic information, e.g. pointing, and hence would be a specific area on the bridge (and not possible to refer to ANY area of the top of the bridge).

(234) 佢喺嗰條橋上面嘅嗰度影緊相。

keoi hai go tiu kiu   soeng min   *ge*   go dou   jing-gan-soeng.

3.SG at DIST CL bridge top face   SUB DIST CL$_{PLACE}$ take-PROG-photo

'He is taking photos at that particular *(☞) place of the surface of that bridge.'

Fourth, the demonstrative in (227) can be taken away, even though the PLACE noun is always silent, but the demonstrative in (233) can be silent only when the the 'head noun' is pronounced, and even in this case the contruction [RC CL N] sounds very outdated and has become marginally accepted by most young speakers.

Owing to these four serious problems, the first option is not so possible. Therefore I opt for the second possibility, where the AxPartP is embedded in DeicP, which is then selected by Pr$_{LOC}$.

(235) (Pr$_{LOC}$ >) DeicP > AxPartP

The derivation is assumed to be bottom-up. The surface order in Cantonese at this stage is derived by two successive roll-up pied-piping movements during the bottom-up Merging derivation:

(236)　Raise RefP (containing DP_{Ground} & NP_{PLACE}) across AxPartP to Spec, YP; Raise YP across the DeicP to the Spec, DP_{PLACE}

(237)　$[_{PrP}Pr_{Loc} [_{DP} [_{YP} [_{RefP}DP_{Grd}[_{NP}PLACE]]]_i Y^0 [_{XP}AxPtP\ t_i\ ]_j\ D^0\ [_{DeicP}Deic[_{ClP}CL\ t_j\ ]$

(238)　喺　　　嗰條橋　　　　　上面　　　　嗰　度

　　　　hai　　go tiu kiu　　　soeng min　　go　dou

　　　　at　　DIST CL bridge　top face　　DIST　CL_{PLACE}

'at there, on top of that bridge.'

3.5　Modifiers of measurement and deicticity

Svenonius (2010) argues that DegP is higher than DeicticP in the merge order, which is a generalization of the Persian data from Pantcheva (2006, 2008).

(239)　dær 10 metri-ye un birun-e xane.

　　　　at 10 meters-ez DIST outside-ez house

　　　　'there, 10 meters outside the house'

However, in Cantonese the most natural position for a demonstrative in the Locative PrP is the one just preceding *dou*, in other words the penultimate

position, and the MeasP follows the AxPartP and precedes the demonstrative.

(240)　　個女仔向住個公園後面三十米嗰度走緊過去

Go leoi-zai heong -zyu [go gung-jyun hau-min saam-sap mai go-dou]

zau-gan   gwo heoi.

CL   girl   towards ASP CL park   back MIN three ten metre that DOU

run ASP   pass   go

'The girl is running towards there, thirty metres behind the park.'

It is argued in Cinque (2005, 2010b) that demonstrative projects higher than adjectival and relative clause modifiers, which are in turn higher than the noun. Besides in Chinese classifier is between the Dem and the adjectives (or relative clauses, if any). I suppose the locative PPs in Cantonese has the similar order as its DPs where DegP, AxialPartP and some other modifiers follow Dem and CL and precede the NP$_{PLACE}$.

(241) Dem＞(Nume)＞CL＞…RCs…＞…＞As＞…＞N

(242) Pr$_{LOC}$＞Deictic＞(Nume)＞CL＞…Deg…＞…AxPart＞Ref$_{Ground}$＞N$_{PLACE}$

In short, let us put aside, for the time being, the puzzle of the position of the demonstrative shown in Persian. On the surface the Cantonese order mirrors the Persian order, which is equal to the English order. Executing one more roll-up pied-piping movement in addition to the twice roll-ups in (236), (237), and (238),

we will obtain the correct surface order in Cantonese.

(243)　Raise RefP (containing DP$_{Ground}$ & NP$_{PLACE}$) across AxPartP to Spec, YP;

Raise YP across the DegP to the Spec, ZP;

Raise ZP across the DeicP to the Spec, DP.

(244)

[$_{PrP}$Pr$_{Loc}$ [$_{DP}$[$_{ZP}$[$_{YP}$[$_{RefP}$DP$_{Grd}$[$_{NPplace}$]]$_i$ Y^0[$_{XP}$AxPtPt$_i$]$_j$ Z^0 [$_{DegP}$MeasP t$_j$]$_k$[$_{DeicP}$Deic[$_{ClP}$CLt$_k$]

(245)　喺　　嗰條橋　　　　上面　　　三米　　　嗰　度

hai　go tiu kiu　　　soeng min　saam -mai　　go　dou

at　DIST CL bridge　　top face　three metres　DIST　CL$_{PLACE}$

'at there, three metres above that bridge.'
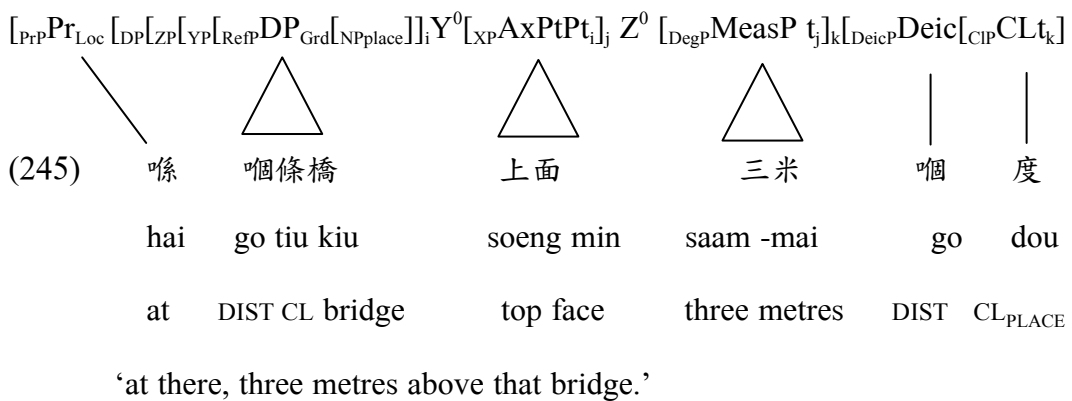
3.6   Viewpoints achieved by Axial Parts but not Particles

In English there is a category of particles that encode the spatial relationships between the Ground and some logophoric centre (Svenonius 2010:142). They are called Viewpoint Particles and mapped to positions above Deictic and below Mode of Direction in Cinque (2010a).

(246)　The boat drifted from *down* inside the cave.

(Svenonius 2010:142)

(247)   from two miles *north up* there beyond the border

(Cinque 2010:9)

Cantonese seems not to have these kinds of particles in expressing locative DPs or PPs. However, I suspect Cantonese actually adopts another syntactic construction to achieve the same semantic representation.

From the Cantonese data ever provided above we probably have an impression that an Axial Part in Chinese always follows the relevant Ground DP. But in fact, Axial Parts can precede a Ground DP. However, the interpretation would be very different.

(248)   喺下面條橋上面度

[$_{PrPloc}$ hai [$_{DPplace}$ [[$_{DPground}$ [$_{AxPtP}$ haa   min]   tiu kiu]$_i$

[$_{AxPartP}$ soeng min t$_i$]]$_j$ [$_{Clplace}$ dou t$_j$]]

at   bottom face   CL bridge

top   face   CL$_{PLACE}$

'down on the bridge.'

The first Axial Part is actually embedded in the Ground DP, which can also express the relative position between the Ground and the person in question. This recalls the notion of the Syntax-Semantics Mapping advocated by Borer (2005) that is formulated in (13), repeated here:

(249)   The Syntax-Semantics Mapping

One syntactic structure can be assigned no more than one semantic interpretation, but one semantic interpretation can be obtained from more than one syntactic structure.

As far as we know from the previous data and analysis on how Viewpoints are expressed from the Axial Parts as modifiers of the Ground DP, I believe that the Cantonese-English disctinction exemplifies (249), unless further evidence showing the semantic difference between the Cantonese and English constructions.

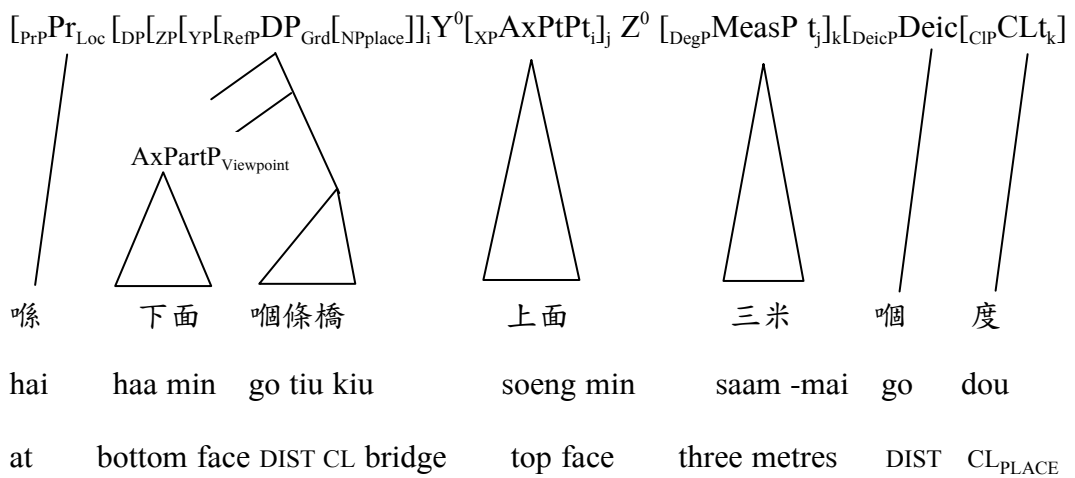## 3.7   Conclusion: An Attempt to the Cartography of Spatial AdpPs in Cantonese

In this chapter we see that Postpositions contain different elements which are all merged higher than the NP_{PLACE} as modifiers. By viewing 'Prepositions' in the traditional sense we notice that although the prohibition of Preposition Stranding is basically held, there are cases of Circumposition Stranding that might be neglected in the literature of Chinese syntax. Among the modifiers, AxPart, Ref (where Ground DP is located), and Deg are mentioned (but there are many others certainly). Axial Parts, traditionally called Localizers, are shown to differ from Ns, and by making use of Circumposition Stranding they are shown to be not in a Possessive relationship with the Ground DP. By using recent theoretical results by Kayne (2012) and Cinque (2012) we see that AxPartP is likely merged higher than RefP.

Given the underlying merge order of (242) (repeated in (250)), the surface order is obtained when a series of pied-piping phrasal movements (Cinque 2005) applies reaching the Spec of higher projections in DP_{PLACE}.

(250) $Pr_{LOC} > Deictic > (Nume) > CL > ...Deg... > ...AxPart > Ref_{Ground} > N_{PLACE}$

The following example concludes the sequence of all the relevant projections, the movements involved, and the strategy that AxPartP is embedded in the Ground DP for Viewpoints in Cantonese:

(251)

$[_{PrP}Pr_{Loc} [_{DP}[_{ZP}[_{YP}[_{RefP}DP_{Grd}[_{NPplace}]]_i Y^0[_{XP}AxPtPt_i]_j Z^0 [_{DegP}MeasP t_j]_k[_{DeicP}Deic[_{ClP}CLt_k]$

AxPartP_{Viewpoint}

喺	下面	嗰條橋	上面	三米	嗰	度
hai	haa min	go tiu kiu	soeng min	saam -mai	go	dou
at	bottom face	DIST CL bridge	top face	three metres	DIST	CL_{PLACE}

'at down there, three metres above that bridge'

Chapter 4

PLACE Elements in Other Southeast Asian Languages

In Chapter 3 I claim that the Place element *dou* in Cantonese is a classifier but not a noun by showing the relative positions among Demonstrative, Numeral, Classifier, and Noun. In this chapter I investigate Place elements in language groups that have different word orders from Chinese. From this once again we can once again distinguish a classifier from a noun with word order. It turns out that the Place elements in these languages are classifiers, or in a weaker version, that they are more like classifiers than nouns.

4.1   'Day', 'year' and 'time' are classifiers

Allan (1977:306-307) mentions that some quantifier constructions are 'noun-free' when used as adverbials in which only the quantifier and the classifier appear. For instance, in Kiriwina the noun 'day' is obligatorily covert in the expression 'one day':

(252)   kala tala (*yam)

CL   one   day

'one day'

Besides, some classifier languages, such as Chinese and Thai, seem to allow a quantifier expression with a noun alone. In the following examples one may conceive 'year' to be a noun, as often assumed in English, where it shows the same morphology with nouns:

(253)   nỳŋ   pi

one   year

'one year'   (Allan 1977:306)

Yet it is more convincing to treat *pi* 'year' as a classifier, since it follows the quantifier, here the numeral *nỳŋ* 'one'. Its position is where a classifier appears, as nouns precede a quantifier (Allan 1977; Simpson 2005; Cinque 2006a). Moreover, the noun can be covert, showing exactly the same construction as that of *nỳŋ pi* 'one year':

(254)   mǎ   sì   tua

dog   four CL

'four dogs'   (Allan 1977:306)

(255)   sì   tua

        four CL

        'four (of them [animals, coats, etc.])'   (Allan 1977:307)

There is a set of elements behaving this way, e.g. 'year', 'day', 'time', 'person', etc. Simpson (2005:803-833) argues that head movement of N to CL is the best explanation for the construction of a numeral directly combining with a noun/classifier-like element in these classifier languages, in the sense that that element, e.g. 'year', is base-generated in N and then raise to CL, therefore appears in the CL position with a covert N.

4.2   A diagnostic test for PLACE elements

The word order test for distinguishing a classifier from a noun used in Allan (1977), Simpson (2005) and Cinque (2006a) can be applied to PLACE elements. To be a qualified candidate for testing whether a PLACE element Y, a language L has to satisfy the following criteria:

(256)   a.   L is a classifier language.

        b.   There is a morpheme X between N and CL.

        c.   X can immediately precede or follow Y.

The possible results would be

(257)   a.   Given that N > X > CL.

        (i)   If Y > X, then Y is a N.

        (ii)   If X > Y, then Y is a CL.

      b.   Given that CL > X > N.

        (i)   If Y > X, then Y is a CL.

        (ii)   If X > Y, then Y is a N.

My claim is that for each such L, Y is always a CL. Among the Southeast Asian languages I have looked up, Naxi, Bai, and Chadong are recognized to be a qualified L in which X is a Dem and the result is that indeed Y is consistently a CL. The algorithm (257) can be made more explicit:

(258)   a.   Given that N > Dem > CL.

        (i)   If PLACE > Dem, then PLACE is a N.

        (ii)   If Dem > PLACE, then PLACE is a CL.

      b.   Given that CL > Dem > N.

        (i)   If PLACE > Dem, then PLACE is a CL.

        (ii)   If Dem > PLACE, then PLACE is a N.

4.3   First pattern: Naxi and Bai

(259)   N > Dem > CL:

Naxi (Tibeto-Burman), Bai (Tibeto-Burman)

(260)   a.   Dem > PLACE   'here, there, etc'

        b.   Dem > PART   'this/that side, this/that region, etc'

4.3.1   Naxi

Naxi has three demonstratives, namely *tʂhɿ³³*, *thɯ³³*, *ə⁵⁵thɯ³³*, which can be classified as proximal, medial, and distal respectively, and roughly translated to 'this', 'that', and 'that over there' in English.

(261)   The tripartite system of demonstratives

        a.   tʂhɿ³³   proximal PROX   'this'

        b.   thɯ³³   medial   MED   'that'

        c.   ə⁵⁵-thɯ³³   distal   DIST   'that (further)'

In a complex nominal these demonstratives may follow a noun and precede a numeral or a classifier. Since the demonstrative is between the noun and the classifier, Naxi is qualified to be a candidate language for judging whether the PLACE element is a classifier or a noun.

Some examples from Mu (2005) and He & Jiang (1985)[24] are shown as follows,

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24 I uniformly follow Mu's (2005) transcription, which is slightly different from He & Jiang's (1985). For instance, He & Jiang (1985:9) states that the vowel [ɯ] changes to [ɿ] when following alveolar consonants [ts], [tsh], [dz], [ndz], [s] and [z], and changes to [ʅ]

from which we can see that the canonical order of Dem, Num, CL, and N in Naxi satisfies our criterion, namely Dem is between N and CL:

(262)   lɑ³¹   tʂhʅ³³   me³³

       tiger   PROX   CL

       'this tiger'   (Mu 2005:150)

(263)   ɕi³³   thɯ³³ gʊ³³

       Person MED   CL

       'That person'   (He & Jiang 1985:63)[25]

(264)   bɑ³³lɑ³¹   tʂhʅ³³ lʊ⁵⁵ dʑa³¹ ʂʅ⁵⁵.

       Dress   PROX CL   very new

       'This dress is very new.'   (He & Jiang 1985:97)

---

when following post-alveolar consonants [tʂ], [tʂh], [dʐ], [ndʐ], [ʂ] and [ʐ]. Mu (2005)'s transcription adopts the changed vowels but He & Jiang (1985) does not. Another difference comes from the notation of tones. The four tones are represented as follows, in which again I adopt Mu's (2005):

	Tone 1	Tone 2	Tone 3	Tone 4
Mu (2005)	tha⁵⁵	tha³³	tha³¹	tha¹³
He & Jiang (1985)	tha˥	tha˧	tha˩	tha˨

[25] The vowel transcribed as /v/ in these works is diverse but will all be transcribed as /ʋ/ in this thesis, similarly hereinafter.

(265) to³³   tʂhɿ³³   ʂər³³   phe⁵⁵ nɯ³³ ndzo³¹   dɯ³³ ndzo³¹ tso⁵⁵.

Board PROX   seven   CL   PRT   bridge   one   CL   build

'Seven boards build a bridge. / To build a bridge with seven boards'

(Mu 2005:148)

(266) N > Dem > Num > CL

Now let us turn to the deictic spatial expressions like 'here' and 'there'. There is a PLACE element *dy³¹* or *pɑ⁵⁵* that follow a demonstrative.

(267) 'here'   'there'

tʂhɿ³³ dy³¹   thɯ³³ dy³¹

tʂhɿ³³ pɑ⁵⁵   thɯ³³ pɑ⁵⁵   (He & Jiang 1985:46)

(268) tʂhɿ³³ dy³¹   dʑa³¹ tsɑ³¹.

PROX DY   very good

'It is very good here.'   (He & Jiang 1985:72)

(269) thɯ³³ dy³¹   mə³³   tsɑ³¹.

MED   DY   NEG   good

'It is not good there.'   (He & Jiang 1985:73)

(270) ŋɑ¹³   tʂhʐ³³ pɑ⁵⁵ ndzʐ³¹.

My.family   PROX PA   live

'My family lives here.'   (He & Jiang 1985:73)

(271) thɑ¹³   thɯ³³ pɑ⁵⁵ ndzʐ³¹.

My.family   MED PA   live

'His/Her family lives there.'   (He & Jiang 1985:73)

In fact, in Naxi, as in Chinese, the construction of [Dem CL] in general can stand alone without an overt noun:

(272) tʂhʐ³³   tsha³³

PROX   CL

'this (book)'   (He & Jiang 1985:74)

(273) thɯ³³   kʊ⁵⁵

MED   CL

'that (person)'   (He & Jiang 1985:74)

Therefore, we conclude that the PLACE elements dy^{31} and pa^{55} are classifiers instead of nouns.

4.3.2   Bai

Naxi has one proximal demonstrative, $l\mu^{31}$ and one distal demonstrative, $m\mu^{31}$.

The canonical order of a complex nominal is the same as that in Naxi, namely N > Dem > Num > CL. However, when the numeral is greater than one (i.e. the nominal is plural) the tone of the demonstrative will change from 31 to 55.[26]

(274)   The bipartite system of demonstratives (Xu & Zhao 1984:18)

	SG		PL	
PROX	lɯ^{31}	'this'	lɯ^{55}	'these'
DIST	mɯ^{31}	'that'	mɯ^{55}	'those'

(275)   [ɕui^{55}-tshõ^{44} lɯ^{31} kuɑ̃^{42}] jɑ̃^{55} ɑ^{31} jĩ^{21} phɯ^{55} kɛ^{31} kɛ^{31}.

        vertical.bamboo.flute PROX CL   3.PL.INC[27] one person blow CL   CL

        'This vertical bamboo flute, each of us plays for a while.'

                                                (Xu & Zhao 1984:32)

(276)   kɛ^{42} lɯ^{55} ŋʋ^{33} pe^{31}

        bowl   PROX   five   CL

        'these five bowls'   (Xu & Zhao 1984:24)

---

[26] I will consistently adopt the transcription used in Xu & Zhao (1984) except that tones are represented by 2 numerals instead of bar lines.

[27] This pronoun refers to 3rd person plural inclusive of the hearer(s), abbreviated as 3.PL.INC.

(277) tso⁴² muɯ⁵⁵ sã⁵⁵ pɛ⁴²

   lock DIST three CL

   'those three locks' (Xu & Zhao 1984:24)

(278) tsɯ⁵⁵ muɯ⁵⁵ fʊ tsɯ⁵⁵

   tree Dem six CL

   'six trees' (Wiersma 2003:670)

(279) N > Dem > Num > CL

As to the deictic spatial expressions like 'here' and 'there', the formation is similar to that in Naxi except that the proximal demonstrative is replaced by another morpheme.[28] However, it is still possible to recognize that there is a PLACE element ta^{44} following a demonstrative morpheme.

(280) 'here'   'there'

   ɑ⁵⁵ tɑ⁴⁴ thɯ³³ tɑ⁴⁴ (Xu & Zhao 1984:20)

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[28] In Xu & Zhao (1984) but not in Zhao (2005) and Wiersma (2003) there is a farther distal expression, $ta^{35}ta^{44}$, which I do not mention in the main text. Xu & Zhao (1984) do not discuss anything about the first morpheme. Superficially I conjecture that it could be constructed by reduplicating the PLACE element followed by a tone sandhi on the first morpheme. This may be similar to the process of grammaticalization from the general classifier go^{33} to the distal demonstrative go^{35} in Cantonese in the past one to two centuries.

(281)　ŋo　kʊ⁴²　ɑ⁵⁵　tɑ⁴⁴.

　　　1.SG　sit　PROX TA

　　　'I sit here.'　(Xu & Zhao 1984:20)

(282)　no³¹　kʊ⁴²　thɯ³³ tɑ⁴⁴.

　　　2.SG　sit　DIST TA

　　　'You sit there.'　(Xu & Zhao 1984:20)

Following the argument in (258), the facts that N > Dem > CL and that Dem > PLACE infers that the PLACE element *tɑ⁴⁴* is a classifier.

4.4　Second pattern: Chadong

(283)　CL > Dem > N:　Chadong (Tai-Kadai)

(284)　a.　PLACE > Dem　'here, there, etc'

　　　b.　PART > Dem　'this/that side, this/that region, etc'

4.4.1　Chadong

The system of demonstratives in Chadong is rather complex in the sense not only in number but also in distribution. The four-way distinguished deictic elements with respect to distance are termed proximal (PROX), mesiopromixal (M.PROX), mesiodistal (M.DIST) and distal (DIST). The distributive distinction concerns whether a demonstrative is pre-classifier (i.e. Dem > CL > N) or

post-classifier (CL > Dem > N) in a complex nominal; a particular demonstrative can only be either. The following data are drawn from Li (2001), Li et al (2006:331), and Li (2008).[29]

(285)

	Pre-classifer (Dem > CL > N)	Post-classifier (CL > Dem > N)
proximal (PROX)	kwaai^6	naai^6
mesiopromixal (M.PROX)	/	ka^5
Mesiodistal (M.DIST)	kui^6	ui^6
distal (DIST)	nu^6 (distribution unclear)[30]	

(286) kwaai^6 tsi^1 pit^7

PROX   CL   pen

'this pen'

---

[29] The section on Chadong in Li et al (2006) are the same as the article Li (2001), but the former includes a long list of vocabulary in an appendix of the book. These two works are written in Chinese and Li (2008) is an English translation of Li (2001) with a short vocabulary. To be consistent I adopt the transcription used in Li (2001).

[30] Such morpheme appears in the vocabulary list in Li (2006:674) but not in Li (2001) and Li (2008). Other than property that it is the most distal one no more information about it is ever mentioned.

(287) kui⁶   tsi¹ pit⁷

M.DIST   CL   pen

'that pen'

(288) tsi¹   naai⁶   pit⁷

CL   PROX   pen

'this pen'

(289) tsi¹ ka⁵   pit⁷

CL   M.PROX pen

'that pen'

(290) tsi¹ ui⁶   pit⁷

CL   M.DIST pen

'that pen'

Although the deictic expressions for 'here' and 'there' are not as uniform as expected, the formation is consistent in that a demonstrative combines with another morpheme and the order is the same as it does with a classifier, except that *ŋaau⁶ ne⁶*, the first one for 'here', does not show a clear relationship with a demonstrative.

(291) a.   'here':   ŋaau⁶ ne⁶ / mian² naai⁶

        b.   'there':   miin² ka⁵ / kui⁶ taau⁶ / miin² ui⁶

We notice that in these expressions, leaving *ɲaau⁶ ne⁶* aside, the morphemes that the demonstratives combine with are *miaŋ²*, *miiŋ²*, and *taau⁶*. Since each of them occupies the same slot as a typical classifier does, I conclude that they are also classifier of PLACE.

Chapter 5

Conclusion

From the cartographic perspective syntactic variations among languages or intralinguistically are merely superficial; there are universal underlying syntactic structures. As a demonstration I show that the superficially 'fuzzy' judgments among Mandarin speakers on the relativization of the Object of *zai* can be attributed to the different spellouts of heads by the 'same' item. Many perspectives are offered to investigate the nature and properties of *zai*, as an intransitive verb, transitive verb, or a preposition. A lot of 'by-products' are discovered. For instance, preposition stranding is not always forbidden. The feasible examples always include some Circumpositions. Another discovery is the seemingly unique case in which the particle *suo* is obligatory, namely the relativization with the transitive verb *zai*. Another interesting dimension is to compare the corresponding elements in Mandarin, Cantonese, Shanghai, and (Eastern Guizhou) Miao, that indirectly justifies my proposal of the three-way distinction of *zai*. Insights about the nature of *zai* also come from the analysis of *here* and *there* as Locative PPs and the verb of existence *(there) be*.

Besides, since I vindiacated the existence of the PLACE classifier *dou* in Cantonese and similar classifiers in some other Southeast Asia languages, it is

reasonable to assume DP_{PLACE} indeed exist in each Spatial PPs crosslinguistically.

The result of the cartography of the spatial Adpositional Phrase mainly based on Cantonese data is the following functional sequence, where several projections are in different positions than those proposed in Svenonius (2010) and Cinque (2010a):

(292) $Pr_{LOC} > Deictic > (Nume) > CL > …Deg… > …AxPart > Ref_{Ground} > N_{PLACE}$

One of the most salient differences is the existence of Classifier, which is also attested in many Classifier languages in Southeast Asia, as I display in Chapter 4. Another difference is that while particles in English is very productive and frequently used in locative PPs, in Cantonese we cannot find the corresponding particles; rather Cantonese makes use of Axial Parts which is embedded in the Ground DP that can provide the information that Viewpoint Particles convey. Therefore, following Borer's (2005) view on the Syntax-Semantic mapping relation, I argue that the Cantonese 'embedded Axial Parts' are semantically equivalent to the Viewpoint Particles in English, although they obviously have very different syntactic structures. The third difference is that my sequence to a great extent resembles the functional sequence of the nominal domain. A typical example is the position of Deictic element. In many previous works the deictic element in spatial PPs are mapped to a kind of middle position. In contrast, in my proposed sequence the Deictic projection is rather high, which resembles the cartographic works on the nominal domain (e.g .Cinque 2005; Svenonius 2008b).

In principle, this line of thought is nothing fresh and surprising. On the one hand, many previous works suggest the presence of silent PLACE noun in spatial PPs. This idea mainly comes from the generative syntacticians. On the other hand, in typological works we see quite a lot of Adpositions that are grammaticalized from Nouns. However, seldom people relate these to Classifiers.

There are still many issues that remain unsolved. First, while Cantonese and many Southeast Asian languages make use of Classifiers in the Spatial expressions, in Mandarin there is much less evidence suggesting the use of classifiers. For instance while *here* and *there* in the former languages are all composed of a deictic element plus a classifier-like element, in Mandarin the element *li* in *zhe-li* 'here' and *na-li* 'there' does not seem to be a classifier in any sense. It cannot be counted with Numerals, it does not reduplicate to yield distributive universal quantification, no nouns can follow it, and only the property that it follows a demonstrative behaves like a classifier.

Another difficult issue is to find out more about the essence of the Cantonese *min* and Mandarin *mian* or any other similar elements in these languages or other neighboring languages. It is strange that this element share many but not all properties of a typical classifier. And why they exist in Axial Part is not so clear until now.

The study on Cantonese Spatial PPs is just at the starting point of the long road. Some special elements, including *maai bin* '??further inside', *deoi min*

'opposite' (as an Axial Part but able to precede the Ground in contrast with other typical Axial Parts, which follows the Ground), *dui hoi* 'opposite and outside', *dui lok* 'opposite and down', are not yet under detailed investigation in this thesis, not to mention the issues treated here but far from satisfactory.

In the future, in all syntactic studies, especially the Cartographic Project, these would be significant and interesting issues.

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