AP-*de* (地) Adverbs in Mandarin

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Abstract

Mandarin manner adverbs like *dasheng* 'loudly' (lit. 'big voice') occur both sentence-medially and sentence-finally, whereas adverbs formed with the adverbializer *de* (地) like *kuaikuaide* 'quickly' occur only sentence-medially. The behavior of AP-地 adverbs is puzzling under a classical adjunction analysis and under Cinque's (1999) hierarchy of functional projections. Here, I argue that Mandarin manner adverbs have a uniform low attachment in V complement position and that preverbal/medial position reflects obligatory movement imposed by the status of 地 as a "concordializing element".

Keywords

Li and Thompson (1981) divide Mandarin adverbs into **movable** versus **non-movable** forms. The temporal adverb *jintian* 'today', for instance, is classified as movable since it occurs both sentence-medially and sentence-initially (1a,b). By contrast, the temporal adverb *yijing* 'already' is classified as non-movable, since it occurs only sentence-medially (2a,b):

(1) a. Ta **jintian** zou le.
      3sg today leave ASP
      'S/he left today.'
   b. **Jintian** ta zou le.

(2) a. Ta **yijing** zou le.
      3sg already leave ASP
      'S/he already left.'
   b. ***Yijing** ta zou le.

The subclass of Mandarin manner adverbs also includes both movable and non-movable forms. For instance, *dasheng* 'loudly' (lit. 'big voice'/'big volume') is movable (3a,b), whereas *qiaoqiaode* 'quietly' is non-movable (4a,b).

(3) a. Ta zongshi **hen dasheng** gen bieren jianghua.
      3sg always very loud to others talk
      'S/he always talks to others loudly.'
   b. Ta zongshi gen bieren jianghua **hen dasheng**.

(4) a. Ta zongshi **qiaoqiaode** gen bieren jianghua.
      3sg always quiet-DE to others talk
      'S/he always talks to others quietly.'
   b. *Ta zongshi gen bieren jianghua **qiaoqiaode**.

Qiaoqiaode in (4) derives from the adjective *qiao* 'quiet' by suffixation of 地 (DE), comparable to the English form *quietly*, which derives from *quiet* by suffixation of *-ly*. Interestingly, Mandarin manner adverbs sharing *qiaoqiaode*'s morphological derivation also share its distribution. AP-地 adverbs in Mandarin occur only sentence-medially, (5)–(8):

(5) a. Ta **yanli-de** zebei le wo.
      3sg stern-DE reproach ASP I
      'S/he reproached me sternly.'
   b. *Ta zebei le wo yanli-de.

(6) a. Lisi **gaoxing-de** bangzhu le wo.
      Lisi glad-DE help ASP I
      'Lisi helped me gladly.'
   b. *Lisi bangzhu wo **gaoxing-de**.

(7) a. Ta yinggai **kuaikuai-de** zuowan zuoye.
      3sg should quick-DE finish homework
      'S/he should finish her/his homework quickly.'
   b. *Ta yinggai zuowan zuoye **kuaikuai-de**.

(8) a. Ni   yao   hen **xiaoxin(-de)** kai   che.
        you should very careful-DE   drive car
        'You should drive your car very carefully.'
    b. *Ni yao kai che hen **xiaoxin-de**.

The distribution of AP-地 adverbs in Mandarin raises problems for current theories of adverbial modification. In this paper, I advance an analysis based on two main proposals. First, I argue that manner adverbs, in Mandarin and elsewhere, have a uniform low attachment position within vP/VP as complements of V. This entails that sentence-medial position in Mandarin is always a derived one. Second, I propose that raising of AP-地 adverbs follows from the status of DE (地) as a **concordializing element**, which requires its associated phrase to occupy a position where case concord is possible. Sentence-final position is not one where concord is possible in Mandarin, as I show, whereas sentence-medial position is. Hence, the obligatory sentence-medial position of AP-地 adverbs. I begin with a review of the basic problems.

1. The puzzle of AP-地

AP-地 distribution in Mandarin is puzzling under the two most popular accounts of modifier syntax: the adjunct analysis and the functional head analysis.

1.1 AP-地 adverbs as adjuncts

Adverbs are often analyzed as V-projection adjuncts (see Tang 1990; Ernst 2002, Ernst 2014, among many others). Huang et al. (2009) adopt this view for Chinese manner adverbs, offering structure (10a) for (9a), where *hen dasheng* (identified as AP) is left-adjoined to V'. Presumably, this same analysis applies to (9b), with *hen dasheng* right-adjoined to V' (10b):[1]

(9) a. Ta **hen**   **dasheng** chang minge.
       he **very** **loud**   sing   folk songs
       'He sings folk songs loudly.'
    b. Ta chang minge **hen dasheng**.

(10) a.

Left adjunction to V'   Right adjunction to V'
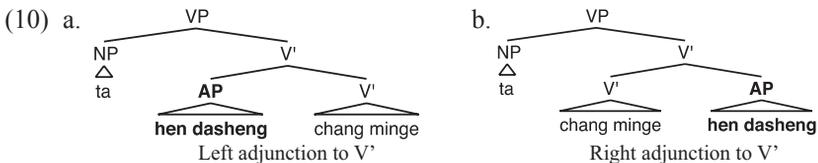
Ceteris paribus we expect the same distribution for manner AP *qiaoqiaode* 'quietly' under Huang et al.'s analysis. But although *qiaoqiaode* is allowed on the left (11a), it is excluded on the right (11b).

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1 Huang et al. (2009) cite (9a) as fully acceptable. A number of Mandarin speakers I have consulted either prefer -*de* to be added to AP (see 34a below) or felt the example improved with a frequency adverb like *zongshi* 'always'.

(11) a.

```
              VP
      ┌───────┴────────┐
     NP               V'
      △        ┌───────┴────────┐
     ta       AP               V'
          ┌────┴────┐     ┌─────┴──────┐
      qiaoqiaode   gen bieren jianghua
```

Left adjunction to V'

b. *

```
              VP
      ┌───────┴────────┐
     NP               V'
      △        ┌───────┴────────┐
     ta       V'               AP
          ┌────┴────┐     ┌─────┴──────┐
     gen bieren jianghua   qiaoqiaode
```

*Right adjunction to V'

This asymmetry, observed with all AP-地 adverbs, is simply unexplained on the adjunction account.

1.2 AP-地 adverbs as functional heads

AP-地 adverb distribution is also puzzling under Cinque's (1999) analysis, wherein adverbs occur within a fixed hierarchy of functional projections (see also Laenzlinger 1996). Consider first (1)/(2) mentioned earlier. On a Cinque-style account, *jintian* and *yijing* might be analyzed as heads of a temporal location phrase (TLP) and a temporal priority phrase (TPrP), respectively, both projected between vP and TP (12a,b):

(12) a. Ta   **jintian yijing**   zou   le.
          3sg today   already leave ASP
          'He/she already left today.'

b.

```
                     TLP
              ┌───────┴────────┐
             XP               TL'
                       ┌───────┴────────┐
                      TL               TPrP
                       │        ┌───────┴────────┐
                    jintian    XP              TPr'
                                         ┌──────┴──────┐
                                        TPr            vP
                                         │         ┌────┴────┐
                                       yijing    ta zou le
```

This proposal can capture the fixed order of *jintian* and *yijing*, together with their differing "mobility". Suppose *yijing* obligatorily raises the specifier of its complement (*ta*), but *jintian* makes raising an option. This will correctly predict (13a), where *jintian* occurs initially and *yijing* occurs medially, and (13b), where both occur medially. At the same time, it will exclude (13c), where both occur initially since *ta* has not raised:

(13) a. [$_{TLP}$ **jintian** [$_{TPrP}$ ta **yijing** [$_{vP}$ ta zou le]]]   Obligatory raising by *yijing*

b. [$_{TLP}$ ta **jintian** [$_{TPrP}$ ta **yijing** [$_{vP}$ ta zou le]]]   Obligatory raising by *yijing*
                                                                   Optional raising by *jintian*

c. *[$_{TLP}$ **jintian** [$_{TPrP}$ **yijing** [$_{vP}$ ta zou le]]]   *Non-raising

Crucially, Cinque's theory leads us to expect that adverbs of the same category and/or semantic class will pattern together. This expectation is certainly correct for TLPs. *Mingtian* 'tomorrow', *zuotian* 'yesterday', *jinnian* 'this year', *qunian* 'last year', *mingnian* 'next year', etc. all pattern identically to *jintian*.

Consider now Chinese manner adverbs. *Dasheng* occurs sentence-medially and sentence-finally. Under Cinque's approach, we might analyze this by requiring *dasheng* to raise either the specifier of its complement (*ta*) or the entire complement itself (*ta chang ge*):

(14) a. Ta **hen dasheng** chang minge.
 he very loud sing folk songs
 'He sings folk songs loudly.'
 b. Ta chang minge **hen dasheng**.
 c.

But 地-marked manner adverbs behave differently. 地-marked adverbs are blocked sentence-finally (15a,b). Evidently, they must be required to raise only their complement specifiers and not their full complements (15c).

(15) a. Ta zongshi **qiaoqiao-de** gen bieren jianghua.
 3sg always quietly-DE to others talk
 'S/he always talks to others quietly.'
 b. *Ta zongshi gen bieren jianghua **qiaoqiaode**.
 c.
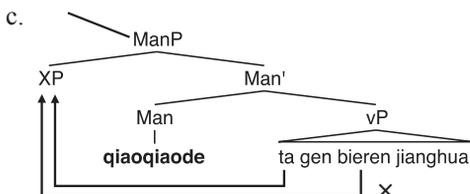
This entails that Man cannot be analyzed uniformly, unlike TL. Furthermore, the asymmetry in manner adverb behavior must somehow be traced to the properties of 地, given the uniform sentence-medial position for all 地-marked adverbs. 地 must somehow exclude whatever feature allows raising of vP with *dasheng* in (14c). It is unclear how 地 could act in this way.

2. The position of manner adverbs

Larson (2004, 2014) argues that, quite generally, manner adverbs project neither as V-adjuncts nor as heads/specs of functional categories but instead as low V complements.[2] This view seems natural for English examples like (16a), where

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2 See also Alexiadou (1997) and Stroik (1990, 1992a, 1992b) for related proposals. See Huang (1992), among many others for applications of "VP Shell" structures like (16) to Mandarin.

the manner adverb is required by the verb (*word/phrase*). If the co-occurrence requirement is analyzed in the usual way, viz., as selection, then a structure like (16b) seems inevitable, counterpart to (16c), where the verb (*put*) selects a locative (Chomsky 1995, Larson 2014):[3]

(16) a. John worded/phrased the letter *?(**carefully**/**tactfully**/**thoughtfully**).

b.
```
                 vP
        ┌─────────┴─────────┐
        NP                  v'
        John        ┌───────┴───────┐
                    v               VP
                    |        ┌───────┴───────┐
                  word       NP              V'
                         the letter    ┌─────┴─────┐
                                       V           AdvP
                                       |
                                     word       carefully
```

c.
```
                 vP
        ┌─────────┴─────────┐
        NP                  v'
        John        ┌───────┴───────┐
                    v               VP
                    |        ┌───────┴───────┐
                   put       NP              V'
                         the letter    ┌─────┴─────┐
                                       V           PP
                                       |
                                      put      on the table
```
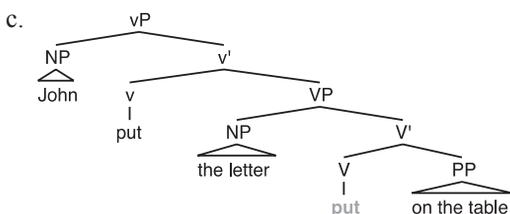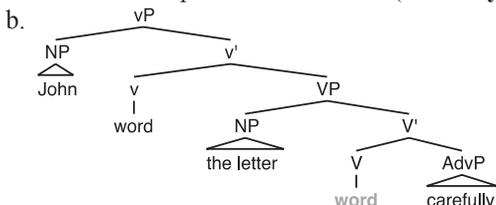
But in fact, evidence exists for a uniform low position for manner adverbs, even when the latter is not required or selected.

2.1 Object-adverb asymmetries

Stroik (1990) observes that domain asymmetries noted between objects and selected complements are also found with objects and adverbial adjuncts. Thus, alongside the selected dative complements in (17a–d) and the selected locative complements in (18a–d), Stroik notes (19a–d), which involve unselected locatives and temporals, but which nonetheless appear fully comparable in behavior. On the basis of such facts, Stroik argues for a low attachment of such phrases, counterpart to that assigned to the manner AdvP and locative PP in (16a,b):

(17) a. i. John gave [NP **nothing**] [PP to **any of the charities**]. (NPI Licensing)
     ii. *John gave [NP **anything**] [PP to **none of the charities**].
   b. i. John gave [NP **the dogs**] [PP to **each other's** owner]. (Anaphor Binding)
     ii. *John gave [NP **each other's dogs**] [PP to **the owners**].
   c. i. John gave [NP **every award**] [PP to **its** proper recipient]. (Q Binding)
     ii. *John gave [NP **his** award] [PP to **every male recipient**].
   d. i. John gave [NP **each dog**] [PP to **the other's** owner]. (Each…the other)
     ii. *John gave [NP **the other's** dog] [PP to **each** owner].

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3 In right-descending structures like (16a,b), selected elements (i.e., arguments) appear as both v/V specifiers (*the letter*) and complements (*carefully*/*on the table*). Assuming elements bearing oblique roles are projected lowest, these will occur as V-sisters (see Larson 2014 for further discussion).

(18) a. i. John put [$_{NP}$ **nothing**] [**anywhere nearby**].
         ii. *John put [$_{NP}$ **anything**] [$_{PP}$ **nowhere nearby**].
      b. i. John put [$_{NP}$ **the dogs**] [$_{PP}$ in **each other's** kennels].
         ii. *John put [$_{NP}$ **each other's name tags**] [$_{PP}$ on **the dogs**].
      c. i. John put [$_{NP}$ **every top**] [$_{PP}$ on **its** proper bottle].
         ii. * John put [$_{NP}$ **its** proper top] [$_{PP}$ on **every bottle**].
      d. i. John put [$_{NP}$ **each dog**] [$_{PP}$ in **the other's** kennel].
         ii. *John put [$_{NP}$ **the other's** name tag] [$_{PP}$ on **each dog**].

(19) a. i. John saw [$_{NP}$ **no one**] [**anywhere**].
         ii. *John saw [$_{NP}$ **anyone**] [**nowhere**].
      b. i. I saw [$_{NP}$ **the men**] [somewhere near **each other's** homes].
         ii. *I admired [$_{NP}$ **each other's** sunsets] [**those days**].
      c. i. I saw [$_{NP}$ **everyone**] [the day before **he** died].
         ii. *I see [$_{NP}$ a man who plays Santa on **it**] [**every Christmas**].
      d. i. I photographed [$_{NP}$ **each man**] [somewhere near **the other's** home].
         ii. *I photographed [$_{NP}$ a man from **the other's** city] [**each place I stopped at**].

Note now that both selected and unselected manner adverbials show the same behavior with respect to the relevant range of domain facts (20a–d):

(20) a. i. John worded/wrote [$_{NP}$ **no letter**] [(in) **any of the approved ways**].
         ii. *John worded/wrote [$_{NP}$ **any letter**] [$_{PP}$ (in) **none of the approved ways**].
      b. i. John worded/wrote [$_{NP}$ **the letters**] [$_{PP}$ in **each other's** approved style].
         ii. *John worded/wrote [$_{NP}$ **each other's** greetings] [$_{PP}$ in the styles of **the authors**].
      c. i. John worded/wrote [$_{NP}$ **every letter**] [$_{PP}$ in **its** approved style].
         ii. *John worded/wrote [$_{NP}$ **his** greeting] [$_{PP}$ in the style of **every author**].
      d. i. John worded/wrote [$_{NP}$ **each letter**] [$_{PP}$ in **the other's** approved style].
         ii. *John worded/wrote [$_{NP}$ **the other's** greeting] [$_{PP}$ in the style of **each author**].

Therefore, if (17)–(19) give evidence for a uniform low attachment of their dative, locative, and temporal phrases, (20a–d) would seem to do so also for a uniform low attachment of their manner phrases.

2.2 Manner adverb incorporation

Rivero (1992) observes that Modern Greek allows regular incorporation of manner (and directional) adverbials. (21a,b), for example, illustrates incorporation with *férete* 'behave', which requires a manner adverbial, like its counterpart predicate in English. (22a,b) shows that the possibility of incorporation extends to *vráso* 'boil', with which a manner adverbial is entirely optional.

(21) a. I   Maria férete **kaka** stin   adelfi tis.
          DEF Mary behaves **badly** to+DEF sister hers
          'Mary behaves badly to her sister.'

> b. I   Maria **kako**férete   stin   adelfi tis.
>   DEF Mary badly+behaves to+DEF sister hers

(22) a. To   fagitó tha vrási.
           the   food FUT boil
           'The food will boil.'
      b. To fagitó tha vrási **sigá**.
           'The food will boil **slowly**.'
      c. To fagitó tha **sigo**vrási.

The patterns in (21) and (22) are quite general in Modern Greek. Rivero (1992) gives the additional pairs in (23), which show manner adverbs incorporating into a broad range of verbs that would not normally be understood as selecting them:[4]

(23)	**Manner**	**Adv**	**Adv-V**	(Rivero 1992)
a.	*argá*	'slowly'	***argo**masó*	'(I) chew slowly'
b.	*dískola*	'hard'	***disko**logenó*	'give birth with difficulty'
c.	*gorgá*	'fast'	***gorgo**petó*	'fly fast'
d.	*kaká*	'badly'	***kako**logó*	'talk badly'
e.	*kalá*	'well'	***kalo**vlépo*	'see well'
f.	*krifá*	'secretly'	***krifo**geló*	'chuckle'
g.	*psilá*	'lightly'	***psilo**zalízome*	'feel slightly dizzy'
h.	*sfixtá*	'tightly'	***sfixta**ngaliázo*	'embrace tightly'
i.	*sigá*	'softly'	***sigo**tragudó*	'sing softly'
j.	*stravá*	'slanted'	***travo**kitó*	'look sideways'

Manner adverb incorporation is not peculiar to Modern Greek. Similar facts have been reported for a range of other languages, including Mazatec (Capen 1995) and Nahuatl (Langacker 1979).[5]

    Baker (1988) argues that syntactic incorporation requires the head-complement relation as a condition of well-formedness (24).

(24) $[_{V'}$ V $[_{AdvP}$ **Adv**$]]$ ➜ $[_{V'}$ **Adv**-V $[_{AdvP}$ **Adv**$]]$

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4 The phenomena noted by Rivero are argued by Drachman and Malikouti-Drachman (1992) and Smirniotopoulos and Joseph (1997) to be instances of compounding rather than incorporation. But Alexiadou (1997) argues convincingly that the examples in (17b), (18c) and (19a–d) represent true syntactic incorporation.

5 Thus, Capen (1995) gives the synonymous pair in (ia,b) from Chiquihuitlán Mazatec; (ia) contains the free manner adverb *ndaha* 'well' (cf. 23e), and (ib) contains its incorporated counterpart *nduhu*. Note the latter shows second person plural marking, indicating that it is part of the verb stem.

  (i) a. Mehe   –ræ   ši visekun **ndaha** yase væ, hemu čo 'o sekun.
         need=3 COMPL stand=2pl **well**   post that very bad stand
         'It is necessary that you position that post well; it is not secure.'
      b. Mehe   –ræ   ši visekun-**nduhu** yase væ, hemu čo 'o sekun.
         need=3 COMPL stand=2pl-**well=2pl** post that very bad stand

If Baker is correct, this implies the head-complement configuration for all the manner adverbs in (21)–(23), including examples where the adverb is nonselected according to the usual tests.

2.3 Generic interpretation and the mapping hypothesis

Middle constructions typically require a postverbal predicate (adverb or adjunct PP) and are perceived as odd or somehow incomplete without one (25a–c) (Roberts 1987). Why is this so?

(25) a. These flowers grow #(**quickly**)
    b. Bread cuts #(**easily**)
    c. The clothes iron #(**well**)

Condoravdi (1989) offers an interesting and intuitively appealing semantic explanation. She proposes that middles involve structured, generic event quantification, as shown in (26a–c), which correspond to (25a–c), respectively.

(26) a. $\Gamma e[\text{Con}(e) \ \& \ \text{growing}(f, e)]$ **(quick(e))**
      ("Generally, for contextually relevant events involving the growing of these flowers, those growings are quick.")
    b. $\Gamma e[\text{Con}(e) \ \& \ \text{cutting}(br, e)]$ **(easy(e))**
      ("Generally, for contextually relevant events involving the cutting of this (kind of) bread, those cuttings are easy.")
    c. $\Gamma e[\text{Con}(e) \ \& \ \text{ironing}(c, e)]$ **(well(e))**
      ("Generally, for contextually relevant events involving the ironing of the clothes, those ironings turn out well.")

Here Γ is the generic quantifier. The main clause material supplies the **restriction** on the generic event quantification, with its content presupposed or background entailed. By contrast, the sentence-final adjunct supplies the **quantificational scope**, with its content understood as asserted. Condoravdi's proposal affords a surprising answer to the questions of why the adjuncts in (25a–c) are perceived as required and why the sentence feels incomplete without them. The adjunct is required because in generic quantification of this kind, it constitutes the main predicate semantically. It supplies what the sentence is fundamentally asserting: that something is/occurs quick, easy, well, etc.

     Condoravdi's semantic proposal seems fully applicable to the much broader class of generic quantifications and not just middles. Consider (27ai–ci), for instance. In all these cases, the same information partition into restriction and scope seems appropriate (27aii–cii):

(27) a. i. Olga dances **beautifully**.
       ii. $\Gamma e[\text{ Con}(e) \ \& \ \text{dancing}(o, e)]$ **(beautiful(e))**
   ("Generally, for contextually relevant events involving Olga dancing, those dancings are beautiful.")

b. i. John writes letters **carefully**.
 ii. Γe[Con(e) & writing(j, l, e)] **(careful(e))**
 ("Generally, for contextually relevant events involving John writing letters, those writings are beautiful.")
c. i. Alice donates money to charities **cheerfully**.
 ii. Γe[Con(e) & donating(a,m,c,e)] **(cheerful(e))**
 ("Generally, for contextually relevant events involving Alice donating money to charities, those donations are cheerful.")

Diesing (1992) proposes a mapping hypothesis that matches up the parts of quantificational structure with syntactic position. In brief, high material (IP) is mapped to the quantifier restriction, whereas low material (VP) is mapped to the quantificational scope. Larson (2004) adopts a variant of the mapping hypothesis essentially due to Chierchia (1995):

> **Mapping hypothesis**: Lowest material from VP is mapped to the nuclear scope.
>
> The residue is mapped into a restrictive clause.

Note that under the mapping hypothesis, Condoravdi's semantic proposal implies a low position for manner adverbs in generics, including middles, since the adjunct represents the quantificational scope, as discussed earlier (28):

(28)

Quant	**Restrictive Clause**	**Nuclear Scope**
Γe	[Con(e) & growing(f, e)]	(quick(e))
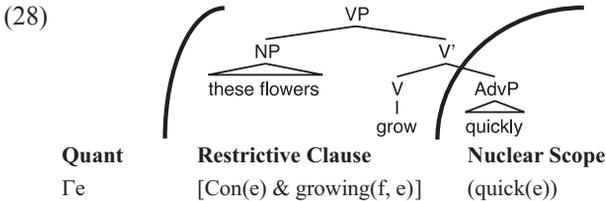
In fact, taking Condoravdi's semantic together with Diesing's mapping hypothesis, generics become a revealing probe into structure. The predicate understood as the nuclear scope (the main assertion) should be analyzed as the lowest phrase in vP/VP:[6]

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6 McConnell-Ginet (1994) notes examples like *This silk washes* and *This dress buttons* as apparent exceptions to the generalization that middles require a postverbal predicate; similar exceptions occur with negation, e.g., *This bread doesn't cut.* All of these appear to involve focus on the final VP, which is well-known to correlate with assertion (Herburger 2000). Hence, for example, *This silk washes* plausibly involves a generic representation as in (ia), where the contextually relevant actions (the restriction) are presumably cleanings and where what is asserted about the relevant events (the scope) is that they are washings. Note that this logical form correlates with the unaccusative character of *wash* under the mapping hypothesis, since the object, understood as part of both the presupposition and the assertion, originates within the low VP and raises (ib).

(i) a. Γe[Con(this silk,e)] **(washing(this_silk,e))**
   "Generally, for contextually relevant actions with this silk, they are washings."
   (i.e., 'what one does with this silk with respect to cleaning it is **wash it**.' etc.)
  b. This silk | [$_{VP}$ washes **this silk**].
     Restr.   **Scope**

(29)

Quant	Restrictive Clause	Nuclear Scope
Γe	[Con(e) & writing(j,l,e)]	(careful(e))
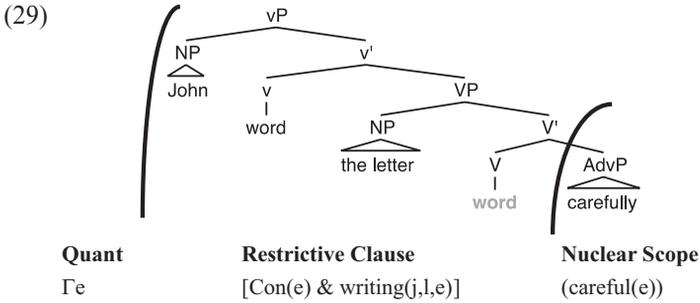
3. Manner adverb position in Mandarin generics

Mandarin speakers report a strong postverbal preference for manner adverbials in generic sentences (30). Preverbal position favors an episodic interpretation as opposed to a generic one (31).

(30) a. Lisi jiang-hua **hen dasheng**.
     Lisi talk   very big-voice
     'Lisi (always) talks loudly.'
   b. Ta zoulu **hen xiaosheng**.
     3sg walk very little-voice
     'S/he (always) walks very quietly.'
   c. Zhe-xie hua   zhang(-de) **hen kuai**.
     these   flower grow(-de)   very fast
     'These flowers grow quickly; the growing of these flowers is quick.'

(31) a. Zhangsan **qiaoqiao-de** shuo hua.
     'Zhangsan is speaking quietly.'/??'Zhangsan speaks quietly.'
   b. Lisi **kuaikuai-de** zoulu.
     'Lisi is walking quickly.'/??'Lisi walks quickly.'

Read as generics, something seems to be "missing" in (31a,b), as in the corresponding English cases in (21).

These data are straightforward under the proposals in Section 2. (30a–c) are analyzable in terms of a low position for the manner adverbial, as expected under the mapping hypothesis (32).

(32)

Quant	Restrictive Clause	Nuclear Scope
Γe	[Con(e) & talking(l, e)]	(loud(e))
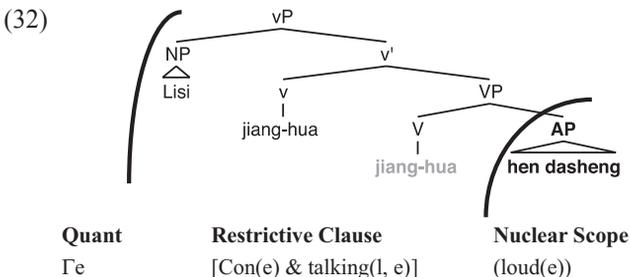
By contrast, (31a,b) will be problematic given the high position of *qiaoqiaode/kuaikuaide* (33):

(33)

Quant	Restrictive Clause	Nuclear Scope
Γe	[Con(e) & talking (l, e)]	(quiet(e))
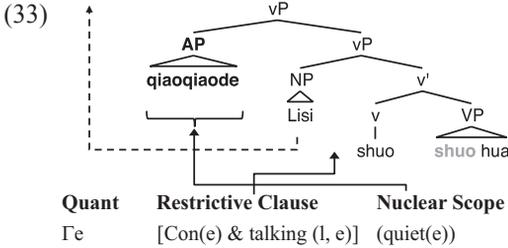
(33) not only violates the mapping hypothesis; the syntax-semantics mapping we observe is actually the <u>opposite</u> of what we expect: the upper portion of the clauses associates with the nuclear scope and the lower part with the restrictive clause.

Nonetheless, Mandarin <u>does</u> show generics with manner adverbials in preverbal position; the presence of postverbal material or an explicit quantificational adverb seems to aid this interpretation (cf. 35a,b):

(34) a. Zhangsan **zixi-de** zuo shi.
Zhangsan meticulous-DE do work
'Zhangsan does work meticulously.'
b. Zhe-ge mianbao **hen hao/rongyi** qie.
this bread very good/easy cut
'This bread cuts well/easily.'

(35) a. Lisi changchang/zongshi **qiaoqiao-de** shuo hua.
Lisi always quiet-DE speak word
'Lisi always speaks quietly.'
b. Lisi changchang/zongshi **kuaikuai-de** zou guo dating.
Lisi always quick-DE walk through hallway
'Lisi always walks through the hallway quickly.'

But now our problems with the mapping hypothesis return. The mapping once again comes out backward (36). What is going on?

(36)

Quant	Restrictive Clause	Nuclear Scope
ALL(e)	[[Con(e) & speaking(l, e)]	(quiet(e))

Suppose that Mandarin manner adverbials project uniformly into low position (32) but AP-地 forms obligatorily raise leftward to the vP edge. The mapping hypothesis could then be satisfied unproblematically by always interpreting the *lower copy* of AP (37).

(37)

Quant	Restrictive Clause	Nuclear Scope
ALL(e)	[Con(e) & speaking(l, e)]	(quiet(e))

This proposal would essentially invert the view of Li and Thompson (1981), with which we began. Rather than being non-moveable, AP-地 manner adverbs would be distinguished as always moving from a sentence-final to a sentence-medial site (cf. *Lisi zongshi shuo hua **qiaoqiao-de**).[7]

A movement account reconciles the position of AP-地 adverbs in generics with the mapping hypothesis. But it also raises immediate questions, viz., why is movement required with AP-地 adverbs? Why is low complement position forbidden specifically with manner adverbials of this class?

4. Mandarin AP-地 as concordial

4.1 The categorical structure of moveable manner adverbials

In influential work, Li (1985, 1990) observed that adjuncts occurring in postverbal position in Mandarin are invariably *nominal* in character. Thus, Mandarin

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7 An anonymous SCL reviewer notes the resemblance between (35a) (with 'always') and (i), which involves a second instance of V (*shuo*) but no noticeable difference in meaning:
  (i) Lisi shuo hua zongshi qiaoqiao-de shuo (*hua).
      Lisi speak word always quiet-DE speak word.
      'Lisi always speaks quietly.'
  Despite similar interpretations, the relation between (i) and (35a) is not straightforward. Thus, (i) has a further variant containing what is apparently an independent subject *ta* (i'):
  (i') Lisi shuo hua **ta** zongshi qiaoqiao-de shuo (*hua).
      Lisi speak word **3sg** always quiet-DE speak word.
      'Lisi always speaks quietly.'/'When Lisi speaks he speaks quietly.'
  Hence, (i) cannot simply be a version of (35a) with the lower V copy spelled out (a conclusion already implied by the relative order *qiaoqiao-de − shuo* in (i)/(i') cf 37). I leave the relation between the two examples for future exploration.

permits postverbal adjunct phrases of frequency and duration, since these have the structure of NPs (38a,b), but adjunct PPs are typically disallowed postverbally (38c). The latter must occur in preverbal position (38d).[8]

(38) a. Ta   kesou [$_{NP}$ **liang ci**   ].
      3sg cough   two times
      'He/she coughed twice.'
   b. Ta   kesou le [$_{NP}$ **liang fenzhong**].
      3sg cough   two   minutes
      'He/she coughed for two minutes'.
   c. *Ta xi   gou [$_{PP}$ **zai gongyuan li**   ].
      3sg wash dog   in park   interior
      'He/she washed the dog in the park.'
   d. Ta [$_{PP}$ **zai gongyuan li**] xi gou.

Interestingly, despite their apparent status as APs, indicated by the presence of the degree element *hen* 'very', many moveable manner adverbs that are permitted postverbally also exhibit nominal substructure [$_{AP}$ X **N**]. Consider (39a–f):

(39) a. Ta   chang minge   **hen dasheng**.
      he   sing   folk songs very loudly
      'He sings folk songs loudly.'
   b. Ta   kaiche **hen   xiaoxin**.
      he   drive   very carefully
      'He drives carefully.'/'He drives with care.'
   c. Ta   zuoshi **hen   qinfen**.
      he   work   very diligently
      'He works diligently.'/'He works with diligence.'
   d. Ta   huida   wenti   **hen   naixin**.
      he   answer question very patiently
      'He answers questions patiently.'/'He answers questions with patience.'
   e. Ta   gongzuo **hen   xinku**.
      he   work   very hard
      'He works hard.'/'He works with effort.'
   f. Ta   duidai bieren **hen   zhencheng**.
      he   treat   others very sincerely
      'He treats others sincerely.'/'He treats others with sincerity.'

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8 An anonymous SCL reviewer prefers (i–ii) in the following to (38a,b), respectively, in the text. But examples like (38a,b) can be readily found in the CCL Corpus, so I will assume that the latter are also acceptable.
 (i) Ta   kesou ke-le   [$_{NP}$ liang ci   ].
    3sg cough cough-PERF   two times
    'He/she coughed twice.'
 (ii) Ta   kesou ke-le   [$_{NP}$ liang fenzhong].
    3sg cough cough-PERF   two minutes
    'He/she coughed for two minutes.'
 I am grateful to Liu Lei for the CCL corpus search results.

Dasheng 'loudly' in (39a) contains *sheng* 'voice' (N) and literally means 'big voice'; similarly for *xiaosheng* 'quietly' (lit. 'little voice'). *Xiaoxin* 'care' in (39b) contains *xiao* 'small' and *xin* 'heart' (N). *Qinfen* 'diligently' in (39c) contains *qin* 'industrious' and *fen* '??'. *Naixin* 'patiently' in (39d) contains *nai* 'endure' and *xin* 'heart' (N). *Xinku* 'hard' in (39e) contains *xin* 'spice' (N) and *ku* 'bitterness' (N). *Zhencheng* 'sincerely' in (39f) contains *zhen* 'true' and *cheng* 'honesty' (N). These items are thus somewhat reminiscent of English complex forms like *in case of*, *in spite of*, and *because of*, which, despite their status as prepositions (Emonds 1976, Emonds 1985), contain nominal substructure, as signaled by the preceding and trailing prepositions (*in/by* and *of*) (40):[9,10]

(40) a. [$_P$ in [$_N$ ***case***] of]
      b. [$_P$ in [$_N$ ***spite***] of] (cf. [$_P$ despite])
      c. [$_P$ ***because*** of], historically [$_P$ by [$_N$ ***cause***] of])

The moveable manner adverbs in (39) always allow, and typically either prefer or require, 地-marking sentence-medially. But as with other manner adverbs, they are forbidden with 地-marking sentence-finally. Compare (39a–f) and (41a–f):[11]

(41) a. Ta **dasheng ??(-de)** chang minge/chang minge **dasheng(*-de)**.
      b. Ta **xiaoxin ??(-de)** kaiche/kaiche **xiaoxin(*-de)**.
      c. Ta **qinlao ??(-de)** zuoshi/zuoshi **qinlao(*-de)**.
      d. Ta zongshi **naixin ??(-de)** huida wenti/huida wenti **hen naixin(*-de)**.
      e. Ta **xinku ??(-de)** gongzuo/gongzuo **xinku(*-de)**.
      f. Ta **zhencheng ??(-de)** duidai bieren/duidai bieren **zhencheng(*-de)**.

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9   The examples in (40a–c) make clear that active status of the nominal core in these Ps is not a matter of headedness. The head of these constructions is clearly P, which does not trigger the genitive.

10 It must be noted that the nominal character of Mandarin manner adverbs occurring in postnominal position is less clear in certain cases. Chong Zhang (personal communication) points out that boldfaced items in (i)–(iii) below appear to derive from other categories.

    (i) a. Ta zuoshi hen **jinshen**.   > *jin* ('cautious') *shen* ('cautious') A+A
          he work very cautious
          'He works cautiously.'
      b. Ta **jinshen-de** zuoshi.

    (ii) a. Ta miandui tiaozhan hen **yonggan**.   > *yong* ('courage') *gan* ('dare') A+V
          he face challenges very courageous
          'He faces challenges courageously.'
      b. Ta **yonggan-de** miandui tiaozhan.

    (iii) a. Ta xiezi hen **liaocao**.   > *liao* ('messy') *cao* ('messy') A+A
          he write very messily
          'He writes (characters) messily.'
      b. Ta **liaocao-de** xiezi.

    I have no account of these forms at present.

11 The judgments in (41) show apparently some variation according to construction and speaker. An anonymous SCL reviewer notes that *xiaoxin kaiche* (without *de*) 'carefully drive-car' is fully acceptable as an imperative sentence (cf. 41b). Furthermore, he/she finds *xinku gongzuo* 'hard work' generally acceptable in medial position without *de*. (*Ta xinku gongzuo-le liang tian.* 'S/he worked hard for two days.') (cf. 41e).

The pattern is thus that whereas DE (地) typically enables pre-V occurrence, it prohibits post-V occurrence. Li (1985, 1990) proposes that postverbal nominal adjuncts are case-licensed in that position. If this is correct, then 地's effect on adverb distribution is plausibly related to case.

4.2 Case assignment vs. case concord

Traditional grammars standardly describe nouns as being inflected for case and φ-features and attributive elements (including articles and adjectives) as agreeing with them or exhibiting "concord". Thus, in the Icelandic nominal in (42) (from Kester 1996), *kennigar* 'theories' is inflected as a feminine plural nominative, and the preceding determiner and adjectives agree with it:

(42) all**ar**   þess**ar**   þrj**ár**   nyj**u**
     all.FEM.PL.NOM   these.FEM.PL.NOM   three.FEM.PL.NOM   new.FEM.PL.NOM
     kennig**ar.**
     theories.FEM.PL.NOM
     'all these three new theories.'

Describing things this way draws an implicit distinction in the inflectional morphology observed in (42). In effect, inflection is analyzed as "real" on N, but derivative on the other elements, present only as concord (43).

(43)

  Concordial   "Real"
  Inflection   Inflection
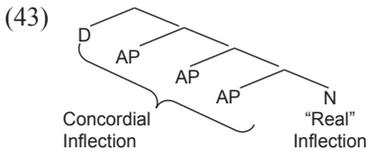
This traditional view accords rather well with modern syntactic analyses that see case as reflecting a relation between a higher "probe" and a lower "goal," wherein the former scans its c-command domain, probing for the inflectional values on its goal (N) and agreeing with various elements on the path between them. With nominative case, the probe is assumed to be a higher finite T, which scans its c-command domain for a nominative-marked noun, agreeing with Ds and APs "on the way down," until its search finally terminates with N (44a). A similar picture holds for accusative case, whose probe is a little v (44b):

(44) a.   b.
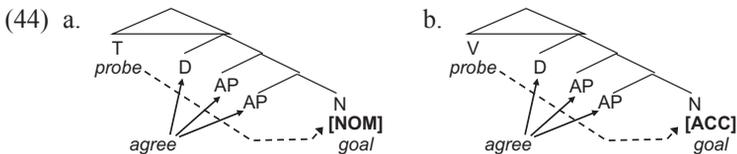
Note that on this picture, a potentially agreeing element α (D, AP, etc.) must occur lower than the probe (T or v) and higher than the goal (N) (45a). If α occurs hierarchically above the probe, it will lie outside the latter's scanning domain

(45b). If it occurs hierarchically below the goal, the probe's scan will terminate before α is reached, depriving it of agreement (45c):

(45) a. [T/v . . . [α . . . [. . . N]]   ✓

 b. [α . . . [T/v . . . N] . . . α]   ×   (α lies outside T/v's domain)

 c. [T/v . . . [. . . N . . . [. . . α]]   ×   (scan terminates before reaching α)

Summarizing, then, agreeing items must occur in the c-command domain lying between the probe and goal.

4.3 地 as "concordializer"

Interestingly, languages seem to have devices for converting items that are valued for case to ones that merely agree for case. Certain Slavonic languages, for example, contain suffixes for creating so-called "possessive adjectives" from nouns (Corbett 1987). Thus, in addition to familiar postnominal genitives (46a), Upper Sorbian (spoken in Lusatia, eastern Germany) exhibits possessive adjectives, formed by suffixing *-in/-yn* to feminine nouns and *-ow* to masculine nouns (46b).

(46) a. 'kniha **Jan-a**   Upper Sorbian (Corbett 1987)
           book   Jan-GENSG
           'a/the book of Jan's.'

 b. **Jan-ow**-a   knih-a
           Jan-POSS-NOMSGFEM   book-NOMSGFEM
           'Jan's book.'

As discussed by Corbett (1987), the possessive *Janowa* in (46b) is fully adjectival in behavior, exhibiting the same agreement forms as attributive adjectives (here agreeing with the nominative, feminine singular head *knih-a* 'book') and in preceding the head.[12]

Suppose that Mandarin 地, like Upper Sorbian *-in/-yn/-ow*, essentially creates a "concordial" or adjectival element – more precisely, an element requiring case but able to receive it only by agreement. This would compel raising to a position between a case probe (e.g., T) and a goal (e.g., *Lisi*) (47).

(47)

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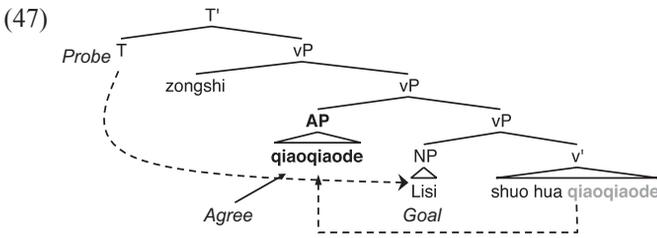
12 Note that in (46b), the gender marked on the possessive adjective (FEM) disagrees with that of the noun stem *Jan* (MASC). This illustrates clearly the agreement nature of the inflection.

4.4 Case features and agreement (Pesetsky and Torrego 2007)

The proposal just offered can be worked out technically using recent theories of features, which draw a distinction according to whether instances of features F are *interpretable*, *valued* or neither (i.e., uninterpretable-unvalued). Broadly speaking, this move imports the PF-LF distinction into features (or, more precisely, instances of them). Thus, interpretable instances of features, notated "iF", are ones associated with "meaning" – i.e., with instructions to the conceptual-intentional system (48a). Valued instances of features, notated "Fval", are ones associated with "pronunciation" – i.e., with instructions to the system of expression (48b). Uninterpretable-unvalued instances of features, here notated simply "F", are concordial (48c) – i.e., they have no independent LF content and whatever pronounced content they have is derivative on their relation to a valued feature.

(48) a. iF   **interpretable** F, associated with a "meaning"
     b. Fval   **valued** F, associated with visible marking/pronunciation
     c. F   **uninterpretable-unvalued** F, concordial

Under the theory of features in Pesetsky and Torrego (2007), unvalued instances of features (iF or F) probe their c-command domain seeking to agree with another instance of F. In order for a feature F to be "legible" at the interfaces, it must have both interpretable and valued instances linked by agreement. Thus, all of (49a–c) will constitute legible features since all represent a set of instances linked by agreement (signified by "[n]") and all contain both an interpretable instance of F and a valued instance of F. By contrast, none of (50a–e) will constitute legible features since one or more of the required conditions – presence of an interpretable instance, presence of valued instance, or linking by agreement – fails to hold:

(49) a. iF[n] … Fval[n]
     b. iF[n] … F[n] … Fval[n]
     c. iF[n] … F[n] … F[n] … Fval[n]

(50) a. iF[   ]
     b. iF[n] … F[n]
     c. Fval[   ]
     d. F[n] … Fval[n]
     e. iF[   ] … Fval[   ]

As an illustration of these proposals in the domain of case, consider (51a) from German, containing the transitive verb *küssen* 'kiss' and an object showing multiple instances of accusative agreement. Chomsky (1995) analyzed v as the source of accusative case. Under Pesetsky and Torrego (2007), v can be analyzed as bearing an interpretable, unvalued accusative feature (iACC), which probes for a valued, uninterpretable instance of the same feature (ACCval) on the object noun (*Mädchen*). The determiner (*das*) and the adjective (*hübsche*) are concordial for this feature, i.e., they bear instances of [ACC] that are neither interpretable nor

valued. Assuming that the derivation proceeds bottom-up as in (51b), unvalued [ACC] on *hübsche* first probes [ACCval] on *Mädchen* and, upon merger, agrees with it (①). Unvalued [ACC] on *das* then probes [ACC] on *hübsche* and agrees with it on merger (②). Finally, unvalued [iACC] on v probes [ACC] on *das* and agrees with it when v and VP are merged (③), yielding a feature structure corresponding to (49c), which is legible, as we noted.

(51) a. [$_{vP}$ v *küsste* [$_{DP}$ *das hübsche Mädchen*]]
kissed the.**ACC** pretty.**ACC** girl.**ACC**

 b. [$_{vP}$ v … [$_{DP}$ D AP NP]]
[iACC[1]] [ACC[1]] [ACC[1]] [**ACC**val[1]]

③ ② ① *PROBE* and *AGREE*

4.5 Mandarin manner adverbs

The apparatus sketched above can be directly applied to Mandarin, including the AP-地 adverbials we are concerned with here. Consider first a simple transitive like (52a). In line with previous discussion, I assume that T bearing an interpretable instance of NOM agrees with the subject *ta* 'he/she' bearing a valued instance of NOM. Similarly, little v bearing an interpretable instance of ACC agrees with the direct object *niu-rou mian* 'beef noodles' bearing a valued instance of ACC (52b).

(52) a. Ta chi le niu-rou mian.
he eat PERF beef noodles
'He ate beef noodles.'

 b. [$_T$, T [$_{vP}$ ta [$_{v}$, v [$_{VP}$ chi [$_{NP}$ niu-rou mian]]]]]
iNOM[1] NOMval[1] iACC[2] ACCval[2]
AGREE! *AGREE!* *LEGIBLE!*

I propose essentially the same analysis for an intransitive containing a subject and a nominal postverbal manner adverb (53a). T bearing an interpretable instance of NOM agrees with the subject *ta* 'he/she' bearing a valued instance of NOM. Here, however, little v bearing an interpretable instance of ACC agrees with the nominal adverb *dasheng* 'loudly' (53b). In effect, the latter behaves as an adverbial object.

(53) a. Ta jiang-hua **dasheng**.
he speak-word loud
'He speaks loudly.'

 b. [$_T$, T [$_{vP}$ ta [$_{v}$, v [$_{VP}$ jiang-hua [$_{AP}$ **da** [$_N$ **sheng**]]]]]]
iNOM[1] NOMval[1] iACC[2] ACCval[2]
AGREE! *AGREE! LEGIBLE!*

Now suppose the effect of suffixing 地 'de' to a Mandarin nominal adverbial is to create an exclusively concordial element: an expression able to agree for

case and hence unable to be valued for it, counterpart to the Slavonic possessive adjectivalizing elements noted earlier (54):

(54) $[_{AP}$ α $]$ ⇔ $[_{AP}$ α–地 $]$
CASE$[\ ]$

It follows that suffixing 地 to *dasheng* 'loud' in (53a) will no longer yield an LF-legible case feature. Although little v bearing an interpretable ACC can agree with the adverb, the ACC feature will not end up valued as a result (55).

(55) $[_{T'}$ T $[_{vP}$ ta $[_{v'}$ v $[_{VP}$ jiang-hua $[_{AP}$ **dasheng-地** $]$ $]$ $]$ $]$ $]$
iNOM[1] NOMval[1] iACC[2] ACC[2]
AGREE! *AGREE!* *ILLEGIBLE!*

Note, furthermore, that even if we were to assume little v did not need to bear ACC in this structure, the case needs of the 地-marked adverb could not be met by NOM. *Dasheng-地* is positioned below the subject, which is valued for NOM; the probe-goal relation for NOM will extend no further than the subject (56):

(56) $[_{T'}$ T $[_{vP}$ ta $[_{v'}$ v $[_{VP}$ jiang-hua $[_{NP}$ **dasheng-地** $]$ $]$ $]$ $]$ $]$
iNOM[1] NOMval[1] NOM[ ]
AGREE! *NO AGREE!* *ILLEGIBLE!*

The only option for "rescuing" the structure in (55) is to raise *dasheng-地* to a position between T and the subject – for example, the vP edge. In this sentence-medial site, it will be able to participate in the agreement relation between T and the nominative subject, resulting a legible feature (57):[13]

(57) $[_{T'}$ T $[_{XP}$ **dasheng-地** $]$ $[_{vP}$ ta $[_{v'}$ v $[_{VP}$ jiang-hua dasheng-地 $]$ $]$ $]$ $]$ $]$ $]$
iNOM[1] NOM[1] NOMval[1]
AGREE! *AGREE!* *LEGIBLE!*

Hence, we derive the sentence medial position of AP-地.

Given the discussion of (56), we might wonder about examples like (39a,d), repeated below as (58a,b):

(58) a. Ta chang minge hen dasheng.
  he sing folk songs very loudly
  'He sings folk songs loudly.'

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13 Examples (14a,b) (repeated below in opposite order) demonstrate that *hen dasheng* 'very loudly' can raise to a preverbal, sentence-medial position even in the absence of -地. Hence, the movement postulated in (57) requires no special stipulations:
 (i) a. Ta chang minge **hen dasheng**.
   3SG sing folk songs very loud
   'He sings folk songs loudly.'
  b. Ta **hen dasheng** chang minge _____ .

b. Ta   huida   wenti   hen naixin.
   he   answer   question very patiently
   'He answers questions patiently.'/'He answers questions with patience.'

The presence of the surface object *minge* 'folk songs' in (58a) might seem to intercept the probe-goal relation between little v and *dasheng*, leaving the latter unagreed (59):

(59) [$_{T'}$ T [$_{vP}$ ta [$_{v'}$ v [$_{VP}$ chang minge [$_{AP}$ **dasheng**]]]]
        iNOM[1]   NOMval[1] iACC[2]   ACCval[2] ACCval[ ]
     AGREE! └──────────────┘▲ *AGREE!* └─────────────┘▲└───×───┘▲ *NO AGREE!*

I assume that in the case of conventionalized verb-object combinations like this – "sing (folk) songs", "ask questions", etc. – the Mandarin object can incorporate into the verb, analogously to what occurs with English V-N combinations like *play chess* or *sing soprano*. In incorporation, the case requirements on the surface object are suppressed (Baker 1988). The picture therefore becomes as in (60):[14]

(60) [$_{T'}$ T [$_{vP}$ ta   [$_{v'}$ v [$_{VP}$ [$_V$ chang minge] [$_{NP}$ **dasheng**]]]]
        iNOM[1]   NOMval[1]   iACC[2]   ACCval[2]
     AGREE! └──────────────┘▲ *AGREE!* └──────────────────────────┘▲ *AGREE!*
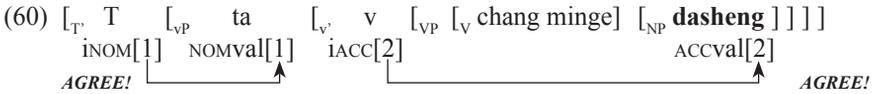
This supplies the last step required under the line of reasoning above. Recall, we saw that a movement account of AP-地 adverbs would reconcile their surface medial position in generics with the low position required under Diesing's mapping hypothesis. We then inquired why movement is required with such forms – why low complement position was forbidden to AP-地 adverbs? The proposed answer hinges on the apparent nominal character of manner adverbs that can remain in the low position and the effect of affixing -地. The suggestion is that -地 creates a case-concordial phrase of the element to which it affixes, forcing it to occupy a position in which case concord is possible. This requires sentence-medial position in Mandarin, low sentence-final position is not an option.

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14 An anonymous SCL reviewer notes potential questions for this proposal arising from examples like (i), where the boldfaced object nominal is considerably more elaborate than *minge* 'folksongs' in (59), and (presumably) a far less likely candidate for incorporation:
 (i) Ta huida **xuesheng ketangshang de wenti**   yixiang hen   xiaoxin.
    3SG answer **student   in-class**   DE questions always very careful
    'He always answers student questions in class very carefully.'
I do not have a satisfactory answer. But I do note that when such examples are questioned with *weishenme* 'why' as in (ii), the VP is plainly understood in the generic way typical of incorporated structures. That is, the object is understood as contributing to the formation of a complex predicate:
(ii) Ta **weishenme** huida xuesheng ketangshang de wenti   yixiang hen xiaoxin?
    3SG why   answer student in-class   DE questions always very careful
    'Why is he always-very-carefully-answering-student-questions-in-class?' (rather than paying attention to departmental duties)
This suggests that current notions of incorporation may require extension.

4.6 Mandarin nominal 的 and purely adjectival adverbs

Larson (2009) argues that the nominal DE (的) appearing in (61a,b) should also be considered a concordializing element in Mandarin (62):

(61) a. Hen dasheng **de** ren   zou   le.
        very loud   DE person leave PERF
        'A/the loud person left.'

     b. Ta mai le   piaoliang **de** yifu.
        3SG buy ASP pretty   DE clothes
        'He bought some attractive clothes.'

(62) [$_{AP}$ α – 的]
        CASE[ ]

On this view, the analysis of case relations in (61a,b) is as in (63a,b), respectively. In (63a) *dasheng-*的 'loud' agrees with the subject in nominative case, much like the prenominal Icelandic elements in (42). In (63b), *piaoliang-*的 'pretty' agrees with the direct object in accusative case, much like the prenominal German elements in (51):

(63) a. [$_{T'}$ T   [$_{vP}$ [$_{DP}$ [$_{aP}$ **hen dasheng-的**] [$_{NP}$ ren   ]] [$_{v'}$ zou le]]]
        iNOM[1]   NOM[1]   NOMval[1]   AGREE!
        AGREE!

     b. [$_{T'}$ T [$_{vP}$ ta   [$_{v'}$ v [$_{VP}$ mai [$_{DP}$ [$_{XP}$ **piaoliang-的**] [$_{NP}$ yifu   ]]]]]]
        iNOM[1] NOMval[1] iACC[2]   ACC[2]   ACCval[2]
        AGREE!   *AGREE!*

Observe the close resemblance in agreement relations between (63a) with nominal DE (的) and (57) (repeated below) with adverbial DE (地):

(57) [$_{T'}$ T   [$_{XP}$ **dasheng-地**] [$_{vP}$ ta [$_{v'}$ v [$_{VP}$ jiang-hua **dasheng-地**]]]]]]
        iNOM[1]   NOM[1]   NOMval[1]
        AGREE!   *AGREE!*   *LEGIBLE!*

This proposal sheds light, I believe, on a final distributional question that arises with Mandarin 地-marked forms and also suggests a broader point about Mandarin adjectivals. We have seen that Mandarin manner adverbs with a "nominal core" are licensed in final position without DE (地) and can also front to the vP edge without DE (64).[15] By contrast, "purely adjectival" forms of the shape AA-DE

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15 Having DE is usually preferred. However Chi-hang Cheung (personal communication) pointed out to me that some Mandarin examples like (ib) actually prefer DE to be absent.

  (i) a. Ta chang ge   **hen hao-ting**.
        he sing   song very good-listen
        'He sings very well.'

     b. Ta **(hen) hao-ting (*-de)** chang ge.
        he very good-listen-DE sing song
        Intended: 'He sang well.'/'He sings well.'

or AABB-DE never occur sentence-finally and never occur sentence-medially without DE (地) (65):

(64) a. Ta   chang minge   **hen dasheng**.
       3SG   sing   folk songs very loud
       'He sings folk songs loudly.'
   b. Ta **hen dasheng (de)** chang minge.

(65) a. *Ta likai   **qiaoqiao (de)**.
       3SG leave   quiet
       'He leaves quietly.'
   b. Ta   **qiaoqiao *(de)**   likai.
       3SG quietly   DE   leave
       'He leaves quietly.'/'He left quietly.'

On the account presented here, the unacceptability of purely adjectival forms sentence-finally with DE (65a) follows from their concordial status, which is inappropriate for that position. The unacceptability of purely adjectival forms sentence-finally without DE (65a) follows from their non-nominal status – their inability to be case licensed in that site. The acceptability of purely adjectival forms sentence-medially with DE (65b) follows from their concordial status, which is appropriate for that position. The unacceptability of purely adjectival forms sentence medially without DE (65b) is not self-evident, however.[16]

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16 An anonymous SCL reviewer notes the contrast in (ia,b). Whereas *manmande* 'slowly' with adverbial DE (地) is forbidden in final position, as we have observed, *manmande* 'slow' with adjectival DE (的) is allowed:
 (i) a. *Ta shuohua (yixiang) manman地.
        3SG speak   always   slow-DE (ADVERBIAL)
        'He (always) speaks slowly.'
    b. Ta shuohua (yixiang) manman的.
  I suggest that the structure and interpretation of (ib) is actually rather different from (ia), essentially as in (ii), where V is a null copula and where N is a null noun interpreted as "one".
 (ii) Ta shuohua (yixiang) V   [_NP manman的 N]
       3SG speak   always   COP   slow-DE   ONE
       'His speaking (always) is a slow one.'
  Adjectival DE (的) in (ii) is thus roughly counterpart to long-form marking on Russian attributive adjectives as analyzed by Babby (1973, 1975); it is invariably the sign of attributive modification. In the case of final predicative adjectives like (ib), 的 indicates the presence of a null noun.
     This proposal analyzes the initial sequence *ta shuohua* as a nominal 'his speaking' rather than a subject-main verb sequence 'he speaks'; it also postulates a null verb before AP-的. The same reviewer notes support for both views. Modals occur before the main verb (iiia,b), but can occur after *shuohua* in (iv). Also *weishenme* 'why' occurs before the main verb (va,b) but can occur after *shuohua* in (vi). Both suggest that *shuohua* is not the main verb.
 (iii) a. Ta **yinggai** zoulu.
         3SG should   walk
         'He should walk.'
     b. *Ta zoulu **yinggai**.

In Icelandic and German, and indeed in many other languages, concordial behavior seems to be a basic feature of adjectives. That is, adjectives as a category quite generally show agreement with N in case, φ-features, etc. with no further supplementation. By contrast, the pattern in (65b) suggests that Mandarin adjectives behaving as verbal modifiers can function concordially only if they are affixed with an explicit concordializing element DE (地). Simply being an adjectival stem *qiao(qiao)* 'quiet' is not sufficient to obtain case by concord.

Notice now that if Larson (2009) is correct, the very same fact holds of Mandarin adjectives behaving as nominal modifiers (66); they too can function concordially only if they are affixed with the explicit concordializing element DE (的).[17]

(66) a. Hen dasheng ***(de)** ren   zou   le.
       very loud   DE person leave PERF
       'A/the loud person left.'
    b. Ta mai le   piaoliang ***(de)** yifu.
       3SG buy ASP pretty   DE clothes
       'He bought some attractive clothes.'

This strongly suggests that concordiality is not basic to the featural makeup of Mandarin adjectives but rather is something that must (or can) be "added on" to them in the course of derivation, whether A is functioning as an adverbial modifier in the vP or as an adjectival modifier in the DP domain. It is then worth pondering

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   (iv) women shuohua **yinggai** manman的, cai bu hui   shuocuo hua.
       2PL   speak   should slow   then not enable wrong   speech
       'Our speaking should be slow, so as not to say the wrong things.'
  (v) a. Ta **weishenme** chang ge?
        3SG why   sing song
        'Why did he sing?'
    b. * Ta chang ge **weishenme**.
  (vi) Ta shuohua **weishenme** manman的?
       3SG speak   why   slow
       'Why is his speaking slow?'
Note that the dual positioning possible for *weishenme* in (viia,b) indicates that *hen dasheng* 'loud' must be accorded a dual analysis as both a final manner adverb and a predicate adjective. In (viia) *weishenme* occurs preverbally, confirming *changge* as the main verb. *Hen dasheng* is thus a manner adverb. In (viib) *weishenme* occurs after *changge*, confirming that the latter is not the main verb.
  (vii) a. Ta **weishenme** chang ge   hen dasheng?
        3SG why   sing song very loud
        'Why does he sing loudly?' (given that he speaks softly)
    b. Ta chang ge   **weishenme** hen dasheng?
       3SG sing song why   very loud
       'Why is his singing loud?' (i.e., why does it have that property)
17 Mandarin adjectival modifiers are known drop DE (的) and appear as "bare modifiers" in certain well-studied instances. The factors bearing on this are discussed by Sproat and Shih (1991), Sio (2006), among many others.

whether concordiality is basic to the featural makeup of adjectives in any language and whether in fact all languages do not also involve concordializing elements, which simply fail to surface in many. If this conjecture proves correct, then Mandarin grammar, in its exquisite analyticity, reveals to us something significant about the internal composition of lexical forms and about the nature of agreement and concord generally in natural language.

Acknowledgments

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漢語"AP-地"副詞

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提要

漢語方式副詞,比如:"大聲",既可出現在句子中間的位置,也可出現在句子末尾;但是,由副詞與副詞標記"地"組成的像"快快地"這樣的副詞短語,則只能出現在句子中間的位置。傳統的附接分析以及Cinque (1999)提出的功能投射層級順序,並不能很全面地解釋漢語中"AP-地"的句法表現。本文提出,漢語方式副詞在句法結構上一般是附在V 補語結構內部較低的位置,而由"地"作為"協調成分"的特性所引發的強制移位,則是方式副詞能處於動詞前/中間位置的原因。

關鍵詞

漢語,方式副詞,格,協調