Control Without Finiteness Contrasts: PRO, Aspect, and Complementation Size in Mandarin Chinese

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Abstract. This paper investigates the behavior of aspect markers in controlled complements in Mandarin Chinese. Four novel arguments show that such markers are instantiations of matrix aspect, despite surface appearances. The facts are shown to follow from the (independently motivated) proposal that Mandarin controlled complements are *v*Ps, together with an Agree-based approach to the syntax of (affixal) aspect placement. The analysis implies that Mandarin lacks a finite/nonfinite distinction; rather, all the empirical contrasts that obtain between controlled and non-controlled complements follow from a (*v*P vs. CP) split in complementation size. Given that *v*P does not have enough structure to assign Case to its ([Spec,*v*P]) subject, the analysis also supports the view that controlled positions are non-Case positions.

1. Introduction

The empirical focus of this paper is aspectual marking in Mandarin controlled complements. This phenomenon (henceforth, ASPECT-UNDER-CONTROL) is exemplified in (1), where the (bracketed) controlled complement contains the (bolded) experiential aspect marker *-guo*.

(1) zhangsan quan lisi$_1$ [PRO$_1$ chi-**guo** yi-ge pingguo].
Zhangsan urge Lisi eat-EXP one-CL apple
'Zhangsan urged Lisi to eat an apple.'[1]

[Acknowledgments go here.]

[1] In previous literature (e.g., Li 1985, 1990; Cheng 1989; Hu, Pan, and Xu 2001), *quan* is usually glossed as 'persuade'. Although *quan* may implicate (successful) persuasion in contexts like (1), it does not entail it: (1) can be true even if Lisi did not engage in apple eating. (See also section 6.1 for more discussion.) Consequently, I gloss *quan* as

Although such structures have not been investigated in much detail in the generative literature, they have long enjoyed a central status in the ongoing debate over whether Mandarin has a finite/nonfinite distinction, and previous scholarship on the topic can be divided into two positions. On the one hand, Huang (1989); Li (1990) (cf. also Huang 1982; Li 1985; Cheng 1989) argue that (a) Mandarin has a covert finite/nonfinite distinction, (b) Mandarin controlled complements are uniformly nonfinite, (c) nonfiniteness in Mandarin precludes overt aspect marking, and consequently (d) any apparent occurrence of an aspect marker in a controlled complement like in (1) must actually be an instance of matrix aspect, despite surface appearances. Call this the MATRIX ANALYSIS of aspect-under-control, schematized in (2a). On the other hand, Xu (1985–1986); Huang (1994); Hu et al. (2001) argue that Mandarin does not have a finite/nonfinite distinction and that in sentences like (1), the aspect marker is part of the complement clause. Call this the EMBEDDED ANALYSIS of aspect-under-control, schematized in (2b).

(2) a. [ASP [. . . V_{matrix} . . . [. . . $V_{embedded}$ . . .]]] MATRIX ANALYSIS

b. [. . . V_{matrix} . . . [ASP [. . . $V_{embedded}$ . . .]]] EMBEDDED ANALYSIS

In this paper, I stake out a hybrid position: on the one hand, I side with Li (1985); Cheng (1989); Huang (1989) in arguing that aspect markers in Mandarin controlled complements are projections of matrix aspect, despite surface appearances; but on the other hand, I side with Xu (1985–1986); Huang (1994); Hu et al. (2001) in maintaining that Mandarin does not have a finite/nonfinite distinction (*contra* Huang 1982, 1989; Li 1985, 1990; Tang 1990, 2000; Lin 2011). Rather, I argue that all of the empirical splits that track the distinction between controlled and non-controlled complements in Mandarin follow from a split in complementation size: in Mandarin, controlled complements are *v*Ps, whereas non-controlled complements are CPs. This analysis has the virtue of explaining a wide range of facts in a way that does not rely on an otherwise unmotivated finite/nonfinite distinction but rather relies only on independently needed clausal architecture.

'urge'. Abbreviations used in glosses are as follows: CL = classifier, DUR = durative aspect, EXP = experiential aspect, NEG = negation, PRF = perfective aspect, PROG = progressive aspect.

These proposals have broader implications for crosslinguistic (non-)variation in finiteness, the distribution of complement control, and their interaction. In the GB tradition, the correlation that obtains in English between nonfiniteness and control was taken as central in regulating the distribution of control: PRO must be ungoverned, and the subject position of a nonfinite CP is ungoverned (see especially Chomsky 1981). In more recent years, this simple correlation has been complicated by an increasingly rich crosslinguistic range of data both in the nuances of the finite/nonfinite distinction and in how this distinction interacts with the distribution of control. In the former category, for example, are the so-called 'inflected infinitives' of Hungarian (Tóth 2000) or Portuguese (Raposo 1987), as well as the tensed/untensed distinction in English infinitives (Stowell 1982). In the latter category, for example, are the existence of control into (some) subjunctive complements in Balkan languages like Greek (Terzi 1992; Iatridou 1993; Roussou 2009) and the availability of control into finite indicative complements in Brazilian Portuguese (Rodrigues 2004; Ferreira 2009). In current Minimalist theorizing, the Government approach to the distribution of PRO has been superseded by two main competing alternatives which have had to countenance this greater range of facts. In one camp, Hornstein (1999); Boeckx, Hornstein, and Nunes (2010) attempt to bring PRO under the fold of A-movement by arguing that PRO is actually A-trace. On this view, the distribution of PRO should track the distribution of A-movement, and assuming that the assignment (or checking) of abstract Case freezes A-movement, this approach can be seen as preserving some of the basic spirit of the GB approach, insofar as (for the subject position of a nonfinite CP) failure of government coincides with Case-lessness (see also Bouchard 1984 for an early version of the 'Case-less PRO' approach). In the other camp, (Landau 2004, 2006) has advocated divorcing the distribution of PRO from Case, arguing that PRO bears Case like an ordinary DP and that instead, [Tense] and [Agr] features on I^0 and C^0 conspire to directly determine where PRO can appear. If my approach to Mandarin control is on the right track, it is an argument for the Case-based approach to the distribution of PRO (implemented either in a Movement theory or a Case-less PRO theory): I take controlled complements in Mandarin to be *v*Ps, and *v*P lacks the structure needed to assign Case to a ([Spec,*v*P]) subject. More specifically, the lesson here is that at least some of

the burden of explaining the distribution of control can be shifted away from distinctions like finite/nonfiniteness — which are notoriously difficult to justify in languages like Mandarin Chinese which lack tense and agreement morphology — and onto splits in complementation size — splits made available in some sense 'for free' by the architecture of the clause and also well documented for other languages (see especially Wurmbrand 2001).

The argumentation, as well as the organization of the paper, will proceed as follows. First, in section 2, I present four (to my knowledge, novel) arguments for the matrix analysis of Mandarin aspect-under-control structures: in particular, I show that in such structures, the aspect marker interacts with properties of the matrix clause (negation, progressive aspect, habituality, and experiential aspect) in a way that is immediately explained on the matrix analysis. I also consider whether an embedded analysis could account for the relevant interactions, concluding that such an approach is problematic.

In section 3, I extend the results of the previous section to a wider range of embedding predicates and a wider range of aspect markers to arrive at the CONTROL-ASPECT CORRELATION: In Mandarin, an aspect marker in a controlled complement clause — when grammatical at all — instantiates *matrix* aspect, whereas an aspect marker in a *non*-controlled complement clause instantiates *embedded* aspect.

In section 4, I argue that in Mandarin, controlled complements are *v*Ps whereas non-controlled complements are CPs. This proposal makes sense of three important properties of controlled complements: it has a PRO subject (i.e., its defining property) because there are no Case assigners to assign Case to [Spec,*v*P]; it disallows (locally interpreted) aspect markers because Asp projects outside *v*P, and it disallows inner topicalization (Paul 2005a) because InnerTop also projects outside *v*P. I also defend the existence of (syntactically) controlled subjects in Mandarin against attacks by Hu et al. (2001); Xu (2003), and provide evidence that a (subjectless) VP approach to Mandarin controlled complements would not work.

In section 5, I turn to the syntax of aspect placement. Drawing on Pesetsky and Torrego's (2007) approach to English T(ense)-V agreement, I argue that Mandarin aspectual suffixes includ-

ing *-guo* are base-generated on verbal stems and give rise to an uninterpretable but valued aspectual feature on V. They enter into an Agree relation with a matrix aspectual probe that is interpretable but unvalued. Adopting a phase-bound view of Agree and the approach to phases sketched in Wurmbrand 2011, this Agree relation may cross a (controlled) *v*P but not a (non-controlled) CP boundary. Consequently, in a control (= *v*P-complementation) configuration, a matrix aspectual probe may get its value either from the matrix verb (3a) or the embedded verb (3b), but in a non-control (= CP-complementation) configuration, a matrix aspectual probe may get its value only from the matrix verb (4a) and not from the embedded verb (4b).

(3) a. Asp[iA:_] [$_{vP}$ . . . **V-guo**[uA:EXP] . . . [$_{vP}$ PRO . . . V . . .]]

b. Asp[iA:_] [$_{vP}$ . . . V . . . [$_{vP}$ PRO . . . **V-guo**[uA:EXP] . . .]]

(4) a. Asp[iA:_] [$_{vP}$ . . . **V-guo**[uA:EXP] . . . [$_{vP}$ . . . V . . .]]

b. *Asp[iA:_] [$_{vP}$ . . . V . . . [$_{CP}$ . . . **V-guo**[uA:EXP] . . .]]

On this view, the matrix status of the aspect marker in Mandarin aspect-under-control structures follows as an inevitable consequence of the way the syntax of control interacts with the syntax of aspect placement, and no appeal to a finite/nonfinite distinction is needed.

Section 6 discusses some refinements and elaborations of the core proposals, including a response to two arguments for the embedded analysis of aspect-under-control, a discussion of embedded modals, and a discussion of how the CP/*v*P split bears on some other putative finite/nonfinite contrasts in Mandarin, with special reference to recent work by Lin (2011).

Finally, section 7 concludes with a discussion of why complement clauses in Mandarin should come in two different sizes and to what extent the proposal finds crosslinguistic support. I contrast a

syntactic selection-based approach (cf. e.g. Wurmbrand 2012b) with Cinque's (2006) 'functional' approach to restructuring whereby certain predicates take 'truncated' complements because those predicates realize functional heads in the inflectional-layer of the clause. I suggest that the latter approach is conceptually superior, though it raises some pressing empirical questions. Regardless of which approach is correct, though, the basic split in complementation size that we see in Mandarin receives crosslinguistic support in the pervasiveness of restructuring effects in Romance, Germanic, and many other languages.

2. Arguments for the Matrix Analysis of Aspect-under-control

In this section, I present four arguments for the matrix analysis of aspect-under-control, an analysis espoused by Li (1985, 1990); Huang (1989); Cheng (1989) but attacked by Xu (1985–1986); Huang (1995); Hu et al. (2001). I use (5) as the baseline sentence for all the arguments; in the following section, I show that the analysis generalizes to other aspectual markers and to (some) other control structures but crucially not to structures with non-controlled complement clauses.

(5) zhangsan quan lisi [chi-**guo** yi-ge pingguo].
Zhangsan urge Lisi eat-EXP one-CL apple
'Zhangsan urged Lisi to eat an apple.'

All four arguments share the same logical structure: the aspect marker interacts with material in the matrix clause in a way that follows immediately if we analyze the aspect marker as involving a matrix aspectual projection. In particular, we see this in how aspect-under-control interacts with matrix negation (section 2.1), matrix progressive (section 2.2), matrix habituality (section 2.3), and matrix experiential aspect (section 2.4). In section 2.5, I will consider whether an embedded analysis could also account for the relevant interactions, ultimately concluding that such an approach is problematic.

None of the arguments that follow will depend on the semantic properties of experiential *-guo* or other aspect markers (except for section 2.5 which draws on the observation that *-guo* has a relative past interpretation), but for relevant overviews and proposals, see Smith 1991; Lin

2003b, 2006, 2007; Pan and Lee 2004; Rubinstein and Hashimoto 2010. In a nutshell, *-guo* has a perfective semantics and differs from the other perfective marker *-le* in requiring that the result state of the named event description no longer hold at reference time.

2.1 Interaction with Matrix Negation

The first argument for the matrix analysis of Mandarin aspect-under-control structures is based on a well known interaction that obtains in Mandarin between aspect and negation: whereas an aspectually zero-marked clause can be negated with *bu*, a clause marked with *-guo* is ungrammatical with *bu* and is instead negated with *mei(you)*.[2] This is illustrated in (6)–(7) using a simple transitive verb, and (8)–(9) show that the same generalization holds when the verb is *quan* 'urge'.

(6) a. zhangsan chi yi-ge pingguo.
Zhangsan eat one-CL apple
'Zhangsan eats an apple.'

b. zhangsan **bu** chi yi-ge pingguo.
Zhangsan NEG eat one-CL apple
'Zhangsan doesn't/won't eat an apple.'

(7) a. zhangsan chi-**guo** yi-ge pingguo.
Zhangsan eat-EXP one-CL apple
'Zhangsan has eaten an apple.'

b. *zhangsan **bu** chi-**guo** yi-ge pingguo.
Zhangsan NEG eat-EXP one-CL apple
Intended: 'Zhangsan has not eaten an apple.'

c. zhangsan **mei(you)** chi-**guo** yi-ge pingguo.
Zhangsan NEG eat-EXP one-CL apple
'Zhangsan has not eaten an apple.'

(8) a. zhangsan quan lisi [chi yi-ge pingguo].
Zhangsan urge Lisi eat one-CL apple
'Zhangsan urges Lisi to eat an apple.'

b. zhangsan **bu** quan lisi [chi yi-ge pingguo].
Zhangsan NEG urge Lisi eat one-CL apple

[2] For previous theoretical approaches to the syntax of negation in Mandarin and its interaction with aspect, see Wang 1965; Huang 1988; Ernst 1995; Lee and Pan 2001; Lin 2003a. The argumentation that follows does not rely on any particular analysis; all that matters is the descriptive generalization.

'Zhangsan doesn't/won't urge Lisi to eat an apple.'

(9) a. zhangsan quan-**guo** lisi [chi yi-ge pingguo].
Zhangsan urge-EXP Lisi eat one-CL apple
'Zhangsan urged Lisi to eat an apple.'

b. *zhangsan **bu** quan-**guo** lisi [chi yi-ge pingguo].
Zhangsan NEG urge-EXP Lisi eat one-CL apple
Intended: 'Zhangsan didn't urge Lisi to eat an apple.'

c. zhangsan **mei(you)** quan-**guo** lisi [chi yi-ge pingguo].
Zhangsan NEG urge-EXP Lisi eat one-CL apple
'Zhangsan didn't urge Lisi to eat an apple.'

Crucially, the incompatibility between *-guo* and *bu* is clause-bound: as shown in (10), a complement clause marked with *-guo* is compatible with a matrix instance of *bu*. But when we turn to aspect-under-control structures, the situation is different: as seen in (11), even when *-guo* appears on the embedded verb, the matrix clause cannot be negated with *bu*; *mei(you)* is used instead.

(10) zhangsan **bu** zhidao [lisi chi-**guo** yi-ge pingguo].
Zhangsan NEG know Lisi eat-EXP one-CL apple
'Zhangsan doesn't know that Lisi ate an apple.'

(11) a. *zhangsan **bu** quan lisi [chi-**guo** yi-ge pingguo].
Zhangsan NEG urge Lisi eat-EXP one-CL apple
Intended: 'Zhangsan didn't urge Lisi to eat an apple.'

b. zhangsan **mei(you)** quan lisi [chi-**guo** yi-ge pingguo].
Zhangsan NEG urge Lisi eat-EXP one-CL apple
'Zhangsan didn't urge Lisi to eat an apple.'

On the matrix analysis of aspect-under-control, the ungrammaticality of (11a) is fully expected, and follows as an immediate consequence of whatever principle renders (9b) ungrammatical.

2.2 Interaction with Matrix Progressive

Next we turn to the interaction between *-guo* and the progressive marker *zai*. As shown in (12), a clause marked with progressive *zai* is incompatible with *-guo*. (13) illustrates this same fact for a clause whose main verb is *quan* 'urge'.

(12) a. zhangsan **zai** chi yi-ge pingguo.
Zhangsan PROG eat one-CL apple
'Zhangsan is eating an apple.'

b. *zhangsan **zai** chi-**guo** yi-ge pingguo.
Zhangsan PROG eat-EXP one-CL apple

(13) a. zhangsan **zai** quan lisi [chi yi-ge pingguo].
Zhangsan PROG urge Lisi eat one-CL apple
'Zhangsan is urging Lisi to eat an apple.'

b. *zhangsan **zai** quan-**guo** lisi [chi yi-ge pingguo].
Zhangsan PROG urge-EXP Lisi eat one-CL apple

As illustrated in (14), the incompatibility between *-guo* and *zai* is clause-bound: *-guo* in a complement clause is compatible with a matrix instance of *zai*. But when we turn to aspect-under-control structures, the situation is different: embedded *-guo* is incompatible with matrix *zai*, as shown in (15).

(14) zhangsan **zai** zhenglun [lisi chi-**guo** yi-ge pingguo].
Zhangsan PROG argue Lisi eat-EXP one-CL apple
'Zhangsan is arguing that Lisi has eaten an apple.'

(15) *zhangsan **zai** quan lisi [chi-**guo** yi-ge pingguo].
Zhangsan PROG urge Lisi eat-EXP one-CL apple
Intended: 'Zhangsan is urging Lisi to eat an apple.'

A matrix analysis of aspect-under-control straightforwardly relates the ungrammaticality of (15) to the ungrammaticality of (13b).

2.3 Interaction with Matrix Habituality

Another characteristic of *-guo* is that it disallows a habitual construal of the event description it associates with, as evidenced by its incompatibility with an adverb like *mei-tian* 'every day'. (16) illustrates this with a simple transitive clause and (17) illustrates this with *quan* 'urge'.

(16) a. zhangsan **mei-tian** chi yi-ge pingguo.
Zhangsan every-day eat oneCL apple

'Zhangsan eats an apple every day.'

b. *zhangsan **mei-tian** chi-**guo** yi-ge pingguo.
Zhangsan every-day eat-EXP oneCL apple

(17) a. zhangsan **mei-tian** quan lisi [chi yi-ge pingguo].
Zhangsan every-day urge Lisi eat one-CL apple
'Every day, Zhangsan urges Lisi to eat an apple.'

b. *zhangsan **mei-tian** quan-**guo** [lisi chi yi-ge pingguo].
Zhangsan every-day urge-EXP Lisi eat one-CL apple

This incompatibility is clause-bound: as shown in (18), a matrix instance of *mei-tian* 'every day' is compatible with an instance of *-guo* in the complement clause. But in aspect-under-control structures, this is not the case, as we see in (19).

(18) zhangsan **mei-tian** shuo [lisi chi-**guo** yi-ge pingguo].
Zhangsan every-day say Lisi eat-EXP one-CL apple
'Every day, Zhangsan says that Lisi has eaten an apple.'

(19) *zhangsan **mei-tian** quan lisi [chi-**guo** yi-ge pingguo].
Zhangsan every-day urge Lisi eat-EXP one-CL apple
Intended: 'Every day, Zhangsan urges Lisi to eat an apple.'

Parallel to the two previous cases, a matrix analysis of aspect-under-control straightforwardly relates the ungrammaticality of (19) to the ungrammaticality of (17b).

2.4 Interaction with Matrix Experiential Aspect

-guo is ungrammatical in clauses that are already marked for experiential aspect via a duplicate instance of *-guo*. This is illustrated in (20) for a simple transitive clause and in (21) for *quan* 'urge'.

(20) *zhangsan chi-**guo-guo** yi-ge pingguo.
Zhangsan eat-EXP-EXP one-CL apple
'Zhangsan has eaten an apple.'

(21) *zhangsan quan-**guo-guo** lisi [jie yan].
Zhangsan urge-EXP-EXP Lisi stop smoke
Intended: 'Zhangsan urged Lisi to quit smoking.'

Given these facts, a prediction of the matrix analysis of aspect-under-control is that (22) should be ungrammatical: the embedded aspect marker has a matrix source and hence should be just as unacceptable as it is in (21). More or less in line with this expectation, nine out 14 Mandarin speakers consulted judge (22) unacceptable, although four assign it a marginal status, and one judges it acceptable. (Li 1985 claims that structures like (22) are marginally acceptable. See also Tang 1990; Huang 1994 for reportedly acceptable examples of 'double *-guo*' sentences like (22).)

(22) %zhangsan quan-**guo** lisi [jie-**guo** yan].
Zhangsan urge-EXP Lisi stop-EXP smoke
Intended: 'Zhangsan urged Lisi to quit smoking.'

I conclude from this finding that the matrix analysis of aspect-under-control is supported: the predominantly ungrammatical status of (22) straightforwardly relates to the ungrammaticality of (21). As for the speakers who accept or marginally accept (22), the analysis of aspect-under-control to be presented below will ultimately be able to account for this. To preview the point, it will reduce to variation in whether the matrix aspectual probe allows for Multiple Agree. See section 5.3 for details.

2.5 Some Problems for the Embedded Analysis

As demonstrated above, aspect-under-control interacts with material in the matrix clause in a way that is immediately explained on a matrix analysis. Here I consider whether an embedded analysis could also account for the relevant facts and conclude that it cannot obviously do so.

As a starting point for this discussion, I assume following Lin (2003b, 2006) that experiential *-guo*, in addition to having an aspectual semantics, also has a temporal component: it has a relative past interpretation, locating the event description it associates with in the past relative to some temporal anchor provided in the sentence (in the case of embedded clauses) or by speech time (in

the case of root clauses). Given this, we can ask what temporal ordering relation *-guo* imposes on aspect-under-control sentences like (23).

(23) zhangsan quan lisi$_1$ [PRO$_1$ chi-**guo** yi-ge pingguo].
Zhangsan urge Lisi eat-EXP one-CL apple
'Zhangsan urged Lisi to eat an apple.'

If the matrix analysis is correct, then the answer is that *-guo* associates with the urge-Lisi-to-eat-an-apple event description, and it orders this event prior to speech time.

If, on the other hand, the embedded analysis is correct, then *-guo* must associate with the PRO-eat-an-apple event description. And what provide the temporal anchor? Three logical possibilities would be (a) anchor to matrix time, (b) anchor to some time provided internally to the complement clause, or (c) anchor to speech time. Let's consider each of these three possibilities in turn.

The first possibility is that *-guo* anchors to matrix time. This is the null hypothesis, because as demonstrated by Li (1999); Lin (2003b, 2006), it is what happens in contexts where *-guo* is uncontroversially part of the complement clause, as illustrated in (24).

(24) yuehan shuo [mali sheng-**guo** qi].
John say Mary get-EXP angry
'John said that Mary was angry (before the saying time).' (Lin 2006:26)

But this cannot be the proper analysis for (23), since it seems to be a logical property of urgings that one cannot urge somebody to do something that has already happened, as in (25).

(25) #John urged Bill to have eaten an apple.

The second possibility is that *-guo* anchors to some time that is silently represented internally to the complement clause. On this view, the proper translation for (23) would be something like 'Zhangsan urged Lisi to have eaten an apple before some time,' where 'some time' is contextually bound. But there are at least two problems for such a view. The first problem is that in an

out-of-the-blue context, known instances of clause-internal anchoring with *-guo* require an overt expression of time to serve as the anchor. In (26), for example, the presence of the future modal *hui* forces *-guo* to anchor to a time after speech time, but doing so requires the future time anchor to be overtly expressed. In aspect-under-control structures, by contrast, the complement clause need not contain any overt time anchor. A second problem for this view is that even when an overt time anchor is supplied, *-guo* in a controlled complement cannot anchor to it, as illustrated in (27). In (27a), an adjunct clause provides a potential anchor, and in (27b), an explicit time expression provides a potential anchor, but in both cases, the sentence is ungrammatical. This suggests that in an aspect-under-control structure, *-guo* can never anchor to a time internal to the complement clause.[3] (I employ matrix progressive in (27) in order to prevent a matrix construal for *-guo*, relying on the generalization from section 2.2 that experiential *-guo* and progressive *zai* cannot co-occur. This shows us that even if aspect-under-control were ambiguous between a matrix and an embedded construal, 'blocking' the matrix construal does not make available an embedded construal.)

(26) #(**mingtian xiawu**) zhangsan hui chi-**guo** yi-ge pingguo.
tomorrow afternoon Zhangsan will eat-EXP one-CL apple
'By tomorrow afternoon, Zhangsan will have eaten an apple.'

(27) a. *zhangsan zai quan lisi qu meiguo yiqian changshi-**guo** hanbao.
Zhangsan PROG urge Lisi go America before try-EXP hamburger
Intended: 'Zhangsan is urging Lisi to have tried hamburgers before going to the US.'

b. *zhangsan zai quan lisi shi-dian qian tui-**guo** fang.
Zhangsan PROG urge Lisi ten-o'clock before quit-EXP room
Intended: 'Zhangsan is urging Lisi to have checked out of the room by ten o'clock.'

Finally, the third option to consider is that although *-guo* is syntactically in the embedded

[3] If (27a) is paraphrased so that *-guo* is embedded in an adjunct to the complement clause, the sentence becomes grammatical, as in (i).

(i) zhangsan zai quan lisi chi-**guo** hanbao zai qu meiguo.
Zhangsan PROG urge Lisi eat-EXP hamburger then go America
'Zhangsan is urging Lisi to go to America after having tried hamburgers.'

See the end of section 3.2 for discussion of such cases.

clause, it anchors to speech time. In other words, *-guo* associates with the embedded event description but nonetheless is not part of the content of what is urged, instead locating the embedded event description in a time before speech time. On this view, the proper translation for an aspect-under-control sentence like (23) would be something like 'Zhangsan urged Lisi to eat an apple, and Lisi's (hypothetical[4]) eating-an-apple time precedes speech time.'

Unlike the two previous possibilities considered, this possibility is not obviously wrong, and even lends itself to an alternative explanation for the facts from the previous subsections, repeated here in (28). In particular, what could be said is that the crucial property of the bolded matrix material in (28) is that they force matrix present tense, which (given the impossibility of urging someone to do something that has already happened) conflicts with the prior-to-speech-time semantics that *-guo* contributes to the complement clause.

(28) a. *zhangsan **bu** quan lisi [chi-**guo** yi-ge pingguo].
Zhangsan NEG urge Lisi eat-EXP one-CL apple
Intended: 'Zhangsan didn't urge Lisi to eat an apple.'

b. *zhangsan **zai** quan lisi [chi-**guo** yi-ge pingguo].
Zhangsan PROG urge Lisi eat-EXP one-CL apple
Intended: 'Zhangsan is urging Lisi to eat an apple.'

c. *zhangsan **mei-tian** quan lisi [chi-**guo** yi-ge pingguo].
Zhangsan every-day urge Lisi eat-EXP one-CL apple
Intended: 'Every day, Zhangsan urges Lisi to eat an apple.'

In other words, the matrix analysis of aspect-under-control makes the same predictions as a special version of the embedded analysis wherein the aspect marker, although embedded, anchors to speech time. But these two analyses can be teased apart by the paradigm in (29), in a way that favors the matrix analysis. The crucial manipulation here relies on the fact that although matrix progressive *zai* gives rise to a 'default' present tense interpretation, this default can be overridden by temporal adverbials, as illustrated in (29a). (29b) establishes that this same fact holds when

[4]It is not entirely clear what it would mean to temporally order a hypothetical event with respect to an actual event, a notion that would need to be worked out if this analysis were to be pursued more fully. But see section 6.1 for a discussion of the fact that for some (but not all) speakers, aspect-under-control gives rise to actuality entailments, i.e., commitment to the truth of the proposition expressed by the complement clause.

the matrix verb is *quan* ‘urge’. Against this backdrop, the key minimal pair is in (29c–d). (29c) shows that the ban on combining progressive and experiential aspect persists even in a past tense context. Crucially, (29d) is also ungrammatical, which is predicted by the matrix analysis but not predicted by the anchor-to-speech-time version of the embedded analysis. On the matrix analysis, the ungrammaticality of (29d) follows from whatever principle renders (29c) ungrammatical. But on the anchor-to-speech-time version of the embedded analysis, the expectation is that as long as the matrix clause has the right temporal properties to satisfy the requirement that the urging event happen prior to the event corresponding to the urged state of affairs, the sentence should be grammatical. The ungrammaticality of (29d) thus suggests that the matrix analysis is to be preferred over the embedded analysis.

(29) a. **zuotian xiawu** zhangsan **zai** chi yi-ge pingguo.
yesterday afternoon Zhangsan PROG eat one-CL apple
‘Yesterday afternoon Zhangsan was eating an apple.’

b. **zuotian xiawu** zhangsan **zai** quan lisi chi yi-ge pingguo.
yesterday afternoon Zhangsan PROG urge Lisi eat one-CL apple
‘Yesterday afternoon Zhangsan was urging Lisi to eat an apple.’

c. *__zuotian xiawu__ zhangsan **zai** quan-**guo** lisi chi yi-ge pingguo.
yesterday afternoon Zhangsan PROG urge-EXP Lisi eat one-CL apple

d. *__zuotian xiawu__ zhangsan **zai** quan lisi chi-**guo** yi-ge pingguo.
yesterday afternoon Zhangsan PROG urge Lisi eat-EXP one-CL apple

To sum up the discussion in this subsection: the embedded analysis of aspect-under-control raises nontrivial questions about the temporal contribution of the embedded aspect marker. Three *a priori* possibilities are that it anchors to matrix time, to a time internal to the complement clause, or to speech time. But each of these three options raises problems. Consequently, I conclude that the matrix analysis is superior.

3. The Control-aspect Correlation

3.1 Generalizing across Embedding Predicates

In the previous section, we saw that in sentences whose matrix verb is *quan* 'urge', *-guo* behaves like matrix aspect regardless of whether it is pronounced on the matrix verb or the main verb of the controlled complement clause, as in (30).

(30) zhangsan quan{**-guo**} lisi [chi{**-guo**} yi-ge pingguo].
Zhangsan urge-EXP Lisi eat-EXP one-CL apple
'Zhangsan urged Lisi to eat an apple.'

This phenomenon is not unique to *quan* 'urge' but is found as well with other control predicates such as *bi* '(try to) force' and *qing* 'ask/invite', as illustrated in (31) and (32) respectively. The matrix status of the embedded aspectual marker in is confirmed by the same kinds of diagnostics employed in the previous section, e.g., incompatibility with matrix negation by *bu*, as in (33).

(31) zhangsan bi{**-guo**} lisi [chi{**-guo**} yi-ge pingguo].
Zhangsan force-EXP Lisi eat-EXP one-CL apple
'Zhangsan forced Lisi to eat an apple.'

(32) zhangsan qing{**-guo**} lisi [chi{**-guo**} yi-ge pingguo].
Zhangsan invite-EXP Lisi eat-EXP one-CL apple
'Zhangsan invited Lisi to eat an apple.'

(33) a. *zhangsan **bu** bi lisi [chi-**guo** yi-ge pingguo].
Zhangsan NEG force Lisi eat-EXP one-CL apple

b. *zhangsan **bu** qing lisi [chi-**guo** yi-ge pingguo].
Zhangsan NEG invite Lisi eat-EXP one-CL apple

There are also some control predicates that are incompatible with *-guo* regardless of whether it is placed on the matrix verb or the embedded verb, such as *gan* 'dare' and *kaishi* 'begin', as we see in (34) and (35) respectively.

(34) zhangsan gan{*-**guo**} chi{*-**guo**} yi-ge pingguo.
Zhangsan dare-EXP eat-EXP one-CL apple

'Zhangsan dared to eat an apple.'

(35) zhangsan kaishi{*-**guo**} chi{*-**guo**} yi-ge pingguo.
Zhangsan begin-EXP eat-EXP one-CL apple
'Zhangsan began to eat an apple.'

Crucially, however, there are no control predicates for which an instance of *-guo* on the embedded verb is both grammatical *and* instantiates embedded rather than matrix aspect. This state of affairs stands in contrast to predicates that embedded *non*-controlled complement clauses: for such predicates, *-guo* on the embedded verb always instantiates embedded aspect. This is illustrated in (36) for five non-control predicates: in each case, the grammaticality of matrix negation by *bu* confirms that the embedded instance of *-guo* is associated with the complement clause rather than the matrix clause.

(36) a. zhangsan **bu** renwei [lisi chi-**guo** yi-ge pingguo].
Zhangsan NEG believe Lisi eat-EXP one-CL apple
'Zhangsan doesn't believe that Lisi ate an apple.'

b. zhangsan **bu** xiwang [lisi chi-**guo** yi-ge pingguo].
Zhangsan NEG hope Lisi eat-EXP one-CL apple
'Zhangsan doesn't hope that Lisi ate an apple.'

c. zhangsan **bu** jide [lisi chi-**guo** yi-ge pingguo].
Zhangsan NEG remember Lisi eat-EXP one-CL apple
'Zhangsan doesn't remember that Lisi ate an apple.'

d. zhangsan **bu** zhidao [lisi chi-**guo** yi-ge pingguo].
Zhangsan NEG know Lisi eat-EXP one-CL apple
'Zhangsan doesn't know that Lisi ate an apple.'

e. zhangsan **bu** shuo [lisi chi-**guo** yi-ge pingguo].
Zhangsan NEG say Lisi eat-EXP one-CL apple
'Zhangsan doesn't (won't) say that Lisi ate an apple.'

3.2 Generalizing across Aspect Markers

In addition to *-guo*, verb-final perfective aspectual marker *-le* also appears in controlled complements and also displays properties that betray its matrix status. As demonstrated in (37b)–(37d), verb-final *-le* is ungrammatical when it co-occurs with the negation marker *bu*, the progressive

marker *zai*, or another instance of verb-final *-le*, respectively. (38b)–(38d) confirm that we find the same patterning when *-le* is embedded in a controlled complement.[5,6]

(37) a. zhangsan chi-**le** yi-ge pingguo.
Zhangsan eat-PRF one-CL apple
'Zhangsan ate an apple.'

[5]Four out of 14 informants consulted accept sentences like (ia) whereby by matrix *-guo* co-occurs with *-le* in a controlled complement. This likely relates to the fact that *-guo* and *-le* can co-occur on the same verb in a monoclausal configuration, as in (ib), a parallel that seems even more striking given that reversing the order of the two markers produces ungrammaticality for both biclausal (iia) and monoclausal (iib) sentences. See Gu 1993 for discussion of cases like (ib).

(i) a. %ta quan-**guo** lisi chi-**le** yi-ge pingguo.
he urge-PRF Lisi eat-PRF one-CL apple
'He urged Lisi to eat an apple.'
b. ta chi-**guo-le** yi-ge pingguo.
he eat-EXP-PRF one-CL apple
'He has eaten an apple.'

(ii) a. *ta quan-**le** lisi chi-**guo** yi-ge pingguo.
he urge-PRF Lisi eat-PRF one-CL apple
'He urged Lisi to eat an apple.'
b. *ta chi-**le-guo** yi-ge pingguo.
he eat-EXP-PRF one-CL apple
'He has eaten an apple.'

Although the parallel between (i) and (ii) is suggestive, it will be beyond the analytical scope of this paper to account for the paradigm in (i)–(ii).

[6]Under some conditions, some speakers allow for matrix *bu* to co-occur with *-le* in a controlled complement:

(i) %zhangsan **bu** xiang chi-**le** na-ge pingguo.
Zhangsan NEG want eat-PRF that-CL apple
'Zhangsan does not want to eat up that apple.'

-le in such cases is interpreted locally to the complement clause, and encodes completive aspect (corresponding to the *up* of *eat up* in the translation). This is confirmed by the patterning in (ii).

(ii) a. zhangsan xiang chi na-ge pingguo, (keshi ta bu xiang chi-wan).
Zhangsan want eat that-CL apple but he NEG want eat-finish
'Zhangsan wants to eat that apple, but he doesn't want to finish eating it.'
b. %zhangsan xiang chi-**le** na-ge pingguo, (#keshi ta bu xiang chi-wan).
Zhangsan want eat-PRF that-CL apple but he NEG want eat-finish
'Zhangsan wants to eat that apple, but he doesn't want to finish eating it.'

Anticipating the proposal in section 4 that controlled complements in Mandarin are *v*Ps, I propose that *-le* in examples like (i)–(ii) are realizations of INNER ASPECT in the sense of Travis 2010, i.e., an aspectual morpheme relating to the endpoint of an event and crucially for my purposes projecting within *v*P.

An INNER ASPECT analysis may also be warranted for the durative suffix *-zhe*: in (iii), *-zhe* is interpreted locally to the controlled complement clause. (And Li (1985):45 in fact claims that when *-zhe* appears in a controlled complement it obligatorily instantiates embedded and not matrix aspect.)

(iii) wo mei(you) jiao ta kao-**zhe** qiang.
I NEG order him lean-DUR wall
'I did not ask him to lean against the wall.' (Huang 1994:29)

b. *zhangsan **bu** chi-**le** yi-ge pingguo.
Zhangsan NEG eat-PRF one-CL apple

c. *zhangsan **zai** chi-**le** yi-ge pingguo.
Zhangsan PROG eat-PRF one-CL apple

d. *zhangsan chi-**le-le** yi-ge pingguo.
Zhangsan eat-PRF-PRF one-CL apple

(38) a. zhangsan quan lisi chi-**le** yi-ge pingguo.
Zhangsan urge Lisi eat-PRF one-CL apple
'Zhangsan urged Lisi to eat an apple.'

b. *zhangsan **bu** quan lisi chi-**le** yi-ge pingguo.
Zhangsan NEG urge Lisi eat-PRF one-CL apple

c. *zhangsan **zai** quan lisi chi-**le** yi-ge pingguo.
Zhangsan PROG urge Lisi eat-PRF one-CL apple

d. *zhangsan quan-**le** lisi chi-**le** yi-ge pingguo.
Zhangsan urge-PRF Lisi eat-PRF one-CL apple

Apparently problematic for the matrix analysis of the aspect marker *-le* in (38a) is that when *-le* is placed overtly in the matrix clause, the result is ungrammatical (39). However, the ungrammaticality of (39) in fact relates to a much more general constraint in Mandarin that bans aspectual *-le* on verbs taking clausal complements. As illustrated in the following pair due to Paul (2005b), the same verb *fouren* 'deny' will either disallow or allow *-le* depending on whether its complement is clausal (40a) or nominal (40b).

(39) *zhangsan quan-**le** lisi chi yi-ge pingguo.
Zhangsan urge-PRF Lisi eat one-CL apple
'Zhangsan urged Lisi to eat an apple.'

(40) a. ta fouren(***-le**) [ta zuo-cuo-le zhei-jian shi].
he deny-PRF he do-err-PRF this-CL matter
'He denied that he handled this matter wrongly.'

b. ta fouren(-**le**) [zhei-ge cuowu].
he deny-PRF this-CL mistake
'He denied this error.' (Paul 2005b:377–378)

Taken together, the facts suggest that *-le* cannot be left-adjacent to a complement clause at Spell-Out. Although I will not attempt an explanation of this constraint here, I take it that this is the generalization responsible for the contrast between (38a) and (39).

Perfective *-le* also has a non-affixal allomorph *you* which surfaces under negation, as illustrated in (41a). (See Wang 1965; Huang 1988; Ernst 1995; Lee and Pan 2001; Lin 2003a and also section 2.1 above.) The *you* variant is ungrammatical in controlled complements whether the negative marker appears in the matrix clause (41b) or the embedded clause (41c). (See also Li 1985:45 and Huang 1989:190 for similar data.) Furthermore, the ungrammaticality of (41c) has to be attributed to the position of *you* rather than to the position of negation, because as seen in (41d), negation under control is in principle available. In a non-controlled complement, by contrast, embedded *you* is grammatical and is interpreted locally to the complement clause, as illustrated in (42).

(41) a. zhangsan mei-**you** quan lisi chi yi-ge pingguo.
Zhangsan NEG-PRF urge Lisi eat one-CL apple
'Zhangsan did not urge Lisi to eat an apple.'

b. *zhangsan mei quan lisi **you** chi yi-ge pingguo.
Zhangsan NEG urge Lisi PRF eat one-CL apple

c. *zhangsan quan lisi mei-**you** chi yi-ge pingguo.
Zhangsan urge Lisi NEG-PRF eat one-CL apple

d. zhangsan quan lisi **bu** chi yi-ge pingguo.
Zhangsan urge Lisi NEG eat one-CL apple
'Zhangsan urged Lisi not to eat an apple.'

(42) zhangsan shuo lisi mei-**you** chi yi-ge pingguo.
Zhangsan say Lisi NEG-PRF eat one-CL apple
'Zhangsan says that Lisi did not eat an apple.'

Turning to the other major aspectual category in Mandarin, progressive marker *zai* is ungrammatical when embedded in a controlled complement, regardless of whether it is construed with the matrix clause or with the embedded clause. This is illustrated in (43). By contrast, as illustrated in (44), progressive aspect in a non-controlled complement clause is grammatical and is construed with the embedded event description.

(43) *zhangsan quan lisi [**zai** chi yi-ge pingguo].
Zhangsan urge Lisi PROG eat one-CL apple

(44) zhangsan shuo [lisi **zai** chi yi-ge pingguo].
Zhangsan say Lisi PROG eat one-CL apple
'Zhangsan says that Lisi is eating an apple.'

Taken together, all of these facts suggest the descriptive generalization in (45).

(45) **The control-aspect correlation**: In Mandarin, an aspect marker in a controlled complement clause — when grammatical at all — instantiates *matrix* aspect, whereas an aspect marker in a *non*-controlled complement clause instantiates *embedded* aspect.

The goal of the rest of this paper is to derive this correlation as a by-product of how the syntax of control interacts with the syntax of aspect placement. First, though, I would like to briefly raise an apparent counterexample to the generalization in (45). In (46), the aspect marker *-guo* in the complement clause is not a projection of matrix aspect: rather, internally to the complement clause, it has the semantic function of temporally ordering Lisi's (hypothetical) eating time before Lisi's (hypothetical) leaving time (see Pan and Lee 2004:note 1 for brief discussion of this function of *-guo* outside control contexts). In the following section, I will argue that part of the explanation for the generalization in (45) is that in Mandarin, controlled complements are *v*Ps that do not project Asp. But although this entails that aspect cannot be projected in the main spine of the complement clause, it also leaves open the possibility that an aspectual projection could be 'sneaked in' by adjoining to *v*P a phrase that has enough structure to support Asp. This is precisely what happens in (46): *chi-guo fan* 'eat-EXP meal' constitutes a clausal adjunct to the complement clause, and that adjunct projects at least to AspP. Consequently, this kind of counterexample is innocuous. (See also section 2.5 above for data showing that when sentences analogous to (46) are paraphrased so that *-guo* attaches to the main verb of the complement clause, the sentence is ungrammatical.)

(46) zhangsan quan lisi [chi-**guo** fan zai zou].
Zhangsan urge Lisi eat-EXP meal then leave

'Zhangsan urged Lisi to leave after eating.'

4. The Syntax of Control

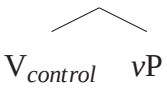
The control-aspect correlation observed in the previous section leaves us with two analytical questions:

(47) a. Why *can't* an aspect marker in a controlled complement instantiate embedded (local) aspect?

b. Why *can* an aspect marker in a controlled complement instantiate matrix aspect (in the case of *-le* and *-guo*)?

This section takes up the question in (47a), leaving (47b) to the next section. In particular, I propose to answer the question in (47a) by appealing to the split schematized in (48): control predicates in Mandarin take *v*P complements, whereas non-control clause-embedding predicates take CP complements. On this view, the reason aspect can never be instantiated in a controlled complement is because controlled complements do not project to AspP.

(48) a.



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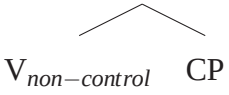


Slightly modifying a proposal by Paul (2005a), I take it that Mandarin clause structure involves (at least) the projections in (49), where (following Paul in taking Belletti's (2004) similar proposal for Italian and applying it to Mandarin) left peripheral Topic and Focus positions are mirrored by 'Inner' Topic and Focus positions in what Belletti and Paul call the "low IP area". I depart slightly from Paul (2005a) in replacing Paul's 'IP' with 'AspP'. Although all of my proposals will be compatible with the view that there is an IP (or TP) projection in Mandarin immediately above AspP, I will suppress IP(/TP) in the exposition here since it is irrelevant to the discussion and its existence in Mandarin is controversial; for recent discussion, see Sybesma 2007 and Lin 2010.

In the absence of an IP(/TP) projection, I will assume that the surface position of the subject in Mandarin is [Spec,AspP].

(49) CP > TopP > FocP > AspP > InnerTopP > InnerFocP > *v*P

Given this picture of Mandarin clause structure, independent evidence for the claim that Mandarin controlled complements are bare *v*Ps comes from a split between controlled and non-controlled complements in the availability of inner topicalization, which, following Paul (2005a), involves DP-movement to [Spec,InnerTopP]. The crucial data are in (50)–(51), adapted from Fu (1994) and Lu (1994) respectively, and reported by Ernst and Wang (1995) and Paul (2005a). (50) involves a controlled complement embedded under another controlled complement. The direct object of the most deeply embedded verb may appear in matrix [Spec,InnerTopP], but may not appear in (what would be) [Spec,InnerTopP] of either of the controlled clauses. This follows on the view that controlled clauses are bare *v*Ps and thus do not project InnerTopP: the only InnerTopP in the sentence projects at the matrix level, and this is where the DP moves to. By contrast, (51) involves a non-controlled complement clause. Here, the direct object of the embedded verb can appear in embedded [Spec,InnerTopP], and in fact, movement as far as matrix [Spec,InnerTopP] results in ungrammaticality. These facts follow on the view that non-controlled complement clauses project CP. (Paul suggests that the reason for the asymmetry between (50) and (51) is that controlled clauses are nonfinite and nonfinite clauses "lack the functional architecture" that finite clauses have. The analysis suggested here is similar, but simpler: no appeal to a finite/nonfinite distinction is necessary, only a difference in complement size. In a similar vein, Ernst and Wang (1995) take (50) as evidence for "clause union" in Mandarin controlled complements, whereby "matrix and embedded complement together display some properties of a single clause" (p. 245). The analysis suggested here is in a similar spirit in the sense that the whole sentence involves only one projection of InnerTopP.)

(50) ta {nei-jian shi} **rang** zhangsan [PRO {*nei-jian shi} **pai** xiaoping [PRO {*nei-jian shi} diaocha-le {nei-jian shi}]].
he that-CL matter ask Zhangsan send Xiaoping investigate-PRF that-CL matter.
'He asked Zhangsan to send Xiaoping to investigate that matter.' (adapted from Fu 1994; Paul 2005a)

(51) wangwu {*na-ben xiaoshuo} **shuo** [lisi {na-ben xiaoshuo} du-wan-le {na-ben xiaoshuo}].
Wangwu that-CL novel say Lisi read-finish-PRF that-CL novel
'Wangwu said that Lisi finished reading that novel.' (adapted from Lu 1994; Ernst and Wang 1995; Paul 2005a)

It is worth mentioning that, as illustrated in (52), English controlled complements also disallow topicalization (Hooper and Thompson 1973), a fact which leads Haegeman (2004) to propose — in the context of Rizzi's (1997) articulated CP architecture — that English topicalization requires ForceP and that English controlled infinitives do not project to this position. Importantly, the Mandarin data in (50)–(51) cannot be accounted for using a more highly articulated CP structure: given the existence of inner topicalization in Mandarin — which targets a position below the surface position of the subject — the data in (50)–(51) show that Mandarin controlled complements do not project even to InnerTopP and consequently not even to AspP.

(52) *John tried [**this door** to open] (and that door to close).

Turning now to non-controlled complements, independent evidence for their CP status comes from the availability of embedded clause-final *le*. The following data are from Paul 2011:

(53) a. ta gaosu wo [[xiao-zhang bu qu beijing] **le**].
he tell me school-president NEG go Beijing LE
'He told me that the school president doesn't want to go to Beijing anymore.'

b. ta renwei [[lisi bu yao qu beijing] **le**].
he think Lisi NEG want go Beijing LE.
'He thinks that Lisi no longer wants to go to Beijing.'

c. ta hen yihan [[lisi bu yao qu beijing] **le**].
he very regret Lisi NEG want go Beijing LE.
'He regrets that Lisi no longer wants to go to Beijing.'

The semantics of clause-final *le* is subject to ongoing debate, but according to Li and Thompson's (1981) influential approach, *le* encodes "Currently Relevant State", either due to an objective change of state ('inchoativity') or a subjective change in importance. Consequently, in the scope of negation, it sometimes translates as *anymore* or *no longer*, and as the English free glosses above make clear, it takes embedded clause scope in the above examples. On the view that clause-final particles like *le* are projections of C, the data in (53) establish that non-controlled complement clauses in Mandarin may project CP.[7]

I now turn to discussion of how the *v*P/CP split in complement size relates to the distribution of control. On the view that controlled clauses involve PRO subjects and PRO can occur only in non-Case positions (Bouchard 1984), what is important to the analysis here is that *v*P does not have the structure needed to assign Case to its ([Spec,*v*P]) subject.[8] Therefore, a verb taking a bare *v*P complement will — in the absence of ECM or raising-to-object[9] — force [Spec,*v*P] to be occupied by PRO, as schematized in (54a). (Of course, $V_{control}$ will project its own matrix clausal architecture, including a nominative Case assigner. But in situ Case assignment from the matrix clause will always be precluded by the intervening matrix subject.) In contrast, when a verb takes a CP complement, the embedded subject receives Case the same way matrix subjects do: by I/T or (on the view that Mandarin lacks I/T) Asp, as schematized in (54b). This account thus rejects Lin's (2011) suggestion that Mandarin lacks abstract Case, following instead Li 1985, 1990, 2008;

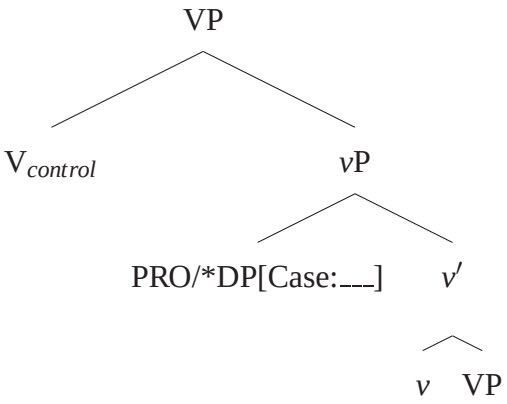
[7] More precisely, Paul (2011) argues for a 'split CP' structure for Mandarin whereby sentence-final particles occupy three positions hierarchically related as AttitudeP > ForceP > LowCP. For Paul, clause-final *-le* instantiates LowCP. Some sentence-final particles such as polar interrogative *ma* (which for Paul projects ForceP) cannot be embedded, suggesting that complement CPs do not project as much CP structure as do matrix CPs.

[8] I thus depart here from the view that PRO bears null Case (Chomsky and Lasnik 1993; Bošković 1997; Martin 2001), and from recent attempts to divorce the distribution of PRO from Case altogether (see especially Landau 2004). The Caseless view of PRO currently enjoys support in the Movement Theory of Control (Hornstein 1999 and subsequent work), where the Caselessness of PRO is derived from PRO's status as an A-trace.

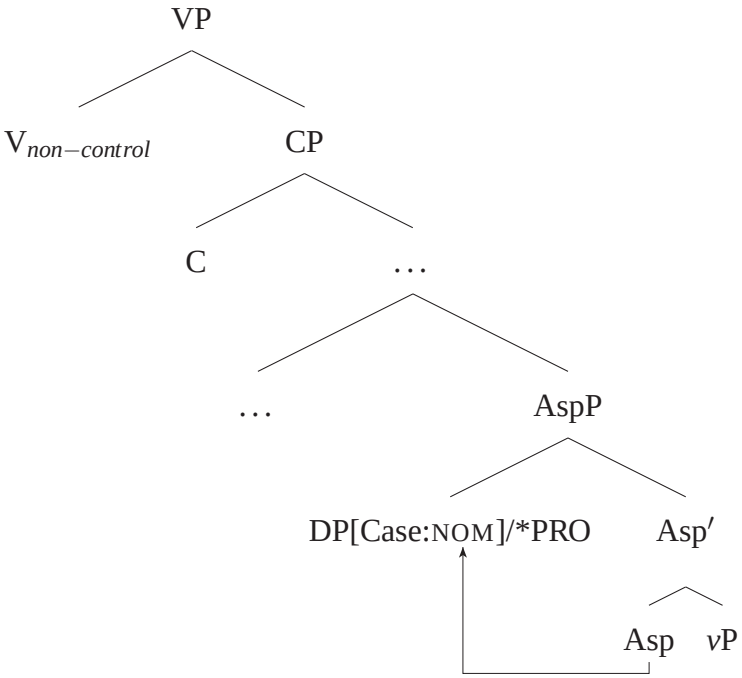
[9] Li (1990) argues that Mandarin lacks ECM. But given the existence of small clauses in Mandarin (Gu 2008), it is conceivable that small-clause-taking verbs in Mandarin combine with *v*Ps but differ from control predicates in also assigning Case to the subject of *v*P.

Huang, Li, and Li 2009 in taking Mandarin to have Case and following in particular Li 1985, 1990; Huang 1982, 1989; Ernst 1994 in taking Mandarin PRO to be licensed in Caseless environments. See also Grano and Kennedy 2012 for evidence from comparative constructions that Mandarin has abstract Case.

(54) a.



b.



Before closing this section, a few words are in order on alternative spell-out options for the subject of the controlled complement in Mandarin. Xu (2003) (see also similar observations by Hu et al. 2001), arguing against the view that Mandarin has a finite/nonfinite distinction, points to the fact that even 'control' verbs in Mandarin can take overt embedded subjects under some conditions. The verb *shefa* 'try', for example, participates in structures like (55c–d) in addition

to ones like (55a). Xu argues that the contrast in acceptability between (55b) and (55c–d) follows from a lexico-semantic requirement associated with *shefa* 'try' such that "the one that tries must be included as one of the agents in the following clause, but not necessarily the only one" (p. 91).

(55) a. ta shefa [liang tian nei wancheng zhe-jian gongzuo].
he try two day within complete this-CL work
'He tried to complete this work within two days.'

b. *ta shefa [**wo** liang tian nei wancheng zhe-jian gongzuo].
he try me two day within complete this-CL work

c. ta shefa [**ziji** liang tian nei wancheng zhe-jian gongzuo].
he try himself two day within complete this-CL work
'He tried to complete this work within two days.'

d. ta zai shefa [**laopo, ziji he erzi** yiqi yimin].
he PROG try wife himself and son together immigrate
'He is trying to have his wife, himself and his son immigrate together.' (Xu 2003:90–91)

Although I share Xu's position that there is no evidence for a finite/nonfinite contrast in Mandarin, I depart from Xu in that I do relate the control/non-control distinction to a structural difference: controlled complements project only *v*P, a conclusion supported by their incompatibility with aspect and inner topicalization. How, then, do we account for the grammaticality of (55c) and (55d), if I am right that the bracketed complements are *v*Ps and there is no Case assigner for [Spec,*v*P]?

Before answering this question, it bears noting that the possibility of finding overt material in the subject position of a controlled complement speaks against a VP approach to controlled complements as has been argued for by Chierchia (1984), or by Wurmbrand (2001) for certain kinds of restructuring configurations crosslinguistically. In other words, I argue that Mandarin controlled complements are *v*P, and the data in (55) show that they must be *at least* *v*P since this is the point in the structure of the clause that the subject is merged in. (A *v*P analysis does not exclude the possibility, though, that a controlled complement denotes a property: see Chierchia 1990; Stephenson 2010; Pearson 2013 for the proposal that PRO creates a lambda-abstraction over

the subject position of a controlled clause.)

Turning first to (55c), I suggest that this structure involves COPY CONTROL (Polinsky and Potsdam 2006). Copy Control has been documented for Tongan (Chung 1978), San Lucas Quiaviní Zapotec (Lee 2003; Boeckx, Hornstein, and Nunes 2007, 2008), and Assamese (Haddad 2007), and has in the Movement Theory of Control been analyzed as an instance of multiple copy spell-out. Two documented points of variation in the syntax of copy control are whether the copy is obligatorily or optionally pronounced, and whether the copy is instantiated by a full copy of the moved DP or a resumptive pronoun. Apparently in Mandarin, the copy is optionally pronounced and, when pronounced, is instantiated by a resumptive pronoun.

Turning to (55d), the contrast in acceptability between (55b) and (55d) is strongly suggestive of PARTIAL CONTROL: i.e., an obligatory control structure in which the controlled position denotes a proper superset of the controller (Landau 2000). Although Copy Control and Partial Control are both well documented, the Mandarin example in (55d) is significant insofar as it may be the first documented case of PARTIAL COPY CONTROL, where the properties of the two aforementioned phenomena are combined. Working in the Movement Theory of Control, Rodrigues (2008) proposes that Partial Control arises when the subject of the controlled clause combines with a silent associative morpheme which it then strands when it moves into the matrix subject position. (55d) is amenable to a similar analysis, whereby the reflexive *ziji* is a resumptive copy of the matrix subject, which has vacated the coordinate structure, the resumption saving what would otherwise be a Coordinate Structure Constraint violation.

As for the Case properties of the spelled out embedded subject, I follow Rodrigues's (2008) suggestion that once one member of an A-chain receives Case, all the other members receive Case as well. Thus, although the coordinate structure is sitting in a Caseless position, it receives Case in virtue of being related via an A-chain to a DP sitting in a Case position.

For ease of exposition, I will continue to represent the subject of a controlled clause as PRO, with the understanding that if the Movement Theory of Control is correct — as the facts in (55) may suggest — PRO is actually a low copy of an argument in an A-chain headed by the controller

(though see note 13 below).

5. The syntax of Aspect Placement

5.1 Taking Stock

Synthesizing the conclusions from the previous sections, we have the state of affairs schematized in (56)–(57). Matrix experiential aspect may be realized by suffixing *-guo* either on the matrix verb (56a)/(56c) or on the embedded verb of a (controlled) *v*P-complement (56b), but not on the embedded verb of a (non-controlled) CP complement (56d). Matrix progressive aspect, on the other hand, can only be realized by a matrix instance of *zai* (57a)/(57c), and cannot be realized by embedded *zai*, whether in a (controlled) *v*P (57b) or in a (non-controlled) CP (57d).

(56) a. Asp[EXP] . . . V-**guo** . . . [$_{vP}$ PRO . . . V . . .]

b. Asp[EXP] . . . V . . . [$_{vP}$ PRO . . . V-**guo** . . .]

c. Asp[EXP] . . . V-**guo** . . . [$_{CP}$ . . . V . . .]

d. *Asp[EXP] . . . V . . . [$_{CP}$ . . . V-**guo** . . .]

(57) a. Asp[PROG] **zai** . . . V . . . [$_{vP}$ PRO . . . V . . .]

b. *Asp[PROG] . . . V . . . [$_{vP}$ PRO . . . **zai** . . . V . . .]

c. Asp[PROG] **zai** . . . V . . . [$_{CP}$ . . . V . . .]

d. *Asp[PROG] . . . V . . . [$_{CP}$ . . . **zai** . . . V . . .]

I propose to relate the contrast between *-guo* and *zai* to the fact that the former is a bound morpheme whereas the latter is a free morpheme. In particular, I take *zai* to be base-generated in Asp and to remain there throughout the course of the derivation; consequently, the ungrammaticality of (57b) and (57d) follows trivially from the fact that *zai* does not move to lower positions in structure. That this approach is on the right track is supported also by the fact that *you* — i.e., the non-affixal allomorph of *-le* which surfaces under negation; see section 3.2 above — also behaves like *zai* in being ungrammatical in controlled complements regardless of whether it is construed with the matrix clause or the embedded clause. Like *zai*, *you* is base-generated in Asp and remains their

throughout the course of the derivation.

What we now need is a theory of the syntax of *-guo* that ensures a dependency between a phonologically empty aspectual head and an overtly realized suffix on a verb lower in the structure. (See Gu 1993 for evidence against overt V-to-Asp movement in Mandarin.) Such a theory is independently needed even for simple monoclausal configurations, but given the facts in (56), it is furthermore necessary that this dependency be able to cross into a (controlled) *v*P complement but not into a (non-controlled) CP complement. (58) sketches three *a priori* plausible analytical options and relates them to existing approaches for the similar analytical task of relating verbal tense and agreement morphology to Tense in English.[10]

(58) a. **(Overt) Lowering**: *-guo* is base-generated in Asp and (because it as affixal and needs a host) overtly lowers to V (see Wang 1965 for an early version of an approach in this spirit). [Cf. English T-to-V Lowering in Embick and Noyer 2001 and many others, all essentially building on Chomsky's (1957) 'Affix Hopping'.]

b. **Covert Raising**: *-guo* is base-generated on V. V-*guo* covertly raises to Asp at LF (Ernst 1995; Huang et al. 2009). [Cf. English covert V-to-T Raising (Chomsky 1993).]

c. **Agree**: *-guo* is base-generated on V and enters into an Agree relation with Asp. (Cf. English T-V Agreement (Pesetsky and Torrego 2007).)

The facts in (56) render the Overt Lowering approach unattractive. Displacing matrix Asp to a complement *v*P as in (56b) would require either suspending the strictly local character of Lowering (see e.g. the assumption in Embick and Noyer 2001 that Lowering moves a head to the head of its complement) or allowing Lowering to operative successive-cyclically (see Radford 2004:139 for conceptual reasons against such an option). See also Gu (1993); Ernst (1995) for other concerns about the feasibility of the Overt Lowering approach to Mandarin aspect placement.

[10] Because verb-final perfective *-le* has some particularly complicated properties (see discussion in section 3.2 above), I abstract away from it and focus the discussion only on *-guo* in what follows. However, because *-guo* and *-le* share the property of being affixal, I am optimistic that much of what I say here about *-guo* could carry over to *-le* as well.

Similar concerns arise for the Covert Raising approach: the structure in (56b) would require either a suspension of the Head Movement Constraint (Travis 1984) or successive cyclic covert raising, an option which should be blocked by the overt material in the higher V position.

By contrast, the Agree option is in a position to accommodate the structure in (56b), provided that the locality requirements on Agree are not as stringent as the locality requirements on head movement.[11] Consequently, this is the option I will pursue. Section 5.2 develops an Agree approach to aspect placement in simple monoclausal configurations; section 5.3 then shows how this approach carries over to biclausal configurations in a way that straightforwardly explains the facts in (56)–(57).

5.2 Aspect Placement in Monoclausal Configurations

I assume that the syntactic category Asp in Mandarin comes with an interpretable aspectual feature which I will refer to as 'A'. Values for A in Mandarin include at least PROG, PRF, and EXP. I follow Pesetsky and Torrego (2007); Bošković (2011); Wurmbrand (2012a) in dissociating feature (un)interpretability from feature (non-)valuation (*contra* Chomsky 2001); consequently, interpretable features can enter the derivation unvalued. As schematized in (59), I propose that in Mandarin, Asp enters the derivation either without overt phonological material, in which case it unvalued for A, or with phonological material (in particular, *zai*), in which case it is valued for A. (In the case of *zai*, the corresponding A value is PROG.) Verbs, in turn, enter the derivation either in bare form — in which case it has no A feature at all, as in (60a) — or aspectually suffixed, in which case it has an uninterpretable and valued A feature corresponding to that suffix, as in (60b).

(59) a. Asp[iA:__]

b. Asp[iA:PROG] *zai*

(60) a. V

[11] Of course, this assumption is not obviously true: it may be that the Head Movement Constraint holds because Move is parasitic on Agree and Agree is banned when a (relevant) head intervenes. This would render the Covert Raising approach and the Agree approach equally plausible. Because nothing in the analysis hinges on the choice between Agree and Covert Raising, my choice of the Agree approach is adopted for the sake of concreteness.

b. V-*guo*[uA:EXP]

These settings give rise to the derivations in (61)–(63). In (61), an interpretable unvalued aspectual feature on Asp co-occurs with an uninterpretable valued aspectual feature EXP on V-*guo*. A on Asp acts as a probe, ultimately valued as EXP via an Agree relation with V, and deleting the uninterpretable A feature on V-*guo*. (62) illustrates what happens when Asp enters the derivation as *zai*, valued for A. In (62a), the derivation crashes because there is nothing for the uninterpretable aspectual feature on V to enter into an Agree relation with: A on Asp is both interpretable and valued and hence does not trigger Agree. In (62b), by contrast, V enters the derivation without an aspectual feature, and so the derivation persists without an Agree relation. The last case to consider is one in which an unvalued aspectual feature on Asp co-occurs with an aspectually feature-less V. As schematized in (63), I propose that what happens in such situations is that A on Asp gets a 'default' value of NEUT, instantiating 'neutral' aspect in the sense of Smith 1991.[12]

(61) Asp[iA:_] . . . **V-guo**[uA:EXP] → Asp[iA:EXP] . . . **V-guo**[~~uA:EXP~~]

(62) a. *Asp[iA:PROG] **zai** . . . **V-guo**[uA:EXP]

b. Asp[iA:PROG] **zai** . . . **V**

(63) Asp[iA:_] . . . **V** → Asp[iA:NEUT] . . . **V**

(61)–(63) accurately predict the syntax of aspect placement in monoclausal configurations, corresponding to sentences like (64)–(66) respectively.

(64) zhangsan chi-**guo** yi-ge pingguo.
Zhangsan eat-EXP one-CL apple
'Zhangsan has eaten an apple.'

[12] An alternative approach that does not resort to default feature valuation would be to posit a silent Asp that comes with an interpretable valued A feature NEUT or a 'covertly suffixed' verb form V-∅ that comes with an uninterpretable valued A feature NEUT. The cost of such an alternative, though, is to give up on the correlation that otherwise obtains between whether an aspectual feature is valued when it enters the derivation and whether it corresponds to overt phonological material.

(65) zhangsan **zai** chi(***-guo**) yi-ge pingguo.
Zhangsan PROG eat-EXP one-CL apple
'Zhangsan is eating an apple.'

(66) zhangsan chi yi-ge pingguo.
Zhangsan eat one-CL apple
'Zhangsan ate/is eating an apple.'

5.3 Aspect Placement in Biclausal Configurations

Turning to biclausal configurations, the contrast that needs to be explained is the one schematized in (67)–(68): when a verb embeds a (controlled) *v*P complement, matrix Asp[iA:_] can probe the matrix verb if that verb has an A value (67a) or the embedded verb if that verb has an A value (67b), but when a verb embeds a (non-controlled) CP complement, matrix Asp[iA:_] may probe only the matrix V (68a) and not the embedded V, even if that V has an A value (68b).

(67) a. Asp[iA:_] [$_{vP}$ . . . **V-guo**[uA:EXP] . . . [$_{vP}$ PRO . . . V . . .]]

b. Asp[iA:_] [$_{vP}$ . . . V . . . [$_{vP}$ PRO . . . **V-guo**[uA:EXP] . . .]]

(68) a. Asp[iA:_] [$_{vP}$ . . . **V-guo**[uA:EXP] . . . [$_{CP}$ . . . V . . .]]

b. *Asp[iA:_] [$_{vP}$ . . . V . . . [$_{CP}$ . . . **V-guo**[uA:EXP] . . .]]

I propose to explain the ungrammaticality of (68b) by appealing to the Phase Impenetrability Condition (Chomsky 2001): Agree is phase-bound (*contra* Bošković 2007 but following Wurmbrand 2012a), and (non-controlled) CPs differ from (controlled) *v*Ps in that only the former constitute phases. Consequently, an Agree relation can be established in (67b) but not in (68b).

This approach crucially relies on the idea that in (67)–(68), the CPs are phases but the *v*Ps are not, and so the approach is compatible with any theory of phases that has this as a conse-

quence. Here, I just briefly sketch one such theory. Wurmbrand (2011), building on earlier work by Bobaljik and Wurmbrand (2005), proposes a view of phasehood with two important properties. First, phasehood is 'dynamic' in the sense that whether a category counts as a phase depends on the syntactic context it appear in (a feature reminiscent of Chomsky's (1986) *Barriers* model). In particular, Wurmbrand proposes that only the highest projection of an extended verbal projection constitutes a phase; consequently, the complement to a verb constitutes a phase regardless of the category or 'size' of that complement, but that same category would not constitute a phase in a context where additional material in the extended verbal projection projects over it. Second, unvalued features void phasehood. The first property has as a consequence that the matrix *v*Ps in (67)–(68) are not phases, since in each case (at least) AspP projects over them. The second property has as a consequence that the controlled complement *v*Ps in (67)–(68) — irrespective of their *v*P categorial status — do not constitute phases, since, as Wurmbrand (2011) suggests, PRO "can be analyzed as involving unvalued *interpretable* features" (p. 69), thereby voiding phasehood.[13] The complement CPs in (67)–(68), by contrast, constitute phases, since they are complements of verbs and do not contain any unvalued interpretable features.

Finally, consider what happens when both verbs in a control structure enter the derivation suffixed. As discussed in section 2.4 above, some speakers judge sentences like (69) acceptable or marginally acceptable.

(69) %zhangsan quan-**guo** lisi [jie-**guo** yan].
Zhangsan urge-EXP Lisi stop-EXP smoke
Intended: 'Zhangsan urged Lisi to quit smoking.'

I propose that speakers who reject (69) do so because in their grammars, Asp does not have the feature [+multiple] in the sense of Hiraiwa 2000, thereby disallowing a one-to-many probe-goal relation and giving rise to ungrammaticality as in (70) due to the uninterpretable feature on the

[13] Given the appeal to unvalued features, this approach depends on the view that the controlled subject is PRO rather than A-trace — a view that will ultimately need to be reconciled with the (partial) copy control data in section 4 above. Furthermore, given that PRO sits in [Spec,*v*P], it must be the case that unvalued features void phasehood even when those features are found in the phase edge.

lower V that persists throughout the derivation. Speakers who accept this sentence, on the other hand, have grammars in which Asp does have the feature [+multiple], hence giving rise to grammatical Agree relations like in (71) whereby the matrix aspectual probe simultaneously enters into an Agree relation with two goals.

(70) *Asp[iA:__] [$_{vP}$ . . . **V-guo**[uA:EXP] . . . [$_{vP}$ PRO . . . **V-guo**[uA:EXP] . . .]]

(71) Asp[iA:__] [$_{vP}$ . . . **V-guo**[uA:EXP] . . . [$_{vP}$ PRO . . . **V-guo**[uA:EXP] . . .]]

6. Refinements and Elaborations

6.1 Dispelling an Argument against the Matrix Analysis of Aspect-under-control

I am aware of two arguments in previous literature against the matrix analysis of Mandarin aspect-under-control structures, both due to Xu (1985–1986). The first argument (also discussed by Li (1985); Huang (1994, 1995); Hu et al. (2001)) has to do with the availability of control structures in which both the matrix verb and the embedded verb occur with *-guo*, like in (72). If the aspect marker in the controlled complement were associated with the matrix level, these authors reason, then there should be no position available for the aspect marker that occurs on the matrix verb.

(72) dajie jiao-**guo** xiaoming tan-**guo** gangqin.
elder.sister teach-EXP Xiaoming play-EXP piano
'Elder sister taught Xiaoming to play piano.' (Huang 1994:29)

But as discussed above, not all Mandarin speakers seem to accept these kinds of configurations, and even for those who do, they can be analyzed as involving an instance of Multiple Agree between a single matrix aspectual projection and two verbs with uninterpretable aspectual features. Consequently, data like (72) cannot be taken as evidence against a uniform matrix analysis of aspect-under-control structures.

The other argument has to do with an alleged interpretational contrast between matrix and embedded aspect placement in Mandarin control structures. According to Xu (see also discussion by Hu et al. (2001)), matrix aspect placement in (73a) allows for the indicated parenthetical follow-up whereas embedded aspect placement in (73b) yields a contradiction with the parenthetical follow-up, suggesting that the placement of the aspect marker has consequences for whether the event associated with the embedded clause is taken to be realized or not. Xu is not explicit about why this is an argument against the matrix analysis of aspect-under-control, but a plausible line of argumentation would be that if the aspect marker in (73b) were associated with a matrix aspectual projection, then the prediction would be that the sentence is interpretationally identical to one in which the aspect marker appears overtly at the matrix level. But this prediction does not bear out, given the contrast in the availability of the parenthetical follow-up. Therefore, the aspect marker in (73b) must not have a matrix source, and therefore, it must be an instance of embedded aspect.

(73) a. wo qing-**guo** ta [chi fan], (**keshi ta mei lai**).
1SG invite-EXP 3SG eat meal but 3SG NEG.PRF come
'I invited him to eat, (but he did not come).'

b. wo qing ta [chi-**guo** fan], (# **keshi ta mei lai**).
1SG invite 3SG eat-EXP meal but 3SG NEG.PRF come
'I invited him to eat, (# but he did not come).' (Xu 1985–1986:349)

Two comments are in order on the status of this argument. First, although an interpretational contrast between 'matrix' and 'embedded' aspect placement is *a priori* unexpected under the matrix analysis of aspect-under-control, it is not clear that an embedded analysis of the aspect marker in (73b) fares any better. There is no reason to think that an aspect marker in the complement of an intensional predicate should entail or presuppose the propositional content of the complement. (That a control verb like *qing* 'invite' is intensional is confirmed by (73a): under at least some conditions, it can combine with propositional complements whose content can be false in the actual world.) This is illustrated in (74) for the non-control predicate *ting-shuo* 'hear-say'; the use of *-guo* in the verb's complement is uncontroversially an embedded aspectual projection, and it is

felicitous to follow the sentence up with a denial of the content associated with the complement clause. On the embedded analysis of aspect-under-control, the contrast between (73b) and (74) is a mystery.

(74) zhangsan ting-shuo [lisi chi-**guo** liulian], keshi shishisang lisi conglai meiyou chi-guo liulian.
Zhangsan hear-say Lisi eat-EXP durian but in.fact Lisi always NEG eat-EXP durian
'Zhangsan heard that Lisi has eaten durian, but in fact Lisi has never eaten durian.'

The second thing to point out is that not all speakers share the judgment in (73b). Li (1985) reports the similar example (75a) as acceptable; in later work, Li (1990) also reports similar examples involving other control predicates acceptable as well (75b–c).

(75) a. wo qing ta chi-**guo** fan, keshi ta bu yuanyi lai.
I invite him eat-EXP food but he NEG willing come
'I have invited him to eat but he was not willing to come.' (Li 1985:141)

b. wo quan ta jie-**guo** yan, keshi ta bu ken jie.
I urge him stop-EXP smoke but he NEG will stop
'I urged him to quit smoking but he will not quit.' (Li 1990:19)

c. wo bi ta chi-**guo** yao, keshi ta bu ken chi.
I force him eat-EXP medicine but he NEG will eat
'I tried to force him to take medicine but he will not' (Li 1990:19)

Taking all of these facts at face value, I tentatively conclude that all Mandarin speakers accept the follow-up in (76a) but that there is dialectal or perhaps idiolectal variation in the acceptability of the follow-up in (76b).

(76) a. wo qing-**guo** ta [chi fan], (**keshi ta mei lai**).
1SG invite-EXP 3SG eat meal but 3SG NEG.PRF come
'I invited him to eat, (but he did not come).'

b. wo qing ta [chi-**guo** fan], (% **keshi ta mei lai**).
1SG invite 3SG eat-EXP meal but 3SG NEG.PRF come
'I invited him to eat, (but he did not come).'

To explain this variation, I would like to suggest that for those speakers who reject the follow-up in (76b), *qing* is ambiguous between a lexical verb and a grammaticalized functional and causative-like morpheme. Given that aspectual suffixes in Mandarin require a verb and not a functional morpheme as a host, the syntax in (76a) disambiguates in favor of the lexical meaning. The syntax in (76b) should preserve the ambiguity, but by pragmatic reasoning, the availability of the structure in (76a) whereby *qing* has an unambiguous lexical status causes sentences like (76b) to be parsed with a strong preference for the functional meaning.

Why should the acceptability of the parenthetical follow-up covary with the lexical/functional distinction? I suggest that one of the consequences of having a functional status is semantic bleaching, and in particular, in the case of a verb that has undergone grammaticalization, failure to introduce an event description. If *qing* in (76b) does not introduce its own event description, then we now have all the pieces in place to correctly predict the unacceptability of the follow-up, in a way that *relies* on the matrix analysis of aspect-under-control. In particular, (76b) is reminiscent of Italian data like (77), discussed by Hacquard (2008).

(77) Gianni **ha voluto** parlare a Maria, (# **ma non lo ha fatto**).
Gianni has wanted talk to Maria but NEG it has done
'Gianni wanted to talk to Maria, #but he didn't do it.' (Hacquard 2008:19)

Hacquard argues that the reason for the unacceptability of the follow-up in (77) is that in Italian, *volere* 'want' is a restructuring predicate and consequently does not introduce its own event description. The result is transparency between the matrix aspect and the event description in the complement clause: the matrix-level perfective aspect marker binds the event variable associated with the complement clause, as schematized in (78a), and, together with some other reasonable assumptions, this gives rise to an 'actuality entailment' in the sense of Bhatt 1999; Hacquard 2006: i.e., the event associated with the complement clause is asserted to exist in the actual world. When a matrix verb does introduce its own event description, by contrast, matrix aspect binds an event variable associated with the matrix verb, as in (78b), and no actuality entailment obtains. (See

Hacquard 2008 for the technical details; here I just provide an informal sketch.)

(78) a. $[_{AspP}\ [_{Asp}\ \text{PRF}_1]\ [_{FP}\ \text{F}\ [_{XP}\ \ldots \text{V}(e_1)\ \ldots]]]$

b. $[_{AspP}\ [_{Asp}\ \text{PRF}_1]\ [_{VP}\ \text{V}(e_1)\ [_{XP}\ \ldots \emptyset_{Asp2}\ \text{V}(e_2)\ldots]]]$

In summary, if Hacquard's approach to actuality entailments is on the right track, then the proper analysis of the Mandarin data actually *depends* on the idea that the embedded aspect marker is interpreted at the matrix level. On an approach in which the aspect marker is interpreted locally to the complement clause, it is not clear how the facts would be explained. Consequently, I conclude that there is no argument here against the matrix analysis of aspect-under-control; if anything, this is another argument in favor of the matrix analysis.

6.2 Embedded Modals

Aside from aspect markers, the distribution of modals has also been implicated in the debate over the existence of a finite/nonfinite distinction in Mandarin. Huang (1982, 1989) claims that one of the properties of Mandarin nonfinite clauses is that they disallow modals. In a related vein, Li (1985, 1990) argues that Mandarin modals *hui* and *yao* have become markers of future tense and that these are consequently disallowed in nonfinite clauses. Hu et al. (2001) (see also Huang 1994), however, challenge this claim on the basis of the observation that although *hui* is disallowed in controlled complements (79a), *yao* — which, like *hui*, can be used to encode futurity in matrix contexts (80)— is allowed in controlled complements (79b).

(79) a. *wo quan ta [**hui** lai].
I urge he HUI come

b. wo quan ta [**yao** lai].
I urge he YAO come
'I urged him to come.' (Hu et al. 2001:1123, cf. Li 1990:22)

(80) a. zhangsan **hui** lai.
Zhangsan HUI come
'It is possible that Zhangsan will come.'

b. zhangsan **yao** lai.
Zhangsan YAO come
'Zhangsan will come.' (Hu et al. 2001:1124)

To explain the contrast in acceptability between (79a) and (79b), Hu et al. (2001) draw on earlier work by Xu (1994) to suggest that the crucial difference between *hui* and *yao* is that the former expresses "an objective futurity or possibility" whereas the latter expresses "a subjective futurity and possibility" (p. 1124). They go on to suggest that this difference interacts with the semantics of the embedding predicate to produce a semantic incompatibility in (79a).

As an alternative analysis, I would like to suggest that the reason *yao* is acceptable in controlled complements is because it is an overt realization of *woll*, i.e., the future modal argued by Abusch (1985, 1988) and many others to be at the basis of English *will* and *would*. Wurmbrand (2012b) argues that English future-oriented infinitival complements are projections of *woll*P headed by a silent *woll*, a proposal that receives crosslinguistic support from Gitxsan (Tsimshianic family, spoken in the northern part of British Columbia, Canada), which according to Jóhannsdóttir and Matthewson (2007); Matthewson (2011) has a morpheme *dim* whose distribution encompasses matrix absolute future contexts (81a) (cf. English *will*), matrix past-shifted future contexts (81b) (cf. English *would*), as well as relative future contexts in complement clauses (81c).

(81) a. **dim** yookwt James
FUT eat James
'James will eat.' (Matthewson 2011)

b. wilaayis noxs Bob **dim** wil sim'oogitt hla da sgyatt
know mother Bob FUT be chief when born
'When Bob was born, his mother knew he would become chief.' (Matthewson 2011)

c. Sim hasak'-y **dim** algali ahl wiilitsxw
Really want-1SG FUT watch PRT film
'I wanted to watch the film.' (Jóhannsdóttir and Matthewson 2007:7)

If this approach is on the right track, Mandarin is a language that optionally realizes *woll* in controlled complements as the morpheme *yao*, in contrast to its obligatorily covert realization in En-

glish future-oriented nonfinite complements and its obligatorily overt realization in Gitxsan. An implication of this proposal is that Mandarin future-oriented controlled complements project a bit more structure than just *v*P. But as long as *woll* projects just over *v*P, this is an innocuous revision: we still correctly predict that there is not enough structure to support a Case-marked subject, an inner topic, or an aspectual projection.

6.3 Other Putative Finite/Nonfinite Contrasts

One of the central claims in this paper is that all of those contrasts which in previous literature have been taken as evidence for a finite/nonfinite contrast can be reinterpreted as reflecting a contrast in complementation size (CP vs. *v*P). Hu et al. (2001) argue that all alleged finite/nonfinite contrasts dissolve upon further scrutiny, but above I have attempted to resubstantiate two such contrasts, namely, the distinction between controlled and non-controlled subjects and the correlated availability of an embedded aspectual projection. In addition, drawing on earlier work by Fu (1994); Lu (1994); Ernst and Wang (1995); Paul (2005a), I have shown that both of these contrasts also correlate with the availability of inner topicalization. In other potentially relevant work, Ting (2010), drawing on earlier work by Chiu (1995); Ting (2003), identifies a split between controlled and non-controlled complements in the behavior of the preverbal relative clause clitic *suo*. Although I will not pursue this matter here, I hypothesize that this split can also be modeled as reflecting a split in complementation size.

In what follows, I review a recent argument by J. Lin (2011) for the existence of a finite/nonfinite distinction in Mandarin and show that in this case too, the facts can be understood as reflecting a split in complementation size. The empirical basis for Lin's argument is the minimal pair in (82). Lin takes the interpretations of these sentences to reflect a split between the epistemic modal *keneng* 'may' and the root modal *neng* 'can'/'be able' in how they scope with respect to clause-final *le* (clause-final *le* being the "Currently Relevant State" morpheme briefly discussed in section 4 above). In particular, Lin claims, *le* obligatorily scopes *below* the epistemic modal but *above* the root modal. Lin takes these scope facts as reflecting a syntactic difference in the height of attach-

ment of *le*: it attaches to the complement clause in (82a) but to the matrix clause in (82b).

(82) a. zhangsan keneng qu taibei le.
Zhangsan may go Taipei LE
'Zhangsan may have gone to Taipei.'

NOT: 'It has become possible that Zhangsan goes to Taipei.'

b. zhangsan neng qu taibei le.
Zhangsan be.able go Taipei LE
'It has become the case that Zhangsan is able to go to Taipei.'

NOT: 'Zhangsan is able to have gone to Taipei.' (Lin 2011:52–53)

To explain these facts, Lin argues that *keneng* and *neng* are both lexical verbs that take TP complements, but differ in that *keneng* takes a finite complement whereas *neng* takes a nonfinite complement. Lin furthermore takes clause-final *-le* to head an aspectual projection below TP, and argues that it is restricted to occurring in finite complements because it needs access to a reference time, which only finite T can provide. These proposals derive the obligatory high scope of *le* with respect to *neng* in (82b). As for the obligatory narrow scope of *le* with respect to *keneng* in (82a), Lin does not explain it, but relates it to a broader generalization about Mandarin that epistemic modals are incompatible with clause-final *le*, as evidenced by the unacceptability of *le* with main predicate uses of *keneng* as in (83).

(83) *na-jian shi keneg le.
that-CL matter possible LE
Intended: 'That thing has become possible.' (Lin 2011:56)

As independent support for the finite/nonfinite split in complements to *keneng* and *neng*, Lin shows that the two modals differ in the availability of inner topicalization (84) and progressive aspect marking (85), which are possible in complements to *keneng* but not in complements to *neng*.

(84) a. zhangsan keneng wancan zhunbei-le.
Zhangsan may dinner prepare-PRF.

'The dinner, Zhangsan may have prepared.'

b. *zhangsan neng wancan zhunbei.
Zhangsan be.able dinner prepare
Intended: 'The dinner, Zhangsan is able to prepare.' (Lin 2011:60)

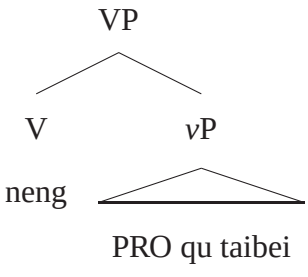
(85) a. zhangsan keneng [**zai** chi hanbao].
Zhangsan may PROG eat burger
'Zhangsan may be eating a burger.'

b. *zhangsan neng [**zai** chi hanbao].
Zhangsan be.able PROG eat burger
Intended: 'Zhangsan is able to be eating a burger.' (Lin 2011:59)

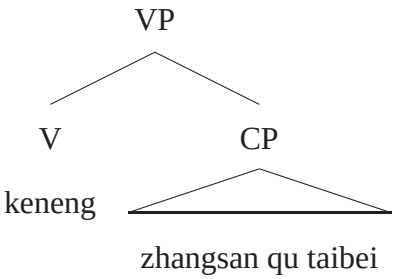
In light of the contrasts in (84)–(85)— which are precisely of the sort I have used to motivate a CP/*v*P distinction in complementation size — I would like to suggest that the asymmetric behavior of the two modals with respect to the scope of clause-final *le* can be explained without appealing to a finite/nonfinite split but instead to a CP/*v*P complementation split. In particular, I suggest that *neng* takes a *v*P complement, as in (86a): this proposal derives the complement's incompatibility with inner topicalization and progressive aspect, and also explains why clause-final *le* must attach at the matrix level: regardless of whether we analyze clause-final *le* as a projection of C (Paul to appear) or as a projection of Asp (Shen 2004; Lin 2011), there is not enough structure in *v*P to support it. By contrast, I follow Lin and Tang (1995) in taking *keneng* to combine with a CP complement, thereby explaining the complement's compatibility with inner topicalization, progressive aspect, and clause-final *le*. I furthermore follow Lin in taking *neng* to be a control predicate and *keneng* to be a raising predicate. Because *keneng* does not theta-mark a subject, the subject of the complement clause (optionally) raises out of CP into the matrix subject position. See Lin and Tang (1995) for the view that CP complements to modals in Mandarin must be transparent to raising — a phenomenon reminiscent of "hyper-raising" in the sense of Ura (1994).[14]

[14]Another option would be to follow Shen (2004); Lin (2011) in taking clause-final *-le* to project in Asp, and to say that *keneng* combines with AspP. Then we would not need to allow raising out of a CP complement. See Paul to appear, however, for arguments for treating clause-final *le* as an instance of C.

(86) a.



b.



As far as I can tell, the CP/*v*P split fares just as well as Lin's finite/nonfinite split in explaining the behavior of clause-final *le*.

7. Conclusion

This paper has argued for one major empirical claim and two theoretical ones. The empirical claim is that aspect markers in Mandarin controlled complements — when grammatical at all — are instantiations of matrix aspect, following Cheng 1989; Huang 1989; Li 1990 but *contra* Xu 1985–1986; Huang 1994; Hu et al. 2001. The evidence for this claim is that such aspect markers interact with properties of the matrix clause in ways that would be mysterious on an embedded analysis but are immediately explained on a matrix analysis. On the theoretical side, I argued that this state of affairs follows inevitably from how the syntax of control interacts with the syntax of aspect placement. In particular, the first major theoretical claim is that in Mandarin, controlled complements are *v*Ps whereas non-controlled complements are CPs, a proposal which makes sense of the unavailability of (locally interpreted) aspect in controlled complements and which finds independent support in the lack of an Inner Topic position in controlled complements. The second major theoretical claim is that Mandarin (affixal) aspect markers like *-guo* begin their derivational life as verbal affixes that come with a valued but uninterpretable aspectual feature. They must enter into an Agree relation with an Asp head that has a valued but interpretable aspectual feature. As long as non-controlled CPs constitute phases but controlled *v*Ps do not, these two theoretical proposals conspire to allow matrix aspect to be realized affixally in controlled complements but not in non-controlled complements, thereby capturing the observed facts.

From these conclusions, two theoretical implications are warranted. The first is that we do

not need to appeal to a finite/nonfinite distinction in Mandarin Chinese to explain the observed contrasts between controlled and non-controlled complements; rather, all that is needed is a split in complementation size. The second is that, because *v*P does not have the structure to assign Case to its ([Spec,*v*P]) subject, the distribution of control in Mandarin is best accommodated in a Case-based approach to the distribution of control whereby PRO must appear in a non-Case position. Putting these two implications together, the lesson is that at least some of the crosslinguistic burden of explaining the distribution of control can be shifted away from contrasts in finiteness and related properties and onto other properties that interact with Case, viz., splits in complementation size: CPs bring with them enough structure to Case-mark a subject whereas *v*Ps do not. Given that finite/nonfinite contrasts are difficult to justify in Mandarin due to Mandarin's lack of overt verbal tense or agreement morphology, this is a welcome result, and I believe that it would be worth pursuing this line of analysis for other languages that lack overt markers of finiteness.

In closing, a few words are in order on why Mandarin controlled complements should have a 'truncated' *v*P-only structure. It bears noting at the outset that this state of affairs is crosslinguistically well attested in the form of 'restructuring' or 'clause union' effects found in many languages. For example, clitic climbing in Italian (Rizzi 1978; Cardinaletti and Shlonsky 2004; Cinque 2006) and long passivization in German (Wurmbrand 2001; Lee-Schoenfeld 2007) have been analyzed as involving complementation with less than a CP at one or more levels of representation. See also Cinque 2006:47, note 2 for references to similar 'transparency' effects in approximately 20 other languages and language families. There are many theoretical approaches to such effects on the market, but one approach which is particularly attractive in light of the present study of Mandarin is that espoused by Cinque (2006) because it has the property that restructuring predicates always take truncated complements regardless of whether transparency effects like clitic climbing obtain, which meshes well with the view taken here that control predicates in Mandarin always take *v*Ps. Cinque's approach also has the property that complements to restructuring predicates are (roughly speaking) *v*Ps. For Cinque, restructuring predicates instantiate functional heads in the inflectional layer of the clause — heads independently motivated in the crosslinguistically regular positioning

of semantically corresponding adverbs and inflectional affixes (Cinque 1999) — and their complements realize *v*Ps in what are monoclausal configurations. That being said, one of the consequences of Cinque's view is that restructuring predicates should be auxiliary-like in not assigning thematic roles, essentially behaving like raising predicates. Grano (2012) shows how to reconcile a 'raising' syntax with a 'control' semantics for subject-control restructuring predicates like *try* and *want* via the proposal that such predicates incorporate a silent variable which gets bound by the raised subject. But it is not clear how such an approach would extend to object-control predicates like Mandarin *quan* 'urge' and *qing* 'invite' which have played a central role in this paper and which appear to have a thematic dependency with not one but two DPs. An approach to restructuring along the lines of Wurmbrand 2001 does not face this challenge, since for Wurmbrand, lexical verbs with ordinary thematic properties can take truncated complements. But a Wurmbrand-style approach raises questions about why *v*P-complementation would be obligatory for Mandarin control predicates and about the deeper reasons that underlie complementation choice. Consequently, I leave it to future work to embed the results of this paper into a more comprehensive theory of complementation.

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