

On syntactic tense in Mandarin Chinese

Z. Nick Huang

University of Maryland, College Park

Whether Mandarin Chinese has tense has been the subject of much debate. In this paper, I offer novel observations on the distribution and syntactic properties on a less-studied future-marking particle, *jiang*. I argue that these properties of *jiang* show that Mandarin Chinese has syntactic tense: *jiang* is syntactically a future tense morpheme, and not a modal auxiliary, nor a time adverb or an irrealis marker. Mandarin Chinese clauses are thus minimally T(ense)Ps, like clauses in languages with overt tense morphology. In addition, I show that empirical evidence supports two predictions consistent with this analysis: first, *jiang* is incompatible with bare nominal predicates, as expected if tense-marking requires an overt verbal host for syntactic well-formedness (as argued by Lin (2010)); second, *jiang* is infelicitous in clausal complements of control verbs, suggesting that Chinese has a finite/non-finite distinction (*pace* Hu, Pan, and Xu (2001)). Lastly, I discuss how this syntactic proposal might relate to existing semantic analyses of *jiang* and accounts of temporal interpretation in Mandarin Chinese.

0. Introduction¹

Although Mandarin Chinese lacks tense morphology, it is less clear whether it lacks tense altogether: it is conceivable, for example, that Mandarin Chinese has unpronounced tense morphemes. Because of the absence of tense morphology, arguments for and against a tensed analysis of Mandarin have been built on indirect evidence. For example, proponents of a tensed analysis (Huang (1982), Li (1985), C.-C. J. Tang (1990), T.-C. Tang (2000), Sybesma (2007), T.-H. J. Lin (2012), among others) have cited evidence from control constructions, the distribution of modal auxiliaries and aspect markers, and the distribution of adverbs. Likewise, researchers proposing a tenseless analysis (e.g. Hu, Pan, and Xu (2001), Smith and Erbaugh (2005), J.-W. Lin (2006; 2010)) have used distributional evidence and typological and theoretical arguments to support their claim.

In this paper, I offer new observations from the distribution and syntactic properties of the future-marking particle *jiang* that support the analysis of Mandarin as a language with syntactic tense. I propose that Mandarin makes a future vs. non-future distinction,

¹ Special thanks to the audience and organizers of NACCL-27, and Audrey Li and Haiyong Liu for their comments. I am also grateful for the help and feedback from Valentine Hacquard, Howard Lasnik, Colin Phillips, Omer Preminger, Alexander Williams, and other members of the UMD S-Lab community. All errors are mine alone.

with *jiang* as a future tense morpheme alternating with an unpronounced non-future morpheme. I will further argue that this analysis of Mandarin Chinese supports a theory of clause structure in which clauses are projections of a syntactic tense morpheme.

Section 1 sets out a definition of tense, and reviews existing analyses of *jiang*. The distributional evidence in favor of a tense analysis is described in Section 2, and a proposal about clause structure is presented in Section 3. I then discuss two predictions in Section 4: namely, that *jiang* cannot appear with bare nominal predicates, because tense morphemes require an overt verbal host (as argued by Lin (2010)); and that *jiang* is infelicitous in clausal complements of control verbs, supporting the claim that there is a finite/non-finite distinction in Chinese (*pace* Hu, Pan, and Xu (2001)). Section 5 discusses several issues regarding a tense analysis of *jiang*, and Section 6 concludes.

1. Preliminaries

1.1. Syntactic vs. semantic tense

The term “tense” is often used to refer to two related but distinct concepts: syntactic tense and semantic tense. I take that syntactic tense refers to a particular syntactic category, which largely, but not perfectly, corresponds to semantic tense, which refers to a semantic relation between the time of an event or a reference time relative to the time of speech (after e.g. Reichenbach 1947, Comrie 1985, Klein 1994). For example, in English, the past tense morpheme can be used in what appears to be non-past contexts (1a-b). Likewise, the present tense morpheme is not incompatible with describing events that have happened in the past (1c-d). These examples show that the presence of a past (or present) tense morpheme in a sentence alone does not entail that the proposition is to be given a past (or present) interpretation.

- (1) a. If Mary was the president, she would abolish the death penalty. But unfortunately, she isn't. (Past tense morpheme in counterfactuals, although standard varieties of English prefer *were*)
- b. I wanted to ask you about your car. (Past tense morpheme; but the desire to ask exists at the moment of speech)
- c. John has left. (Present tense morpheme; but John left before speech time)
- d. In *De Interpretatione*, Aristotle carefully constructs an argument for the law of the excluded middle. (Present tense; but Aristotle, being dead, is not carefully constructing any argument at the time of speech)

The topic of this paper is whether *jiang* has properties similar to what we would expect of a syntactic tense morpheme. I will not discuss the semantic properties of *jiang*; the reader is directed to Wu and Kuo 2010 for a discussion of the semantics of *jiang*.

1.2. Existing analyses of *jiang*

As observed by Wu and Kuo (2010), the literature on Mandarin Chinese tense and/or modality has mostly been silent about the syntax and semantics of *jiang*. Existing discussions have tended to be centered on the other future-marking particles *hui* and *yao*. For this paper, I will assume *hui* and *yao* to be modal auxiliaries, following Smith and Erbaugh 2005, Lin 2006, Ren 2008.

To the best of my knowledge, Wu and Kuo 2010 is the first published detailed discussion of *jiang*, focusing on its semantics; *jiang*, *hui*, and *yao* are analyzed as modals denoting future time, each with a different conversational background. The only other recent publication about *jiang* that I have been able to locate was a comment in Smith and Erbaugh 2005:731-732, where it was claimed that *jiang* is a “modal verb” (i.e. an auxiliary like *hui* and *yao*), used for “scheduled, planned situations.” In Section 2, we see evidence against such a claim.

It is perhaps not surprising that *jiang* has received less attention than *hui* and *yao*; *jiang* is typically encountered in formal registers, e.g. news broadcasts, and less often in casual speech. Within corpora, *jiang* occurs less frequently than *hui* and *yao* do; in the Academia Sinica treebank (61,087 trees), there were 825 instances of potential, “epistemic,” and “deontic”² *hui*, 942 instances of “deontic” *yao*, and only 559 instances of *jiang*. However, it should also be clear from these figures that *jiang* is used frequently and productively, and deserves closer study. The fact that *jiang* is used productively also means that native speakers have reliable intuitions about how it is used. In the following section, I discuss several facts about the distribution of *jiang*, which are then used to motivate an analysis of *jiang* as syntactic tense.

2. Four reasons to analyze *jiang* as syntactic tense

2.1. *Jiang* appears in a syntactically high position and marks future time

The first property we observe of *jiang* is that it always precedes an auxiliary like *hui* and *yao* (2a), but not the other way round (2b). Since phrases in Mandarin Chinese are usually head-initial, I assume that linear precedence reflects structural height. That *jiang* must precede auxiliaries suggests that *jiang* is structurally higher than auxiliaries.

- (2) a. Lisi *jiang hui qu* Beijing.
 L JIANG HUI go Beijing³
 Lisi will go to Beijing.

² “Epistemic” and “deontic” as defined by the Academia Sinica. Figures are as of June 2015.

³ Abbreviations used in glosses: CL = classifier; EXP = experiential aspect; IMP = imperative; MOD = modifier (for *de*); NEG = negation; PERF = perfective aspect; PL = plural suffix; POL = polite register; PRT = sentence-final particle. *Jiang*, *hui*, and *yao* are not glossed.

- b.* Lisi hui jiang qu Beijing
 L HUI JIANG go Beijing
 Lisi will go to Beijing.

Second, *jiang* is compatible with a large range of future time (3). Note that (3b) contradicts Smith and Erbaugh's claim that *jiang* is used for scheduled events: while predictable, the sun becoming a red giant is typically not perceived as a scheduled event.

- (3) a. Zhadan yi fenzhong hou jiang baozha.
 bomb one minute after JIANG explode
 The bomb will explode in a minute.
 b. Taiyang wushi-yi nian hou jiang chengwei hongjuxing.
 sun five billion year after JIANG become red giant
 The sun will become a red giant after five billion years.

In addition to a tense analysis of *jiang*, there are several alternative hypotheses about *jiang*'s syntactic category that are consistent with the above set of facts, namely: *jiang* is an auxiliary like *hui* and *yao*, or a time adverb, or an irrealis mood. In the following sections, I offer distributional evidence against these alternative hypotheses.

2.2. *Jiang* is not an auxiliary

In this section, we consider and rule out an analysis of *jiang* as an auxiliary. *Jiang* is syntactically different from future-marking auxiliaries *hui* and *yao*, *contra* Smith and Erbaugh 2005. Here, I use Ren's criteria for distinguishing auxiliaries from verbs and adverbs (Ren 2008:50), which were in turn adopted from diagnostics previously proposed by Chao (1968), Li and Thompson (1981), and R. Li (2004). Ren does not use verb phrase (VP) ellipsis-licensing (4f) as a diagnostic;⁴ it is included here because future-marking *hui* and *yao* license VP ellipsis (*pace* Li and Thompson with respect to *yao*).

- | (4) | <u>Diagnostics for auxiliaries (after Ren 2008)</u> | <u>Is it true for <i>jiang</i>?</u> |
|-----|---|-------------------------------------|
| a. | Occur only with a main verb | Yes |
| b. | Cannot take a direct object | Yes |
| c. | Cannot take aspect markers | Yes |
| d. | Can form A-not-A questions | No |
| e. | Can be negated with <i>bu</i> "not" | No |
| f. | License VP ellipsis | No |

⁴ Ren does not use ellipsis-licensing as a diagnostic. Instead she considers and rules out a related diagnostic: whether a morpheme can appear alone as an answer (p. 47). This includes instances of VP ellipsis and non-ellipsis; e.g. to respond affirmatively to a yes-no question, it is possible to repeat only the main verb of the question.

First, observe that *jiang* occurs with a verbal predicate (5). In this respect it is similar to *hui* and *yao* (except in VP ellipsis contexts). This diagnostic shows that *jiang* (as well as *hui* and *yao*) is not an intransitive verb.

- (5) Lisi {jiang / hui / yao} *(qu Beijing).
 L JIANG HUI YAO go Beijing
 Lisi will go to Beijing.

Second, *jiang* does not take a direct object, nor do *hui* and *yao* (6). This diagnostic shows that *jiang*, like *hui* and *yao*, is not a transitive verb.

- (6) *Lisi {jiang / hui / yao} Beijing.
 L JIANG HUI YAO Beijing
 No meaningful translation available

Third, *jiang* cannot be marked with an aspect marker (7a), unlike some control verbs (7b). Similarly, *hui* and *yao* cannot be marked with an aspect marker (7a).

- (7) a.* Lisi {jiang-le / hui-le / yao-le} qu Beijing.
 L JIANG-PERF HUI-PERF YAO-PERF go Beijing
 Lisi would be going to Beijing.
 b. Wo qing-guo ta chi fan.
 I invite-EXP her eat meal
 I had invited her to a meal.

The three diagnostics above show that *jiang*, *hui*, and *yao* pattern alike, and are therefore consistent with the hypothesis that *jiang* is an auxiliary. However, the following diagnostics show that *jiang* is syntactically distinct from *hui*, *yao*, and other auxiliaries.

First, auxiliaries can form A-not-A questions (8a-b). In contrast, *jiang* does not (8c). (Li and Thompson (1981, ch. 5) and Ren (2008) also note that future-marking *yao* does not participate in the A-not-A operation, and therefore is an exception for this diagnostic. *Yao* can appear in an A-not-A question, but only with the “to want” reading.)

- (8) a. Lisi hui-bu-hui changge?
 L HUI-NEG-HUI sing
 Will Lisi sing?
 b. Lisi neng-bu-neng changge?
 L can-NEG-can sing
 Can Lisi sing?

- c.* Lisi jiang-bu-jiang changge?
 L JIANG-NEG-JIANG sing
 Will Lisi sing?

Second, and related to the A-not-A diagnostic, auxiliaries can be immediately preceded by *bu* “not” to produce a reading where negation scopes over the auxiliary (9a). However, this property does not extend to *jiang* (9b).⁵

- (9) a. Lisi mingtian bu hui changge.
 L tomorrow NEG HUI sing
 Lisi won’t sing tomorrow.
 b.* Lisi mingtian bu jiang changge.
 L tomorrow NEG JIANG sing
 Lisi won’t sing tomorrow.

Lastly, auxiliaries license VP ellipsis (10a). In contrast, *jiang* does not (10b).

- (10) a. Lisi mingtian { hui / yao } qu Beijing, wo ye { hui / ?yao }.
 L tomorrow HUI YAO go Beijing I also HUI YAO
 Lisi will go to Beijing tomorrow; I will, too.
 b.* Lisi mingtian jiang qu Beijing, wo ye jiang.
 L tomorrow JIANG go Beijing I also JIANG
 Lisi will go to Beijing tomorrow; I will, too.

2.3. *Jiang* is not an adverb

A second hypothesis about the syntactic category of *jiang* is that it is a time adverb, with similar semantics and syntax as the time adverb *jianglai* “in the future.” Adverbs in general do not undergo the A-not-A operation nor license VP ellipsis, so an adverbial analysis would be consistent with the facts observed above.

Adverbs in Mandarin Chinese can be sorted into two classes depending on whether they must appear in a position following the subject or are also “movable” to the front of a sentence (Li and Thompson 1981). Time-related adverbs can be found in both classes. The generalization appears to be that adverbs that denote points in time, such as *jianglai* “in the future”, *mingtian* “tomorrow,” are movable adverbs, and so can appear sentence-initially. Non-movable adverbs include adverbs that encode some kind of presupposition or aspectual relation, like *hai* “still/yet,” *yijing* “already,” *zai* “again,” *you* “again” etc; these adverbs can only appear after the subject.

⁵ A property of *jiang* that might be related to this negation fact was observed by Wu and Kuo (2010): *jiang* cannot be modified by degree adverbs like (*bu*) *yiding* “(not) necessarily,” while *hui* and *yao* can be.

Since *jiang* denotes future time, it seems reasonable to hypothesize that it is a movable adverb like *mingnian* “next year.” However, as it turns out, *jiang* does not appear sentence-initially (11c).

- (11) a. *Mingnian* Lisi qu Beijing. (Movable adverb)
 next year L go Beijing
 Lisi goes to Beijing next year.
- b.* *Zai* Lisi qu Beijing. (Non-movable adverb)
 again L go Beijing
 Lisi goes to Beijing again.
- c.* *Jiang* Lisi qu Beijing.
 JIANG L go Beijing
 Lisi will go to Beijing.

(11c) shows that *jiang* behaves like a non-movable adverb in that it cannot appear before the subject position. However, unlike both non-movable adverbs (12a) and movable adverbs (12b), *jiang* cannot appear in imperatives (12c).

- (12) a. *Bie zai qu* Meiguo le. (Non-movable adverb)
 NEG.IMP again go America PRT
 Don’t go to America again.
- b. *Mingtian bie qu* Meiguo. (Movable adverb)
 tomorrow NEG.IMP go America
 Don’t go to America tomorrow.
- c.* *Bie jiang qu* Meiguo le.
 NEG.IMP JIANG go America PRT
 Don’t go to America (in the future).

There are several alternative explanations of (12) that would allow us to analyze *jiang* as a non-movable adverb.⁶ The first is a register mismatch: *jiang* tends to be used in formal settings, and imperatives like the ones in (12) might be too casual for the registers in which *jiang* is felicitously used. A second explanation is that *jiang* is a non-movable adverb with a unique requirement for an overt subject, whether in an embedded or non-embedded context, as the minimal pair in (13) shows. If *jiang* does require an overt subject, then the unacceptability of (12c) can be attributed to the fact that there is no such subject in (12c), and not because *jiang* is not a non-movable adverb.

⁶ I am grateful to Audrey Li for a discussion of these issues.

- (13) a. (Zhangsan shuo)(Lisi) ye qu Beijing. (Non-movable adverb)
 Z say L also go Beijing
 (Zhangsan said that) (Lisi) also goes to Beijing. (e.g. as an answer to the question
 “John goes to Beijing. Where is Lisi going?”)
- b.??Zhangsan shuo jiang qu Beijing.
 Z say JIANG go Beijing
 Zhangsan said that [Lisi] will go to Beijing. (e.g. as an answer to the question
 “John will go to Taipei. Where is Lisi going?”)
- c.??Jiang qu Beijing.
 JIANG go Beijing
 [Lisi] will go to Beijing. (as a response to the question in in (13b))

However, there are weaknesses with the “overt subject requirement” hypothesis. First, overt second person subjects can appear in imperatives; in (14) we ensure that the subjects cannot be parsed as vocatives, by explicitly including vocatives in the examples. The presence of the subject does not improve the acceptability of an imperative in which *jiang* appears (14b). Likewise, it is possible to construct more formal or polite imperatives with an overt subject (14c). However, despite the increased formality and the overt subject, (14c) is rendered unacceptable by the presence of *jiang*. Hence, it is also unlikely that (12c) is explained by a register mismatch between the imperative and *jiang*.

- (14) a. Lisi, ni bie zai qu Meiguo le. (Non-movable adverb)
 L you NEG.IMP again go America PRT
 Lisi, don't go to America again.
- b. Lisi, ni bie (*jiang) qu Meiguo le.
 L you NEG.IMP JIANG go America PRT
 Lisi, don't go to America (in the future).
- c. Zunjing-de kehu-men, ge-wei qing bu yao (*jiang) xiazai
 respect-MOD customer-PL every-CL.POL please NEG.IMP JIANG download
 zaoqian ji-chu de wenjian.
 earlier send-out MOD document
 Dear customers, [everyone] please do not download the document that was sent
 out earlier. (e.g. in an email warning recipients about a previous email that was
 sent out with an infected document)

Second, while (13) suggests that *jiang* must appear with an overt subject, there are acceptable naturally-occurring counter-examples, a few of which are presented in (15). In these examples, the position of the non-overt subject is indicated with an underscore. (15a) and (15b) show that there are contexts where *jiang* allows null subjects, while (15c) shows that a subject noun phrase can be relativized, resulting in a relative clause where the subject does not precede *jiang*. Together, (13)-(15) suggest that an overt subject is not a syntactic

requirement for *jiang*; it is at most a preference, perhaps due to reasons related to style or register. Having ruled out the register mismatch and overt subject requirement hypotheses, it seems unlikely that we can account for *jiang*'s properties by analyzing it as a non-movable adverb.

- (15) a. Yahu xuanbu _jiang guanbi Beijing quanqiu yanfa zhongxin.
 Yahoo! Inc. announce JIANG close Beijing global R&D center
 Yahoo! announced that it will close (its) Beijing global R&D center.⁷
- b. (Zhengfu) fayanren ... biaooshi, ... guoding jiari ruo yu zhouer huo
 government spokesman say public holiday if meet Tuesday or
 zhousi, _jiang yilu shishi tanxing fangjia, yi xingcheng si
 Thursday JIANG uniformly implement flexible holiday to form four
 tian lian jia ...
 day consecutive holiday
 The (government) spokesperson said, for public holidays falling on a Tuesday or Thursday, the government will implement (a system of) flexible holidays, so that there will be four consecutive days off.⁸
- c. Fenxishi yuji, [_i jiang yu zhousi chulu] de ... baogao; jiang
 analyst predict JIANG on Thursday be.released MOD report JIANG
 xianshi, 2014/15 (nian)... dadou kucun wei 3.7 yi pushier ...
 show 2014/15 year soybean stocks be 370 million bushel
 Analysts predict that the report that will be released on Thursday will show that soybean stocks are at 370 million bushels for 2014/15.⁹ ([...] = Relative clause)

2.4. *Jiang* is not irrealis mood

A third hypothesis is that *jiang* is an irrealis mood marker, used for describing events that have not happened. In this analysis, *jiang* alternates with a phonologically-null realis morpheme that is used for events that have happened or are ongoing. Because the future by definition has not happened, an irrealis marker like *jiang* can be used to describe scenarios set in the future. At the same time, this hypothesis also predicts that *jiang* can appear in non-future irrealis contexts. To test this prediction, diagnostics for irrealis mood proposed by Matthewson (2006:683-686) are adopted; wherever feasible, example sentences will be explicitly set in the past to force a non-future irrealis reading. The diagnostics show that *jiang* is not an irrealis mood marker.

- | | | |
|------|---|-------------------------------------|
| (16) | <u>Diagnostics for irrealis (after Matthewson 2006)</u> | <u>Is it true for <i>jiang</i>?</u> |
| | a. Can appear in negation | No |
| | b. Can appear in yes-no questions | No |

⁷ <http://money.163.com/15/0318/11/AL04PF3B00253B0H.html>, published Mar. 2015.

⁸ <http://news.ltn.com.tw/news/life/breakingnews/1136660>, published Oct. 2014.

⁹ http://www.51fut.com/news/news_cbot/201504/63692.html, published Apr. 2015.

- | | |
|------------------------------|----|
| c. Can occur in conditionals | No |
| d. Can occur in imperatives | No |

First, complementing the earlier observation that negation cannot immediately precede *jiang* in a sentence about the future, (17) shows that negation cannot co-occur with *jiang* in sentences about the past.

- (17) a. Lisi yiqian (*jiang) bu (*jiang) xihuan chi shucai.
 L in the past JIANG NEG JIANG like eat vegetable
 Lisi didn't like to eat vegetables in the past.
- b. Lisi zuotian (*jiang) mei (*jiang) qu paobu.
 L yesterday JIANG NEG JIANG go run
 Lisi didn't go / hadn't gone running yesterday.

Second, *jiang* cannot appear in yes-no questions about past situations.

- (18) a. Lisi yiqian (*jiang) xihuan chi shucai ma?
 L in the past JIANG like eat vegetable Q
 Did Lisi like to eat vegetables in the past?
- b. Lisi zuotian (*jiang) qu paobu ma?
 L yesterday JIANG go run Q
 Did Lisi go running yesterday?

Third, *jiang* cannot appear in conditionals about past events.

- (19) Ruguo Neima'er zuotian (*jiang) nenggou can-sai, Baxi-dui huoxu
 if Neymar yesterday JIANG can participate Brazil-team perhaps
 jiu bu hui shu gei Deguo-dui le.
 then NEG HUI lose to Germany-team PRT
 If Neymar were able to play yesterday, perhaps Brazil wouldn't have lost to
 Germany.' (e.g. said the day after Germany beat Brazil in the 2014 FIFA World
 Cup. The Brazil player Neymar was unable to play due to an injury.)

Lastly, *jiang* cannot occur in imperatives, as discussed previously. A relevant example is repeated below for convenience.

- (20) *Bie jiang qu Meiguo le.
 NEG.IMP JIANG go America PRT
 Don't go to America (in the future). (=12c)

3. Proposal

In Section 2, it was shown that *jiang* indicates some kind of future time reference and occurs in a syntactically high position. Distributional evidence also shows that *jiang* is not an auxiliary, nor an adverb, nor irrealis mood. To account for these facts, I propose that *jiang* is syntactically a tense morpheme. In clauses where *jiang* is absent, I assume that there is an unpronounced non-future tense morpheme in the same position. I note that typologically speaking, a binary future vs. non-future tense distinction appears to be uncommon; Comrie (1985), citing Haiman 1980, reports only Hua, a Papuan language, as having such a distinction. That such a distinction also exists in Mandarin Chinese is therefore of typological interest.

In addition, I propose the following syntactic architecture for Mandarin Chinese clauses (21), where *jiang* (or the unpronounced non-future tense) appears in the position of T. (21) allows the acceptable sentence in (22) to be generated.

- (21) C [... T [... Neg₁ [... Auxiliary [... Neg₂ [... Aspect [... VP
 (22) Lisi *jiang* bu hui bu *guanxin* wo.
 L JIANG NEG HUI NEG care about I
 It won't be the case that Lisi won't care about me. (i.e. Lisi will care about me.)

The ordering of syntactic heads in (21) is consistent in part or in whole with the clausal structure for Mandarin in e.g. Soh 2007, Sybesma 2007, Liu 2010, and T.-H. J. Lin 2012, *pace* Hu, Pan, and Xu (2001), Smith and Erbaugh (2005), Ren (2008), and J.-W. Lin (2006, 2010) and others who argue that Mandarin has no syntactic tense.

The clausal structure in (21), where T c-commands Auxiliary and Aspect, is not unique to this account; similar analyses have been developed for other languages with overt tense paradigms, such as English, French, Malagasy (see van Gelderen 2013, Adger 2003, Pollock 1989, Pearson 2001, a.o.). It is also syntactically similar to Matthewson's proposal (2006) for St'át'imcets, which she analyzes as a "superficially tenseless" language. That the clausal structure of Mandarin Chinese is similar to that of unrelated languages thus provides support for the existence of a universal clause structure, derived from a set of syntactic categories that are made available by the human language faculty.

Combining the proposal that *jiang* is tense with the clause structure in (21) enable a straightforward explanation of the distributional facts observed in Section 2. First, they are consistent with the future time semantics of *jiang* and its position in a clause. *Jiang* precedes the auxiliaries *hui* and *yao* because it is structurally higher than they are, and the structural relation is reflected in linear precedence. Second, the fact that negation cannot immediately precede *jiang* receives a similar analysis: *jiang* is higher than negation, so a Neg-*jiang* linear order is not available. Note that a semantic account for the restriction on a Neg-*jiang* linear order is unlikely: (22) shows that negation and *jiang* can co-exist; i.e. it is not semantically incoherent to negate a proposition that is temporally set in the future. Third, if we assume (after Law 2001 and Liu 2010) that A-not-A questions are formed by

an operation involving a Neg morpheme and a predicate in the c-command domain of Neg, a clausal structure like (21), where *jiang* c-commands negation, also explains why *jiang* does not participate in A-not-A question formation.

4. Predictions

The proposal that *jiang* is syntactic tense leads to at least two predictions. The first prediction is that, like tense morphemes in many other languages, *jiang* requires the presence of a verb for well-formedness reasons. Such a requirement might be consistent with the fact that *jiang* does not license VP ellipsis. The second prediction is that if Mandarin Chinese has syntactic tense, there is also a finiteness distinction (tensed vs. non-tensed) in Mandarin Chinese clauses. In the following sections, I show that both predictions are borne out empirically, thus lending additional support to the proposal.

4.1. *Jiang* requires an overt verbal host

As observed by Lin (2010), Mandarin Chinese allows bare nominal predicates (pp. 317-318), without the copula *shi* or the existential verb *you* (23). He points out that in equivalent sentences in English, the copula is obligatorily present, as shown in the English translations in (23). He argues that the copula in these constructions is semantically vacuous, as the predicate can be predicated directly from the subject.

- (23) a. Jintian xingqitian.
 today Sunday
 Today *(is) Sunday. (Lin 2010 ex. 30a)
- b. Wode yue gongzi 320 yuan.
 my monthly salary 320 dollar
 My monthly salary *(is) 320 dollars. (ibid. ex. 30c)
- c. Women quan cun cai liang-qian ren.
 we whole village only two-thousand people
 There *(are) only two thousand people in our village. (ibid. ex. 30d)

In Lin's analysis, this difference in whether a copula is needed comes about because English has syntactic tense and Mandarin Chinese does not. Specifically, the presence of the semantically vacuous copula in a language like English is attributed to the fact that English has tense, and tense needs to be expressed on a verb. Hence, even though the copula is not needed for semantic well-formedness, it is present so that the tense morpheme can be expressed. The logic here is identical to the one used to motivate the syntactic operation of *do*-support in question-formation and VP ellipsis in English (Chomsky 1957; Lasnik 1995). For example, VP ellipsis, as the name suggests, would leave the tense morpheme without a verb, resulting in ill-formedness (24a); a semantically vacuous *do* is therefore inserted (24b).

- (24) a. *John said he would leave, and he -ed ~~leave~~. (VP ellipsis)
 b. John said he would leave, and he do-ed ~~leave~~. (= ... *he did*) (*do*-support)

The absence of a semantically vacuous verb in Chinese suggests that there is no requirement for a verb in the sentences in (23). Lin argues that the absence of this requirement is because Chinese does not have any tense morphemes in the first place. However, consider similar sentences set in the future with *jiang* (25). As (25) shows, when *jiang* is present, a semantically vacuous verb (e.g. the copula or the existential *you*) also must be present. Adopting Lin's reasoning thus leads us to conclude that these semantically vacuous verbs appear because *jiang*, as a tense morpheme, needs some kind of verbal host for syntactic well-formedness reasons.¹⁰

- (25) a. *Mingtian jiang *(shi) xingqiyi.*
 tomorrow JIANG be Monday
 Tomorrow will be Monday.
 b. *Wode yue gongzi jiang *(shi) 320 yuan.*
 my monthly salary JIANG be 320 dollar
 My monthly salary will be 320 dollars.
 c. *Women quan cun jiang *(you) liang-qian ren.*
 we whole village JIANG exist two-thousand people
 There will be two thousand people in our village.

4.2. Evidence for a finite vs. non-finite distinction in Mandarin Chinese

The second prediction that might arise from the analysis of Mandarin as a language with syntactic tense is that Mandarin has non-finite (non-tensed) clauses. Adopting the analysis of *jiang* as future tense makes it possible to directly test, using *jiang*, whether a clause is finite or not. (26) shows that not all embedded clauses can contain *jiang*: specifically, the ones that do not do so appear to be the clausal complements of control verbs, such as *yao* "to want," *jiao* "to tell," *quan* "to urge," or *guli* "to encourage" (26b). The minimal pairs in (26) are thus novel evidence supporting the claim that Mandarin Chinese has a finite vs. non-finite distinction, *pace* Hu, Pan, and Xu (2001), Smith and Erbaugh (2005), Ren (2008), and Lin (2006, 2010). If this analysis is on the right track, that control verbs in Mandarin and other unrelated languages take non-finite clausal complements (i.e. *jiang* cannot appear in these clauses) is also suggestive of a principled relationship between certain syntactic properties (e.g. finiteness) of these clauses and the semantics of these verbs (Hacquard 2014, a.o.).

¹⁰ This requirement for a verbal host is not exclusive to *jiang*; it is also a requirement of auxiliaries like *hui* or *yao*.

- (26) a. Tamen { renwei / xiwang / fouden } Lisi mingtian jiang qu Meiguo.
 they think hope deny L tomorrow JIANG go America
 They think / hope / deny that Lisi will go to America tomorrow.
- b. Tamen { yao / jiao / quan / guli } Lisi mingtian (*jiang) qu Meiguo.
 they want tell urge encourage L tomorrow JIANG go America
 They wanted / told / urged / encouraged Lisi to go to America tomorrow.

5. Some issues related to a tense analysis of *jiang*

In this section, I discuss two sets of potential counter-examples to the proposal about *jiang* and tense, and argue that they do not weaken the core claim of this paper that *jiang* is syntactic tense.

5.1. Incompatibility with certain predicates

Analyzing *jiang* as future tense predicts *jiang* to be compatible with all predicates. As (27) shows, this does not seem to be the case.

- (27) a.* Mei-ge bingren dou jiang si.
 every-CL patient all JIANG die
 Every patient will die.
- b.? Women xia-xingqi jiang hui.
 we next-week JIANG go back
 We will go back next week.

However, there is a marked improvement in acceptability when there is additional material appearing after the verb (28), e.g. an adjunct or a direct object. In terms of semantics and syntax, (27) is largely similar to (28). If (27) is unacceptable due to syntactic and semantic factors associated with *jiang*, the same factors should also cause (28) to be unacceptable. Since the sentences in (28) are fine, it is unlikely that the analysis of *jiang* as future tense explains the unacceptability in (27).

- (28) a. Mei-ge bingren dou jiang si yu aizheng.
 every-CL patient all JIANG die of cancer
 Every patient will die of cancer.
- b. Women xia-xingqi jiang hui Hanguo.
 we next-week JIANG go back Korea
 We will go back to Korea next week.

Several hypotheses might explain the contrast between (27) and (28). The first hypothesis is a pragmatics account along the lines of Goldberg and Ackerman 2001, proposed to explain an adjunct requirement in English (29). Observe the parallels between (29a) and (27) and between (29b) and (28). Goldberg and Ackerman argue that, because it is a given that houses are built, (29a) has too little new information for discourse purposes.

The same argument can be adapted for (27a): it is understood that all people die, so there is not enough new information in (27a). However, this analysis fails to account for (27b):¹¹ the act of going back is not a truism for individuals. There should have been enough new information in (27b) for it to be pragmatically felicitous.

- (29) a. #This house was built.
 b. This house was built {in 1819 / in ten days / with straw}.

The second hypothesis is that *jiang* imposes a phonological or prosodic requirement on the structures immediately following it (Omer Preminger, p.c.); in this analysis, the sentences in (27) contain too little overt material to satisfy this requirement.

A third hypothesis regarding the constraint on “light” (whether in terms of information or prosody) predicates is that it is stylistic in nature (Audrey Li, p.c.). *Jiang* is typically used in a formal register, where it is conceivable that elided adjuncts or objects are dispreferred, or monosyllabic predicates (as in (27)) are judged as too informal to be used together with *jiang*.¹²

5.2. *Jiang* is not obligatory on all sentences set in the future

A second counter-argument against the analysis of *jiang* as syntactic tense is based on the fact that *jiang* is not obligatorily present on all sentences set in the future. For example, (30) is a perfectly acceptable sentence about the future, without *jiang*.

- (30) Lisi mingtian hui qu Beijing.
 L tomorrow HUI go Beijing
 Lisi will go to Beijing tomorrow.

This argument is built on the assumption that there has to be an exclusive one-to-one correspondence between temporal interpretation and morphosyntactic form. However, there is no *a priori* reason to expect such a correspondence. It is not the case that temporal relations are exclusively encoded on syntactic tense morphemes: temporal information is present in the semantics of temporal adverbs, aspect, and modals. This means that speakers of Mandarin, like speakers of many other languages, have several lexical options available when they wish to make an assertion about the time of an event; (30) is one such example of how one might do so. Nor it is necessary that a tense morpheme exclusively determine

¹¹ Nor does the pragmatics account explain why replacing *jiang* with the future-marking auxiliary *hui* in (27a) immediately improves acceptability (*Mei-ge bingren dou hui si*), or why the semantically similar sentence in English *Every patient will die* is also acceptable.

¹² This preference for prosodically heavier constituents in a formal register might be conditioned by the relative scarcity of monosyllabic verbs and the prevalence of disyllabic verbs related to politics, law and economics (Duanmu 2007 ch. 7). Due to their content, heavy predicates presumably occur frequently in a formal context, which is also where *jiang* appears.

the temporal interpretation of a given sentence. The English sentences in (1) show that temporal interpretation is dependent on several other factors, e.g. the semantic contribution of other morphemes, register, or even context.

5.3. Comments on the semantics of *jiang* and tense in Mandarin

If there is a need to separate semantic tense and syntactic tense, how then does this analysis of *jiang* as syntactic tense relate to previous analyses of its semantics or the semantics of tense in Mandarin Chinese?

I note that previous research (Wu and Kuo 2010, Smith and Erbaugh 2005) has treated *jiang* as a modal, but not necessarily as a modal with future tense semantics. For example, Wu and Kuo encode future time in their analysis of *jiang* (and *hui* and *yao*), but do not comment on whether *jiang* should be thought of as tense or aspect (or both). In principle, adopting wholesale their semantic analysis of *jiang* as a modal is not incompatible with the syntactic tense analysis presented above. In fact, such an analytical approach has a precedent elsewhere: modal auxiliaries in English, e.g. *might* and *must*, are in complementary distribution with tense morphemes, have similar syntactic properties, e.g. participate in subject-auxiliary inversion. Consequently they are often analyzed as being syntactic tense¹³ (most influentially in Chomsky 1957).

Given that *jiang* also encodes some kind of futurity, how *jiang* fits into a broader theory of tense in Mandarin is less clear. Recent comprehensive accounts of temporal semantics in Chinese (Smith and Erbaugh 2005, Lin 2006) have claimed that there is no syntactic tense morpheme; instead, in these analyses, aspect markers like *le* and *guo*, and modals like *hui*, in conjunction with certain pragmatic or semantic principles, play a major role in determining the temporal interpretation of a sentence. If the proposal in this paper – that there is a future tense *jiang* and an unpronounced non-future morpheme – is on the right track, then there is a need to reconcile *jiang* and its non-future counterpart with the insights in these accounts. I leave this task for future research.

6. Conclusion

In preceding sections, I made several observations about the distribution of the future-marking particle *jiang*. By comparing *jiang* with auxiliaries, adverbs, and irrealis mood markers, I developed an account of Mandarin as a language with syntactic tense and a future vs. non-future tense distinction. Additional evidence based on the acceptability of *jiang* in clausal complements was also offered to support the claim that Mandarin has a finite vs. non-finite distinction.

¹³ Note, however, that in more recent syntactic research in the generative tradition, modals are often thought of as verb-like morphemes that move to adjoin to a tense node (e.g. in Lasnik 1995), instead of being of the same category as a tense morpheme.

As discussed above, these arguments have implications for theories of tense and clause structure. From a typological perspective, a binary future vs. non-future tense distinction is uncommon (Comrie 1985), suggesting that there might be some kind of universal bias against such a distinction or against a future tense (see Matthewson 2006 for a discussion). That Mandarin has such a distinction raises interesting questions about how this distinction might have arisen in the first place. From a syntactic perspective, this proposal – that Mandarin has syntactic tense, a clause structure similar to what has been proposed for unrelated languages, and possibly a finiteness distinction, while being “superficially tenseless” (to borrow a term from Matthewson 2006) – provides additional support for a theory of universal clause structure in which tense is a core component.

REFERENCES

- ACADEMIA SINICA. Sinica Treebank version 3.0. <http://treebank.sinica.edu.tw/>.
- ADGER, DAVID. 2003. *Core syntax: a Minimalist approach*. Oxford University Press.
- CHAO, YUEN REN. 1968. *A grammar of spoken Chinese*. Berkeley & Los Angeles, CA: University of California Press.
- CHOMSKY, NOAM. 1957. *Syntactic structures*. Mouton de Gruyter.
- COMRIE, BERNARD. 1985. *Tense*. Cambridge University Press.
- DUANMU, SAN. 2007. *The Phonology of Standard Chinese. 2nd Edition*. Oxford University Press.
- GOLDBERG, ADELE E., and FARRELL ACKERMAN. 2001. The pragmatics of obligatory adjuncts. *Language* 77.789–814.
- HACQUARD, VALENTINE. 2014. Bootstrapping attitudes. In Proceedings of SALT 24, Todd Snider, Sarah D’Antonio and Mia Weigand (eds.), 330-352.
- HAIMAN, JOHN. 1980. *Hua: A Papuan language of the Eastern Highlands of New Guinea*. (Studies in language, Companion series, 5.) Amsterdam: Benjamins.
- HU, JIANHUA, HAIHUA PAN, and LIEJIONG XU. 2001. Is there a finite vs. nonfinite distinction in Chinese? *Linguistics* 39.1117–1148.
- HUANG, C.-T. JAMES. 1982. *Logical relations in Chinese and the theory of grammar*. Cambridge, MA: MIT Doctoral Dissertation.
- KLEIN, WOLFGANG. 1994. *Time in language*. London: Routledge.
- LASNIK, HOWARD. 1995. Verbal morphology: Syntactic Structures meets The Minimalist Program. In *Evolution and revolution in linguistic theory: essays in honor of Carlos P. Otero*, Héctor Campos and Paula Kempchinsky (eds.), 251–275. Washington, DC: Georgetown University Press.
- LAW, ANN. 2001. A-not-A questions in Cantonese. *UCL Working Papers in Linguistics* 13.295-318.

- LI, CHARLES N., and SANDRA A. THOMPSON. 1981. *Mandarin Chinese: a functional reference grammar*. Berkeley, CA: University of California Press.
- LI, RENZHI. 2004. *Modality in English and Chinese*. Antwerp: University of Antwerp Doctoral Dissertation.
- LI, Y.-H. AUDREY. 1985. *Abstract case in Chinese*. Los Angeles, CA: USC Doctoral Dissertation.
- LIN, JO-WANG. 2006. Time in a language without Tense: The case of Chinese. *Journal of Semantics* 23.1–53.
- LIN, JO-WANG. 2010. A tenseless analysis of Mandarin Chinese revisited: a response to Sybesma 2007. *Linguistic Inquiry* 41.305–329.
- LIN, T.-H. JONAH. 2012. Multiple-modal constructions in Mandarin Chinese and their finite properties. *Journal of Linguistics* 48.151–186.
- LIU, HAIYONG. 2010. What is A in Mandarin A-not-A questions? In Proceedings of NACCL-22 and IACL-18, Lauren Eby Clemens and Chi-Ming Louis Liu (eds.), volume 2, 287–304.
- MATTHEWSON, LISA. 2006. Temporal semantics in a superficially tenseless language. *Linguistics and Philosophy* 29.673–713.
- PEARSON, MATT. 2001. *The clause structure of Malagasy: A minimalist approach*. Los Angeles, CA: University of California Doctoral Dissertation.
- POLLOCK, JEAN-YVES. 1989. Verb movement, Universal Grammar, and the structure of IP. *Linguistic Inquiry* 20.365–424.
- REICHENBACH, HANS. 1947. *Elements of Symbolic Logic*. New York: Macmillan.
- REN, FEI. 2008. *Futurity in Mandarin Chinese*. Austin, TX: University of Texas Doctoral Dissertation.
- SMITH, CARLOTA S., and MARY S. ERBAUGH. 2005. Temporal interpretation in Mandarin Chinese. *Linguistics* 43.713–756.
- SOH, HOOI LING. 2007. Ellipsis, last resort, and the dummy auxiliary *shi* ‘be’ in Mandarin Chinese. *Linguistic Inquiry* 38.178–188.
- SYBESMA, RINT. 2007. Whether we Tense-agree overtly or not. *Linguistic Inquiry* 38.580–587.
- TANG, CHIH-CHEN JANE. 1990. *Chinese phrase structure and the extended X'-theory*. Ithaca, NY: Cornell Doctoral Dissertation.
- TANG, TING-CHI. 2000. Hanyu de xianding ziju yu fei xianding ziju (Finite and nonfinite complement clauses in Chinese). *Language and Linguistics* 1.191–214.
- VAN GELDEREN, ELLY. 2013. *Clause structure*. Cambridge University Press.
- WU, JIUN-SHIUNG, and JENNY YI-CHUN KUO. 2010. Future and modality: A preliminary study of *jiang*, *hui*, *yao* and *yao... le* in Mandarin Chinese. In Proceedings of NACCL-22 and IACL-18, Lauren Eby Clemens and Chi-Ming Louis Liu (eds.), volume 2, 54–71.