

Nonveridicality and Existential Polarity Wh-Phrases in Mandarin¹

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1 Motivation

Any good theory in linguistics is ideally both descriptively and explanatorily adequate (Chomsky 1965). It should be able to capture language universality on one hand and account for cross-linguistic variation on the other. Therefore, it is worthwhile to put various theories dealing with the same phenomenon under cross-linguistic scrutiny to see how each of them fares (von Stechow and Matthewson 2007). With this in mind, in this paper I look at the cross-linguistic applicability of several theories dealing with polarity items within the context of existential polarity wh-phrases (EPWs) in Mandarin Chinese. In particular, I examine von Stechow's Strawson Downward Entailment analysis and Giannakidou's Nonveridicality analysis.

Polarity items (PIs) such as *ever* and *any* in English have received much attention in the field of semantics. Vast literature has mainly dealt with two fundamental issues: (a) the descriptive distribution of PIs within a particular language and cross-linguistically; and (b) the licensing condition(s) for PIs. Three proposals dealing with the latter issue stand out in the literature.

Ladusaw (1979), followed by several others, proposed that negative polarity items (NPIs) are licensed when they appear in the scope of Downward Entailing (DE) expressions:

(1) Downward Entailing Functions

A function f is downward entailing iff for every arbitrary element X, Y it holds that: $X \subseteq Y \rightarrow f(Y) \subseteq f(X)$

There are many counterexamples to this classic DE analysis in English, not to mention cross-linguistically. NPIs, for instance, can appear in the scope of the generalized quantifier “only DP”, but by no means is ‘only DP’ Downward Entailing (2 & 3). The reader is referred to Giannakidou (1998) and von Stechow (1999) for more discussion.

(2) Only John ate any fruit.

(3) (i) apple \subseteq fruit

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- (ii) Only John ate fruits. $! \rightarrow$
- (iii) Only John ate apples.

Noticing problems like this with DE, von Stechow (1999) proposed a variant called Strawson DE as a necessary condition for NPI licensing:

(4) Strawson Downward Entailment

A function f of type $\{\sigma, \tau\}$ is Strawson Downward Entailing iff for all x, y of type σ such that $x \Rightarrow y$ and $f(x)$ is defined: $f(y) \Rightarrow f(x)$.

Strawson DE, according to von Stechow, avoids the challenges that the original DE analysis is faced with. For instance, ‘only DP’ is Strawson Downward Entailing in the following sense (5) and therefore licenses NPIs:

- (5) i. Kale is a vegetable.
- ii. John ate kale for breakfast.
- iii. Only John ate vegetables for breakfast.
- Therefore: iv. Only John ate kale for breakfast.

Giannakidou (2002) noted two problems with von Stechow’s analysis, one conceptual and the other empirical. Strawson DE introduces a premise (e.g. 5ii) into the chain of reasoning in a highly ‘unconstrained’ manner. Nothing in von Stechow’s analysis necessitates choosing some premise over some others in the chain of reasoning. On the empirical side, Giannakidou argued that Strawson DE overgeneralizes. For instance, von Stechow’s scheme wrongly allows both the cleft sentence in (6a) and the preposed focus in (6b) to be Strawson DE and hence to license the NPI *any*, contrary to fact.

- (6) a * It was John who talked to anybody.
- b * **JOHN** talked to anybody.

Giannakidou (1998, 2002) argued that the licensing of NPIs is contingent upon whether the environment in which the NPI appears is nonveridical or not (7). She defined, for instance, Nonveridicality for propositional operators and Nonveridicality for temporal/aspectual operators as in (8) and (9) respectively. Giannakidou argued that Nonveridicality is the sufficient and necessary condition for NPI licensing. In this way, Giannakidou derived the limited distribution of NPIs from their lexical semantics, rather than from something extraneous.

(7) Polarity Item Licensing

An affective polarity item α is licensed in a sentence S iff S provides some expression γ which is nonveridical, and α is in the scope of γ . In certain cases, α may be licensed indirectly in S iff S gives rise to a negative implicature ϕ , and α is in the scope of negation in ϕ .

(8) (Non)veridicality for propositional operators

- i. A propositional operator F is veridical iff Fp entails p : $Fp \rightarrow p$; otherwise F is nonveridical.
- ii. A nonveridical operator F is antiveridical iff Fp entails *not* p : $Fp \rightarrow \neg p$.

(9) (Non)veridicality for temporal/aspectual operators

Let F be a temporal/aspectual operator; t an instant or an interval.

- i. F is veridical if and only if for Fp to be true at a time t , p must be true at a (contextually relevant) time $t' \leq t$. Otherwise F is nonveridical.
- ii. A nonveridical operator F is antiveridical iff for Fp to be true at a time t , $\neg p$ must be true at a (contextually relevant) time $t' \leq t$.
- iii. If F is true of an interval t , then F is veridical iff for all (contextually relevant) $t' \subseteq t$, p is true at t' . Otherwise, F is nonveridical. If for all (contextually relevant) $t' \subseteq t$, $\neg p$ is true at t' , then F is antiveridical.

This paper has three objectives. The first one is to give a more comprehensive description on the distribution of EPWs than observed in the literature (primarily Li 1990, Lin 1996, 1998). This is done in section 2. The second is to discuss some semantic properties of EPWs (section 3). The third is to show that Mandarin Chinese data on EPWs cause problems to both the Strawson DE analysis and Giannakidou's Nonveridicality analysis. However, the data fare better with the latter than with the former. The remaining task is to propose an extension of Nonveridicality so that it can account for all the sensitivity of EPWs in Mandarin Chinese (section 4).

2 Distribution of EPWs

Wh-words in Mandarin Chinese have multifold interpretations: that of interrogatives (10a) and that of universal quantifiers (10b), and a third interpretation exemplified in (10c), on which this paper focuses. Nominal wh-words like *shei* 'who' and *shenme* 'what' can be interpreted as non-interrogative existential indefinites meaning 'somebody' and 'something' respectively. Modifiers like *(yi)dianr* 'a bit' and the 'numeral + classifier' combination can help elicit the EPW interpretation of wh-phrases but are by no means obligatory.

- (10) a. zhangsan mei tian zaoshang dou chi shenme?
John every day morning all eat what
'What does John eat every morning?'
- b. zhangsan shei dou xiangxin.
John who all trust
'John trusts everyone.'
'John, everyone trusts (him).'
- c. zhangsan xiang chi dianr shenme zhongguo cai.
John want eat a bit what Chinese food
'John wants to eat some Chinese food.'
'What Chinese food does John want to eat?'

The EPW use of *wh*-phrases shows semantic sensitivity to the context of occurrence. Negation is typically one such context. Exactly in this sense, EPWs are treated as NPIs (Cheng 1994, Lin 1996, 1998). The next two subsections enumerate the environments in which EPWs can appear as well as those environments in which they cannot.

2.1 Licensing environments

There are a large number of contexts in which EPWs can appear. Some of the examples below are adapted from Li (1992) and Lin (1996, 1998).

negation

- (11) wo mei mai shenme.
I not buy what
'I bought nothing.'

yes/no question

- (12) shei qifu ni ma?
who bully you Q
'Did somebody bully you?'

antecedent of conditionals

- (13) yaoshi shenme ren qifu ni, ni jiu gaosu wo.
if what person bully you, you then tell me
'If somebody bullies you, then you let me know.'

as-if clause

- (14) ta na yangzi xiangshi wendao shenme yiyang.
he that manner as-if smell what look
'He looks as if he has smelled something.'

restrictions of universal quantifier

- (15) (?)suoyou you shenme shiqing gen wo shuo de, keyi zhao wo.
all have what thing with me talk POS, can look for me
'All those who have something to tell me can come see me.'

object in A-not-A question

- (16) ni ren-bu-renshi shenme da renwu?
you know-not-know what big person
'Do you know any big shot or not?'

epistemic adverb

- (17) keneng shei qifu ta.
possibly who bully him
'Possibly somebody bullied him.'

modal verb

- (18) wo mingtian hui qu mai jian shenme jiake lai chuan.
I tomorrow will go buy CL what jacket come wear
'I will go buy a jacket tomorrow.'

directive intensional verbs

- (19) ta xiang mai dianr shenme jiu lai he.
he want buy a bit what wine come drink
'He wants to buy some wine to drink.'

futurity complement

- (20) ta dasuan xiawu qu mai ben shenme shu.
he plan afternoon go buy CL what book
'He plans to buy a book in the afternoon.'

before clause

- (21) zai dui yuangong zuo shenme zhiqian, duo kaolv kaolv.
at to employee do what before, more think think
'You (should) think twice before doing something to the employees.'

imperative

- (22) shei qu bang wo na ge diezi lai!
who go help me take CL plate come
'Somebody go and get a plate for me!'

habitual sentences

- (23) (?)xinqing bu hao de shihou, ta jiu lai zher he dianr shenme.
feeling not good POS time, he then come here drink a bit what
'When he didn't feel well, he came here for a drink.'

consequent clause

- (24) ni yaoshi bu fangxin, jiu jiao shei gen ni yiqi qu.
you if not relax, then ask who with you together go
'If you are anxious, ask somebody to go together with you.'

disjunction

- (25) yaome shei lai guo, yaome wo wang guan chuangu le.
either who come ASP, either I forget close window ASP
'Either somebody came (broke in), or I forgot to close the window.'

progressive

- (26) wo jinqu de shihou, ta zhengzai he sheme.
I enter POS time, he ASP drink what
'When I went in, he was drinking something.'

perfective le

- (27) zhangsan na zou le shei de shu.
John take go ASP who POS book
'John has taken somebody's book.'

An EPW and its licenser do not have to be in a local relationship. Most importantly, a sentence must contain an element that can license the EPW and the EPW may not scope over this element (see section 3.2 for more discussion):

- (28) (?)zhangsan juede lisi cengjing gaosu wangwu shenme.
John feel David once tell Peter what
'John felt that David once told Peter something.'

2.2 Non-licensing environments

Just like the polarity item *any* in English, which cannot appear in some environments, there are also some typical contexts in which EPWs cannot appear. Again, some of the examples below are adapted from Li (1992) and Lin (1996, 1998).

simple affirmative extensional

- (29) a. zhangsan zuotian kan (ben) shenme shu.
John yesterday read CL what book
intended: *'John read some book yesterday.'
possible: 'What book did John read yesterday?'²
b. shei kai benchi.
who drive Benz
intended: *'Someone drives a Benz.'
possible: 'Who drives a Benz?'
c. shei zhidao zhe jian shiqing.
who know this CL thing
intended: */??'Did someone know this matter?'
possible: 'Who knew this matter?'

subject of negative clause

- (30) shei mei mai zhe ben shu.
who not buy this CL book
intended: */??'Someone didn't buy this book.'
possible: 'Who didn't buy this book?'

² This interrogative interpretation of (29) requires an interrogative intonation, which is different from the intonation for the EPW interpretation. Correspondingly, a question marker '?' should be used in the orthographic representation of the former case. For the sake of simplicity, I will not list both kinds of punctuation at the end of those sentences which have both EPW and interrogative interpretations.

wh-question

- (31) shei xihuan dianr shenme.
who like a bit what
intended: *‘What does somebody/anybody like?’
intended: * ‘Who likes something/anything?’
intended: * ‘Somebody likes something.’
possible: ‘Who likes what?’

rhetorical question

- (32) a. zhangsan zhidao shenme? (rhetorical question reading)
John know what
‘John knows nothing.’
b. shei zhidao shenme?
intended: *‘Somebody knows nothing.’
possible: ‘Who knows what?’

subject of A-not-A question

- (33) *shei mai-mei-mai zhe ben shu?
who buy-not-buy this CL book
intended: *‘Did someone buy this book or not?’

perfective guo

- (34) zhangsan chi guo dianr shenme dongxi.
John eat ASP a bit what thing
intended: */??‘John has eaten something.’
possible: ‘What has John eaten?’

If another licenser jumps into the non-licensing environments above, an EPW can appear felicitously. The sentence in (31) above, for instance, suggests that EPWs cannot appear in a *wh*-question. Nevertheless, in (35) the EPW *shenme* ‘what’ appears in the scope of *xiang* ‘want’ and gets licensed, while *shei* ‘who’ is interrogative and cannot have an EPW interpretation as there is no licenser for it. Therefore this sentence has a legitimate reading where *shenme* is interpreted as an EPW and *shei* as an interrogative *wh*-phrase. Yet another example is (36). The perfective *guo* renders (36a) ungrammatical, but with the introduction of *haoxiang* ‘seem’, its grammaticality is improved (36b).

- (35) shei xiang chi dianr shenme?
who want eat a bit what
i. ‘Who wants to eat something?’
ii. *‘Somebody wants to eat something?’
(36) a. ta cengjing mai guo shenme shu.
he once buy ASP what book
intended: */??‘He has bought some book before.’

- b. (?)ta haoxiang cengjing mai guo shenme shu.
 ‘It appears that he has bought a book before.’

What do the EPW-licensing environments have in common that non-licensing contexts lack? Before answering this question, let us take a brief look at some properties of EPWs.

3. Properties of EPWs

3.1 Existentiality

We have noted that wh-phrases can be used as universal quantifiers in Mandarin Chinese. By no means does the EPW use of wh-phrases have universal or free choice interpretations. We have three pieces of evidence in favor of this claim.

Cheng (1994) noted that Mandarin Chinese universal quantifiers are allowed to co-occur with *dou* ‘all’ (37a). *Dou* can also co-occur with free choice items, as suggested by (37b). Being existential in nature, EPWs are not compatible with *dou* (37c).

- (37) a. zhangsan shenme dongxi dou chi. (universal)
 John what thing all eat
 ‘John eats everything.’
 b. an shenme jian dou keyi. (free choice)
 press what key all OK
 ‘Pressing any key will do.’
 c. zhangsan xiang qu mai dianr shenme cai (*dou) lai zuofan.
 John want go buy a bit what vegetable all come cook
 intended: ‘John wants to buy some vegetables to cook.’

Secondly, universal quantifiers, but not existential quantifiers, allow modifiers like *almost* and *absolutely* (Horn 1972). (38a) shows that universal quantifiers *meigeren* ‘everyone’ can be modified by *jihu* ‘almost’, but the existential EPW *shei* ‘who’ cannot (38b).

- (38) a. jihu mei ge ren dou xue zhongwen.
 almost every CL person all study Chinese.
 ‘Almost everyone studied Chinese.’
 b. ruguo (*jihu) shei lai zhao wo, ni jiu shuo wo bu zai.
 if almost who come look for me, you then say me not in
 ‘If someone comes for me, you tell him that I am not in.’

Still another piece of evidence comes from the fact that the EPW is capable of optionally taking an overt existential marker *you* ‘have, there be’ (39a, the same as 38b), in the same way a regular existential NP can take an optional *you* (39b). In contrast to this, a wh-phrase in its universal/free choice use cannot take the existential marker *you* before it (40).

- (39) a. ruguo (you) shei lai zhao wo, ni jiu shuo wo bu zai.
 ‘If someone comes for me, you tell him that I am not in.’
 b. (you) yi ge ren zai bangongshi li kan dianshi.
 have one CL person at office inside watch TV
 ‘There is someone in the office watching TV.’
- (40) (*you) shei dou hui zuo zhe dao timu.
 have who all can do this CL problem
 ‘Everyone can work out this problem.’

3.2 Scope of EPWs

EPWs have flexible scope relations with respect to other scope bearing elements. For example, we observe two possible readings for (41) ($\forall \succ \exists$, and $\exists \succ \forall$, example adapted from Lin 2004). As far as scope is concerned, the EPW appears to behave not much differently from other existential quantifiers. Please refer to Lin (2004) for more refined discussion. Note that the EPW *shenme* ‘what’ in (41) cannot take scope over *juede* ‘feel’ (i.e. 41iii). This is an instance of the more general constraint that EPWs cannot scope over its outermost licenser.

- (41) ta juede mei ge ren dou zai du shenme shu
 he feel every CL person all ASP read what book
 (i) ‘He feels for every person x, there is a book y such that x is reading y.’
 (ii) ‘He feels that there is a book x such that everyone is reading x.’
 (iii) *‘There is a book x such that he feels that everyone is reading x.’

3.3 Donkey sentences

In Mandarin Chinese, *if*-conditional sentences can contain an EPW in the antecedent clause and an overt or covert element anaphoric to it in the consequent clause (Cheng & Huang 1996), as shown in (42). EPWs can also appear in ‘relative clause’ donkey sentences which usually have a hue of conditionality (43).

- (42) ni ruguo zai lu shang yudao shei, jiao ta lai bang wo
 you if on road on meet who ask he come help me
 ‘If you see someone on the road, ask him to come over and help me.’
- (43) (?)you shenme hua yao shuo de ren, xianzai jiu ba ta shuochulai
 have what word want talk POS person, now EMP BA it speak out
 ‘Those who have something to say should say it right now.’

4 Analysis

In this section I first show that neither von Stechow’s Strawson DE analysis nor Giannakidou’s Nonveridicality analysis can successfully account for the distribution of EPWs. But the latter fares better with the relevant data than the former does, and hence is more ‘repairable’. Based on this consideration, I then propose a revision to Giannakidou’s Nonveridicality for temporal and aspectual operators so that it can explain all of the EPW data in Mandarin Chinese.

4.1 Strawson DE

I have outlined von Fintel's Strawson DE analysis in section 1. Giannakidou (2002) noted two problems with this analysis of NPIs, one conceptual and the other empirical. Giannakidou discussed the problems in the context of English NPIs. Both problems carry over to Mandarin Chinese. For our purpose, let us take for example one particular licensing environment for EPWs, i.e. futurity. Under von Fintel's analysis, Strawson DE is a necessary condition for NPI licensing. This means that futurity would have to be subject to the same scheme as laid out in (5), if Strawson DE applies to EPWs. Our question then is: what kind of premise, left unstated in (44ii), would allow the reasoning in (44) to follow?

- (44) i. pingguo shi yi zhong shuiguo.
apple be one kind fruit
'An apple is a fruit.'
ii. ???
iii. zhangsan dasuan wancan chi shuiguo.
John plan dinner eat fruit
'John plans to have fruit for dinner.'
Therefore: iv. zhangsan dasuan wancan chi pingguo.
'John plans to have apples for dinner'

Possible premises to make the reasoning valid include propositions like (a) 'apples are the only fruit available'; or (b) 'Apples are the only kind of fruit John would ever eat.' etc. In von Fintel's analysis, he assumed that at least one presupposition of the conclusion (e.g. 44iv) must be satisfied and it serves as the premise (as in 44ii). However, we cannot see any obvious presupposition of (44iv) that would make the reasoning go through. Therefore, to make von Fintel's analysis work with EPWs, we would have to allow some 'unconstrained' propositions to influence the reasoning.

This conceptual drawback leads to serious empirical problems. If the reasoning in (44) allows, for instance, the proposition that 'apples are the only fruit available' as one possible premise, then we would expect a similar proposition as in (45ii) below to make the reasoning below go through as well. Consequently this means that the simple past tense to allow for EPWs within its scope. This is apparently false, given examples like (29a), repeated here as (46):

- (45) i. pingguo shi yizhong shuiguo. (same as 44i)
ii. zhangsan zuotian zhi you pingguo.
John yesterday only have apple
'John only had/owned apples yesterday.'
iii. zhangsan zuotian chi le shiguo.
'John ate fruit yesterday.'
Therefore: iv. zhangsan zuotian chi le pingguo.
'John ate apples yesterday.'

- (46) zhangsan zuowan kan (ben) shenme shu.
 John yesterday read CL what book
 intended: *‘John read some book yesterday.’
 possible: ‘What book did John read yesterday?’

Therefore the ‘unconstrained’ premise introduced into the Strawson DE reasoning leads to wrong predictions with respect to EPWs. This calls into question the applicability of von Stechow’s analysis to Mandarin Chinese EPWs.

There is still another empirical challenge that Strawson DE is faced with. As far as I see, there is no obvious way in which it can capture the contrast between perfective *le*, durative *zhe* and progressive (*zheng*)*zai* on one hand and perfective *guo* on the other. Our data show that each of the former allows EPWs to be licensed in its scope while the latter does not.

4.2 NEEC/Nonveridicality

Lin (1996, 1998) proposed an account called the Non-Entailment-of-Existence Condition on EPWs (NEEC) as a solution to the question of what licenses EPWs:

- (47) NEEC: The use of an EPW is felicitous iff the local proposition in which the EPW appears does not entail the existence of a referent satisfying the description of the EPW.

According to Lin, the notion ‘local proposition’ in (47) is the proposition whose widest scope operator is the narrowest scope operator that the EPW is in the scope of. The key point to note here is that an EPW cannot take scope over its licenser, as briefly discussed in section 3.2. The notion ‘entail’ is used in a very loose sense, including presupposition and conversational implicature. The NEEC constraint roughly amounts to saying that a felicitous use of EPW cannot have existential import. Lin’s NEEC constraint is roughly along the same lines as Giannakidou’s Nonveridicality analysis. Therefore this paper takes the latter as representative of the two for simplicity of organization.

It is worth noting NEEC, like von Stechow’s Strawson DE, says nothing on the distribution of EPWs under aspect markers. Giannakidou (2002) and Giannakidou and Zwarts (to appear) discussed the licensing of NPIs by aspect. Primarily drawing on data from Greek and Dutch, they analyzed the future and the habitual operators as nonveridical, and NPIs are licensed in these contexts (48a-b, Giannakidou 2002’s (22a) and Giannakidou & Zwarts’s (8) respectively), and the perfective past and progressive as veridical. Hence PIs are not allowed in these contexts (28a-b, Giannakidou & Zwarts’s (32) and (38) respectively.)

- (48) a. o Janis tha agorasi kanena bukali kراسي.
 the John will buy a/any bottle wine.
 ‘John will buy a bottle of wine.’

- b. otan pijene o Pavlos ja ipno, ksefilize sinithos
 when went.imp.3sg the Paul for sleep, browsed.imp.3sg usually
 kanena periodhiko.
 a/any magazine
 ‘When Paul went to bed, he usually browsed through a magazine.’
- (49) a. *o Pavlos ksefilise kanena periodhiko.
 the Paul browsed.perf.3sg any magazine
 ‘Paul browsed through a magazine.’
- b. *o Pavlos ksefilizi kanena periodhiko olo to proi.
 the Paul browse.imp.3sg any magazine all the morning
 ‘Paul is browsing through a magazine all morning.’

Mandarin Chinese shows cross-linguistic variation from Greek and Dutch in that, besides being licensed by habitual and future operators, EPWs are also licensed by progressive (*zheng*)*zai*, durative *zhe* and the *alleged* perfective *le*. Therefore Giannakidou’s Nonveridicality for temporal/aspectual operators calls for a revision in order for it to account for the distribution of EPWs in Mandarin Chinese. By contrast, as shown in (34) above, the perfective marker *guo*, which has a very similar meaning as the perfective marker *le*, cannot license EPWs. This adds to the complexity of the problem.

Then, in what sense does the semantics of the perfective *guo* differ from that of (*zheng*)*zai*, *zhe* and *le* in their temporal use? Let us look at *guo* and *le* first, both of which are traditionally analyzed as perfective markers. There is a key difference between the two aspectual markers, however, in that *guo* is subject to the so-called ‘discontinuity effect’ (Smith 1991) whereas *le* is not. Basically this effect of *guo* requires that the resultant state of a situation (for accomplishments and achievements) or the situation itself (for states, activities and accomplishments) no longer obtains at the reference time of resultant state. For example, while (50a) entails that John is still up on top of the mountain (the resultant state), (50b) entails that the same resultant state no longer obtains.

- (50) a. zhangsan daoda le shanding.
 John reach ASP mountain-top
 ‘John has reached the top of mountain.’
- b. zhangsan daoda guo shanding.
 John reach ASP mountain-top
 ‘John once reached the top of mountain.’

There is a large amount of literature dealing with the Mandarin Chinese aspectual system in general and the ‘discontinuity effect’ in particular. In this paper I adopt Klein et al (2000)’s proposal. It should be noted, however, that my analysis does not depend on their treatment of aspect at all; some other approaches to Mandarin Chinese aspect can do the job equally well.

Klein et al provide semantics for the four aspect markers in terms of the relationship between topic time (TT) and time of situation (T-SIT). Specifically, they make use of a distinction between ‘1-phase content’ and ‘2-phase content’. A situation described by a ‘1-phase content’ has a beginning and an end, although nothing may be said about what precisely the boundaries are. On the other hand, change of state is encoded by a ‘2-phase content’. Languages may collapse the two opposing states in one lexical morpheme, e.g. *arrive* (from the state ‘be not there’ to the state ‘be there’.) A situation described by a 1-phase expression involves only one interval. By contrast, a situation described by a 2-phase expression includes two distinct time intervals: a source phase (e.g. John be not there), and a target phase (e.g. John be there). Language differs with respect to which of the two phases the topic time is related to. Languages may select either the source phase or the target phase and treat it on par with the single phase of a 1-phase expression. According to Klein et al, this fact is best captured by the notion of the distinguished phase (DP), which is (a) the only phase in the case of 1-phase content, and (b) either the source phase or the target phase in the case of 2-phase content.

Klein et al further argued that in English, the distinguished phase is the source phase, while in Mandarin Chinese, it is the target phase. Making use of the notions of T-DP (time of DP), posttime/pretime of T-DP (the time after/before T-DP), IN, AFTER and OVL (S OVL T: S and T have a subinterval in common), they defined the four aspectual markers in question roughly as follows:

- (51) a. *le*: TT OVL [PRETIME T-DP AND T-DP]
 b. *guo*: TT AFTER T-DP
 c. *zai*: TT IN T-DP
 d. *zhe*: TT IN T-DP

Given our discussion so far, we are now in a position to define the Nonveridicality for temporal/ aspectual operators in Mandarin Chinese as in (52):

- (52) (Non)veridicality for temporal/aspectual operators (Mandarin Chinese)
 Let F be a temporal/aspectual operator.
 F is veridical iff for Fp to be true, the topic time (TT) must follow the time of the distinguished phase (T-DP): $TT \succ T-DP$. Otherwise F is nonveridical.

This definition differs from the one that Giannakidou gave for languages like Greek and Dutch. Why there is such a crosslinguistic variation is unclear to me at this point, and I will leave it for future research. For now, it suffices to note that the definition given in (52) conforms to the spirit of Giannakidou’s original proposal that the licensing power of the aspect markers comes from their lexical semantics rather than something extraneous.

5. A-not-A Questions

There is still one more exception in our data that requires individual explanation, and it is the subject/object asymmetry of EPWs in A-not-A questions. An EPW can felicitously appear in the object position of an A-not-A question but cannot appear as the subject. This contrasts strongly with yes/no questions, where an EPW can appear in both the subject and object positions. Compare the A-not-A questions in (53) with the corresponding yes/no questions in (54).

- (53) a. ni ren-bu-renshi shenme da renwu?
you know-not-know what big person
'Do you know any big shot or not?'
b. shei mai-mei-mai zhe ben shu?
who buy-not-buy this CL book
Intended: 'Did someone buy this book or not?'
- (54) a. ni renshi shenme da renwu ma?
Same interpretation as (53a)
b. shei mai le zhe ben shu ma?
'Was there anyone who bought this book?'

Yes/no questions and A-not-A questions have very similar semantics. Therefore, the account for the above contrast can hardly be a purely semantic one. With this in mind, I turn to syntax for an analysis.

To interpret an A-not-A question, the A-not-A operator must move in LF to the higher C position to check the interpretable Q feature. This movement is blocked if the subject is an EPW, typically a nominal quantifier. As evidence supporting this analysis, this 'intervention effect' occurs when the subject is other types of nominal quantifier, as in (55):

- (55) *zuiduo wu ge ren qu-mei-qu zhijiage?
at most five CL person go-not-go Chicago
intended: 'Did at most five people go to Chicago or not?'

This intervention effect does not occur with yes/no questions presumably because there is no such LF movement in yes/no questions. Due to space limitations, I will not discuss this any further.

6 Conclusions

In this paper I first gave a more detailed description of the distribution of Mandarin Chinese EPWs than available in the literature. Then I examined two influential treatments of NPIs in the context of EPWs: von Stechow's Strawson Downward Entailment analysis and Giannakidou's Nonveridicality analysis. I showed that neither of them can capture all the relevant data. The Nonveridicality proposal does a better job in that it only falls short of the sensitivity of EPWs to some aspect operators. Drawing on Klein et al (2000)'s analysis of Mandarin

Chinese aspect particles, I revised Giannakidou's Nonveridicality for aspectual/temporal operators to cover the 'problematic' data. If the analysis proposed in this paper is on the right track, it would provide cross-linguistic support to Giannakidou's Nonveridicality analysis of polarity items, which is flexible enough to account for crosslinguistic variation.

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