On the Lexical Meaning of Conditional Connectives in Chinese

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Abstract. This paper examines some common logical notions, their explicit encoding in English and in Chinese, their representations in logic, and their semantic characterizations. Detailed treatments are given to the analysis of *the necessary condition* and the counterfactual protasis-inducer *'yàobúshì'* (if-not-be) in Chinese. Factors affecting the comprehension of these terms are explored in detail. Given that the characterization of the necessary condition is a rather familiar topic, the novel aspect of this study lies in the analysis of *'yàobúshì'*, which is characterized here as an explicit counterfactual marker taking on a proposition which is both *veridical* and a *falsifying contingent*.

Keywords: Chinese conditionals · Chinese counterfactuals · Veridicality · Contingency

1   Preambles

It goes without saying that logical notions and formalisms can help sharpen semantic characterization of natural language. In this regard, the study of Chinese conditionals provides an ideal testing ground. At present, the question of how conditionality is encoded in Chinese is still not well understood. For the few cases and constructions that have received more investigations, conscious effort in applying logical tools to their analysis could provide rigour, generality, simplicity and more justifications, leading to more mature theoretical accounts. On the other hand, as presented in [1], there is the special branch of logic called *conditional logic*, which has as its primary concern the logical and semantic properties of conditional sentences in natural language. Given that most insights in conditional logic have been reached with English as its focal object of investigation, it is high time that more treatments to Chinese conditionals were provided, so that new and richer findings can be obtained. What is more, the study of conditionals has brought up many related issues in the philosophy of language, such as the metaphysics of possible worlds, probability, logic in conversation, causality and contingency, etc., so much so that it is claimed that "one is likely to learn more philosophy from a thorough study of conditionals than from any other philosophical topic" [2]. To what extent can the study of Chinese conditionals shed light on these issues from its unique angle?   Answers will emerge as findings accumulate.[1]

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[1]   It is worth pointing out that Chinese conditionals should also be studied along the cognitive lines, involving empirical psychological investigations. But that is too big a topic that cannot be treated here.

Following the above route of investigation, this paper examines some common logical notions as exemplified by their explicit encoding in Chinese. Section 2 starts with an introduction of the established treatment of the Necessary Condition in propositional logic, moving on to its realization in Chinese as compared with English, followed by a discussion on conditional perfection in Section 3. Section 4 presents a description of *'yàobúshì'*/if-not-be/ (要不是) as the typical explicit counterfactual conditional marker in Mandarin Chinese. Section 5 utilizes the notion of *veridicality* in analyzing the counterfactuals led by *'yàobúshì'*. Section 6 examines the notion of *contingency* and puts forward the view that Chinese explicit counterfactuals led by *'yàobúshì'* are *falsifying contingents*.

2   Transposition and the Representation of the Necessary Condition[2]

Modus Ponendo Ponens (MPP) and Modus Tollendo Tollens (MTT) are two sides of the same coin, because they are reliant on one same truth table, that of the conditional connective →. Given the truth-conditions of the arrow functor, to make the conditional true when the protasis is known to be true, the apodosis has no choice but to be true, yielding MPP as a deductive schema. To make the conditional true when the apodosis is known to be false, the protasis has to be false. Hence the deductive schema MTT. This relationship can be captured by applying Transposition to (1), resulting in (2):

(1) $P \rightarrow Q$
(2) $\sim Q \rightarrow \sim P$

Transposition provides the key to the representation of the Necessary Condition given that the Sufficient Condition is adequately represented by (1).   For Chinese not only has conditionals headed by the Sufficient Conditional marker *'zhǐyào…jiù'* (只要……就), but also ones headed by the Necessary Conditional marker *'zhǐyǒu…cái'* (只有……才), mirroring the distinction between the English *'so long as'* and *'only if'*.[3] The key to representing the Necessary Conditional is to apply Conversion to (1), yielding (3).

(3) $Q \rightarrow P$

(3) is in fact no different from the Inversion of (1), given here as (4), as (4) can be obtained from (3) through Transposition. But to apply Inversion directly to (1) would commit the fallacy of Negating the Protasis, while applying Conversion to (1) can be a valid yet restricted move, as it poses no harm to sound deduction and has literally turned the original formula into a different one – one that captures the Necessary

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[2] For similarity and difference between Transposition and Contraposition, cf. Talk: Contraposition (Wikipedia) http://en.wikipedia.org/wiki/Talk:Contraposition   (accessed May, 2014).

[3] The treatments of "if" and its Chinese equivalents will appear later in this section, which have been deliberately held back due to their ambivalent nature over the Necessary and the Sufficient.

Condition. The relevant examples of the Sufficient Condition in English and Chinese are listed as (5) - (9), and those of the Necessary Condition, as (10) – (13).[4]

(4)   ~P → ~Q

(5)   <u>So long as</u> we scatter it, thought force is of little use to us, but as soon as we are prepared to take the trouble necessary to harness it, all knowledge is ours.[5]

(6)   <u>So long as</u> men can breathe or eyes can see/So long lives this, and this gives life to thee. (William Shakespeare, Sonnet 18: Shall I compare thee to a summer's day)

(7)   <u>Zhĭyào</u> shĭyòng zhèzhŏng xĭdíjì, <u>biàn</u> kě xĭdé gàngànjìngjìng。 (<u>只要</u>使用这种洗涤剂, <u>便</u>可洗得干干净净。) "*So long as this lotion is used, the washing can be properly done.*"

(8)   <u>Zhĭyào</u> bă qiú chuán gěi duìyŏu, tāmen <u>jiù</u> néng défèn。 (<u>只要</u>把球传给队友, 他们<u>就</u>能得分。)"*So long as the ball is passed to the teammates, they can score.*"

(9)   <u>Zhĭyào</u> nĭ liăndàn zhăng dé háisuàn guòdéqù, năpà yīgè zì yě bú rènshí, <u>yě</u> zhàoyàng néng dāng yănyuán。 (<u>只要</u>你脸蛋长得还算过得去, 哪怕一个字也不认识, <u>也</u>照样能当演员。)"*So long as you are pretty, you can be an actor, even if you are illiterate.*"

(10) Nothing terrible will befall if you eat a piece of pizza — <u>only if</u> you exist on a diet of nothing but pizza.[6]

(11) We all agree that small stores are important, but they can remain viable <u>only if</u> they can carry out their trading on Sundays.

(12) Yŏude rén zhŭzhāng ，biăntáotĭ yī fāyán jiù bă tā qiēchú ，yĭmiăn zàochéng rìhòu de máfán 。qíshí ，zhèzhŏng zuòfă guòyú căoshuài，<u>zhĭyŏu</u> zài búdéyĭ de qíngkuàng xià <u>cái</u> kăolǜ qiēchú biăntáoxiàn 。 (有的人主张，扁桃体一发炎就把它切除，以免造成日后的麻烦。其实，这种做法过于草率，<u>只有</u>在不得已的情况下<u>才</u>考虑切除扁桃腺。) "*Some proposed to cut off tonsil as soon as it has an inflammation, but this is a rash decision. Operation is considered only if no other cures can be found.*"

(13) Yóuyú zhèlĭ de shùmù shífèn chóumì ，zhĭyŏu pīnmìng de xiàng shàng zhăng cáinéng zuìdà xiàndù de jiēshòu dào yángguāng ，yīncĭ ，zhèlĭ de shùmù yībān dōu hěn zhí 、hěn gāo ，shì shàngděng de jiànzhù cáiliào。(由于这里的树木十分稠密，<u>只有</u>拚命地向上长，<u>才</u>能最大限度地接受到阳光，因此，这里的树木一般都很直，很高，是上等的建筑材料。) "*As woods here are dense, trees can get optimal sunlight only if they grow upward as much as possible. That is why trees here are usually all very straight and tall, making them ideal construction products.*"

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[4] All Chinese examples are taken from CCL Corpus, Beijing University, at http://ccl.pku.edu.cn:8080/ ccl_corpus/

[5] Example taken from A.K. Kamath (2007) *Think Positive: Things Will Go Right*. Lotus Press. Chapter 1.

[6] Examples (10)-(11) are taken from British National Corpus, at http://www.natcorp.ox.ac.uk/

In all the above natural language examples, we use P to represent the protasis and Q, the apodosis, and translate the conditional words 'so long as', 'only if', '*zhīyào…jiù*' (只要……就) and '*zhīyǒu…cái*' (只有……才) into the arrow connective. Then the Sufficient Condition is represented by (1), and the Necessary Condition, by (3). For ease of reference, the translations are presented as follows:

(14) So long as P, Q   ⇒ $P \rightarrow Q$
(15) Q only if P   ⇒ $Q \rightarrow P$
(16) *Zhīyào* P, *jiù* Q   ⇒ $P \rightarrow Q$
(17) *Zhīyǒu* P, *cái* Q   ⇒ $Q \rightarrow P$

3   Semantic Underdeterminacy and Conditional Perfection

The conditional relations hitherto discussed can be further utilized to represent conditional sentences in English led by the more common 'if' connective, and its counterparts in Chinese, such as 'rúguǒ' (如果), 'yàoshì' (要是), 'jiǎrú' (假如), and 'ruò' (若). These *iffy* connectives can be used to compose sentences that are semantically underdetermined, denoting either the Sufficient Condition or the Necessary Condition, or even the Necessary & Sufficient Condition, as shown in the following: [7]

(18) You can pay by cash or by cheque. If you pay by cash you will normally obtain a receipt as proof of payment. [the Sufficient]

(19) If you are found guilty, the trial enters into its next very complicated part — the sentencing phase. [the Necessary]

(20) If the assessor is not fluent in ASL, an interpreter needs to be used to effectively convey communication during the interview process. [the Necessary & Sufficient]

(21)   Zài zhège dǎoyǔ de hǎibīn ， yǒu yīpiàn chǎng 800mǐ 、 gāo 18mǐ de jiébái shāqiū 。 rén zǒu zài shāqiū shàng ， shāzǐ jiù huì fāchū wāng wāng de gǒujiào shēng 。 yòng shǒu cuō shāzǐ ， yěnéng fāchū tóngyàng de shēngyīn 。 rúguǒ zài shāqiū shàng xùnsù bēnpǎo ， hái néng tīng dào dǎléi sì de shēngyīn 。 (在这个岛屿的海滨，有一片长800米、高18米的洁白沙丘。人走在沙丘上，沙子就会发出汪汪的狗叫声。用手搓沙子，也能发出同样的声音。如果在沙丘上迅速奔跑，还能听到打雷似的声音。) "*In the beach area of this island, there is a white sand dune stretching 800m long with a height of 18m. If someone walks on the dune, the sands will emit barking sounds. If one rubs sands with his hands, he will hear the same kind of sound. If someone runs quickly on the dune, the sands will even emit sounds like thunder.*" [the Sufficient]

(22) 1 9 2 9 nián, déguó fāshēng kōngqián yánzhòng de jīngjì wēijī, rénmín qúnzhòng kùnkǔ búkān 。 xītèlè lìyòng zhège jīhuì, dàochù jìnxíng qīpiàn xuānchuán, chuīxū rúguǒ tā shàngtái, nénggòu xiāomiè shīyè, měigè rén dōu

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yǒu gōngzuò hé miànbāo 。 xǔduō shòupiàn de qúnzhòng zhīchí le xītèlè, déguó lǒngduàn zīchǎnjiējí fēnfēn chūqián zhīchí nàcuìdǎng 。(1 9 2 9 年，德国发生空前严重的经济危机，人民群众困苦不堪。希特勒利用这个机会，到处进行欺骗宣传，吹嘘<u>如果</u>他上台，能够消灭失业，每个人都有工作和面包。许多受骗的群众支持了希特勒，德国垄断资产阶级纷纷出钱支持纳粹党。）"*In 1929, Germany experienced an unprecedented economic crisis that badly affected people's lives. Hitler seized this opportunity to spread deceitful propaganda all over the country, boasting that if he came to power, unemployment would be eliminated and everyone would have job and bread. Many people were taken in and chose to support Hitler. The German monopoly capitalist class also gave money to support the Nazi Party.*" [the Necessary]

(23) Dìèr nián ， tā shàng zòu dàoguāng dì ， lìzhǔ jìnyān 。tā zhǐchū ， rúguǒ tīngrèn yāpiàn dàliàng shūrù zhōngguó ， nàme ， zài shù shínián hòu, zhōngguó bújǐn "jǐ wú kě yǐ yùdí zhī bīng ", érqiě "wú kě yǐ chōngxiǎng zhī yín" 第二年，他上奏道光帝，力主禁烟。他指出，如果听任鸦片大量输入中国，那么，在数十年后，中国不仅 "几无可以御敌之兵"，而且" 无可以充饷之银"。"*In the ensuing year, he wrote to the Tao-Kuan Emperor, pleading him to ban opium. He pointed out that if opium was allowed to be imported into China in huge quantities, then in a matter of several decades, China would almost have no soldiers to resist external invasions, nor money to pay for military expenditure.*" [the Necessary]

(24) Rúguǒ nǐ shì gāo jū dǐngbù de shǎoshù rén，nǐ jiù yōngyǒu le nǐ xiǎng yào de yīqiē ， cáifù 、 quánwēi 、 hūfēnghuànyǔ 、 zuǒyòuféngyuán 、 shēngsèquǎnmǎ ；rúguǒ nǐ bú zài zhèxiē rén zhīliè ，nǐ jiù méiyǒu tài duō jiàzhí。(如果你是高居顶部的少数人，你就拥有了你想要的一切，财富、权威、呼风唤雨、左右逢源、声色犬马；如果你不在这些人之列，你就没有太多价值。) "*If you are one of the few at the very top, you will have everything you want: fortune, authority, having everything in your command, leaving nothing undone, and enjoying every conceivable form of luxury. If not, then you are a nobody.* "[the Necessary & Sufficient]

Proper logical representation would not be a problem, as is already shown in the last section. The real issue is when to use which, and whether we should take "if" and its equivalents to be an inherently ambiguous functor. In some current versions of inferential pragmatics, proliferation of ambiguity is to be avoided as much as possible. Hence the Sufficient Condition is taken to be the basic meaning of "if"-conditionals, which can sometimes be strengthened to the stronger Necessary & Sufficient Condition. Conditional Perfection thus conceived is to be governed by pragmatic principles. In relevance-theoretic pragmatics, for example, the literal meaning of a sentence cannot be directly gleaned from the logical form, which is the compositional meaning of the sentence. Since LF is underdetermined, it needs to be developed in all directions so as to obtain the full-fledged literal meaning, yielding what is called *explicature* in relevance theory. Hence, Conditional Perfection can be

viewed as a process of *explicating*, from the Sufficient Condition to the Necessary & Sufficient one. But when to explicate the LF of an if-conditional and to what extent? This is governed by the Principle of Relevance, to the satisfaction of the language user who can get an optimally relevant interpretation of the conditional statement.

No matter how Conditional Perfection actually works, it turns the Sufficient Condition into the Necessary & Sufficient Condition, i.e. the *iff* relation, to be translated into the bi-conditional ↔. However, if a language user hears a conditional and interprets its meaning as the Necessary Condition only, he should choose to represent the "If P, Q" sentence as "Q → P", rather than "P → Q". Without adopting the ambiguity strategy, the solution seems to be to use Conditional Perfection in a different sense, which is to explicate through conversion, while the standard Perfection involves adding the Necessity Condition on top of the Sufficient Condition.

With dedicated conditional markers, the Sufficient, the Necessary, and the Necessary & Sufficient conditions can be easily distinguished. But when an all-neutral *iffy* word is used, the language user has to resort to his knowledge of the world to determine which exact relation is involved. As pointed out in [3], there can be a set of conditions that are jointly sufficient without being individually necessary, and there can also be a set of conditions that are individually necessary without being jointly sufficient. It is also a familiar scenario when discussing non-monotonic logic that a monotonic conditional inference may not hold when some additional and contradictory premises are smuggled in, sometimes against our prescribed understanding of the background knowledge of the world. Hence, even when we take some conditionals as communicating the Necessary Condition, we may be ignoring many common-sense assumptions whose truth is taken for granted. Otherwise, we may never know when a condition is really the Necessary Condition, as shown in the following example:

(25) Jīnshǔ yě huì "píláo "! bú xìn ， kěyǐ shìshì ： yòng shǒu xiǎng lāduàn yīgēn tiěsī ， bú kěnéng 。 rúguǒ nǐ láihuí wānqǔ tiěsī ， fǎnfù wānshé ， tiěsī jiù duàn le 。 zhèzhǒng zài wàilì zuòyòng xià de pòhuài xiànxiàng ， kēxué shàng jiù jiào zuò píláo 。 (金属也会"疲劳"!不信，可以试试：用手想拉断一根铁丝，不可能。如果你来回弯曲铁丝，反复弯折，铁丝就断了。这种在外力作用下的破坏现象，科学上就叫做疲劳。） *"Metal can also 'fatigue'! If in doubt, you can give it a try: Try to snap a wire by hand pull. It won't work. But if you bend it back and forth repeatedly, it will break. This structural damage caused by external loading is called metal fatigue in material science."*

(25) can be taken as a case of the Sufficient Condition. Bending the iron wire will make it break, but it can also be cut by pliers. (25) can be taken as the Necessary Condition for breaking an iron wire *by hand only*. However, such descriptions involve a *ceteris paribus* assumption, that other things are held constant. What if the iron wire happens to be as resilient as a copper wire? Then it refutes the above Sufficient Condition. What if the iron wire is as crisp as a thin incense stick? Then the above Necessary Condition, i.e. repeated bending, will not be needed. It depends also on the mutual understanding that the agent is willing to keep on bending the wire, that he has enough stamina to do that, that he will not stop bending in order to attend to some

more urgent agenda items, that bending the wire as such will not cause damages and will therefore not invite interference from others, and that there will not be an earthquake or landslide or big flood at the place, etc., etc. All these may contribute to the set of sufficient conditions, and many could be necessary conditions. But most will be ignored because they constitute the general background knowledge which guarantees the performance of human rational behaviors. Given a certain situation, things happen in their usual way. If something new takes place, then *ceteris paribus*, other things will follow, in their predicted ways. Similar considerations led Sanford to claim that "[n]ecessary condition and sufficient condition are not purely technical terms" [4:179], because their explications involve accessing intrinsic properties of the propositions involved, i.e. the content, whereas purely technical terms only possess extrinsic properties, what can be established purely in terms of formal properties. Taken in this light, exclusive disjunction is not a purely technical term either, but Boolean conjunction, inclusive disjunction, and material implication are purely technical due to their extrinsic properties and their lack of intrinsic ones.

But conditionals with explicit relation markers are different. So long as you hit 'zhīyào…jiù' (只要……就), '*zhīyǒu…cái*' (只有……才), or '*dāngqiějǐndāng* ' /if and only if/ (当且仅当), you take the speaker to be communicating the Sufficient, the Necessary, or the Necessary & Sufficient Condition. It is the speaker's choice, the speaker's perception of the scenario, which you can accept without querying.

4 Explicit Counterfactual Conditionals

The above discussions have centered around indicative conditionals. When we look at subjunctive conditionals or counterfactuals, Chinese and English diverge considerably. English uses fake-tense to encode explicit counterfactuality, while Mandarin Chinese only makes use of a few lexicalized constructions to encode explicit counterfactuality. Some examples are give below.

(26) If war had not broken out, they would have married, but when the Kleibers were sent away to prison-camp, her last hope of love and security collapsed; that was when she left the Island and went up West.[8]

(27)   Dāngchū ， wǒ cóng diànyǐngyuàn cízhí láidào běijīng de shíhòu ， jiālǐrén jí tóngshì 、 péngyǒu jiù jílì fǎnduì 。 yàobúshì wǒ yìng xià yītiáo xīn ， gēnběn jiù cí bú liǎo zhí ， gèng lái bú liǎo běijīng 。 (当初，我从电影院辞职来到北京的时候，家里人及同事、朋友就极力反对。要不是我硬下一条心，根本就辞不了职，更来不了北京。) "*Initially, when I quit my cinema job to come to Beijing, my family members, colleagues and friends were all deadly against it. Had I not made up my mind, I would not have been able to resign, nor would I have been able to come and make it in Beijing.* "

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[8] From British National Corpus.

(28) 1:0, zhōngguó zúqiúduì yíng de gòu xuán de, bǐsài jìnxíng de yě gòu xié de 。 yàobúshì Hǎo Hǎidōng nà yǒudiǎn yùnqì de jìnqiú , píngjú kěndìng huì zhāo lái búmǎn hé fēiyì 。 suǒyǐ , shuǎng bú qǐlái 。 (1:0, 中国足球队赢得够悬的, 比赛进行得也够邪的。 <u>要不是</u>郝海东那有点运气的进球,平局肯定会招来不满和非议。所以, 爽不起来。) *"One: Nil. The Chinese football team won a very close match with real good luck. Had it not been for Hao Haidong to score that lucky goal, a tie would surely have incurred dissatisfaction and complaints. That is why nobody took it with a light heart."*

(29) Xīlà dàibiǎotuán suī shì zuìhòu yīgè rùchǎng, dàn huòdé de zhǎngshēng shì zuì jiǔ 、 zuì rèliè de。 zhè bú qíguài, yīnwéi tāmen shì dōngdàozhǔ , guānzhòng méiyǒu lǐyóu lìnxī zìjǐ de zhǎngshēng。 zhídé yītí de shì, xīlà dàibiǎotuán cóng zhǔnbèi rùchǎng dào ràochǎng yīzhōu duō hòu, gòng dédào le 18 fēn 2 miǎo zhōng de zhǎngshēng , yàobúshì zhǔchírén dǎduàn, hěn nánshuō gǔzhǎng néng chíxù dào shénme shíhòu 。 (希腊代表团虽是最后一个入场,但获得的掌声是最久、最热烈的。这不奇怪,因为他们是东道主, 观众没有理由吝惜自己的掌声。值得一提的是,希腊代表团从准备入场到绕场一周多后,共得到了18分2秒钟的掌声, <u>要不是</u>主持人打断,很难说鼓掌能持续到什么时候。) *"Although the Greek delegation was the last to enter the stadium, they won the longest and loudest round of applause. This is hardly surprising, as they represented the host country and the spectators had no reason to save on their applause.   It is worth pointing out that the Greek delegation won an applause lasting for 18 minutes and 2 seconds, from the time they prepared to enter the stadium to the end of one lap's march. Had it not been for the ceremony presenter who put the cheers to an end, it would have been hard to tell how long the applause could last."*

In the above examples, 'yào bú shì', though internally complex, behaves exactly like a conditional functor. It is used as a single lexical item, different from the compositional meaning of 'yàoshì…bú'/If … not/"要是… 不. 'yàoshì…bú' is not an explicit marker of counterfactual conditionals, because it can also form indicative conditionals. 'yàoshì…bú' parallels "If … not" in English, but 'yào bú shì' seems to be remotely equivalent to the English "Had it not been for …".

'Yào bú shì' is internally complex for a special reason. It takes on a proposition P, which should be about a state or event that is both true and real, and returns a protasis P* which is counterfactual. Here, negation obviously plays a vital role, but negation is only one necessary condition, not a sufficient one. In the 'yàoshì…bú' construction, which also forms a protasis, negation works as well, but the resulting protasis does not have to be contrary to fact.

Harbsmeier [5] claimed that 'wēi'/*if not*/ (微) in Pre-Qin classical Chinese is entirely limited to counterfactual usage, saying that the noun mentioned after 'wēi' must refer to something that is presupposed to have been non-existent. The examples he gave were 'wēi fū rén zhī lì'/*Without that person's help*/(微夫人之力……), and 'wēi fū zǐ zhī fā wú fù yě'/*But for the Master's lifting the veil for me*/ (微夫子之发吾覆也) (both being nominalized sentences, the marker being 之) as well as 'wēi tàizǐ yán' /*Had it not been for (you) the Prince's words…*/ (微太子言) (nominalized without

a nominalization marker). Here, Harbsmeier seemed to have made a mistake. What is presupposed should be something that must be *existent*, which is related to the nominalized event after 'wēi'. This is also the property of 'yào bú shì', which can be taken as the modern version of 'wēi'. So the proposition led by 'yào bú shì' should be about an event that has already happened, and established as true. What is more, it should not be some proposition about abstract, general, timeless states. This can be established through both introspection and corpus search. Try to create a 'yào bú shì' counterfactual with abstract ideas, the resulting conditional is bound to be weird. What also tend to be anomalous are 'yào bú shì' counterfactuals containing a proposition with an extra layer of negation. To say the least, they are difficult to process.

How can the above characterizations of 'yào bú shì' be sharpened?

5   Veridicality

One viable notion to adopt is *veridicality*, which has recently been re-developed in the works of Giannakidou. Giannakidou & Mari [6] provides the most updated definition of (*subjective*) *veridicality* as "truth judgments depending on what epistemic agents know or believe to be true, and other factors in the context relating to the epistemic status of individuals." This definition distinguishes itself from some other, older definitions of (*objective*) *verdiciality* and (*perceptive*) *veridicality*, which are not so distinguishable from related notions like *realis* and *factivity*. [9]

Guided by this new definition, 'yào bú shì' can be characterized as an operator taking a veridical proposition: what the agent knows or believes to be true. We can also call 'yào bú shì' a *veridical operator*. A similar operator in Mandarin is 'zǎo zhīdào …' /Early know… / (早知道) which however, is not a conditional connective:

(30) Dǎ guò zhèzhǒng shōufèi diànhuà de háizǐ zài zhīdào zìjǐ gěi jiātíng zàochéng zhème dà de sǔnshī hòu， wǎngwǎng yě hòuhuǐ：“dāngshí zhīshì tú yīshí gāoxìng， juédé xīnxiān 、 hǎowán。rúguǒ zǎo zhīdào yào jiāo zhème duō qián， wǒ yě jiù bú huì dǎ le 。"(打过这种收费电话的孩子在知道自己给家庭造成这么大的损失后，往往也后悔："当时只是图一时高兴，觉得新鲜、好玩。如果早知道要交这么多钱，我也就不会打了。") *"Those children who had made such pay-phone calls, after learning about the huge phone bills incurred for their homes, were often full of remorse: 'I made the phone call only because I was curious and thrilled. Had I known it would cost that much, I would not have called at all'."*

(31) Tā xiàng xiāoxié tóngzhì kūsù shuō：“yàoshì zǎo zhīdào shàngdāng shòupiàn， wǒ jiù bú gàn le。xiànzài nòng dé yīshēn máfán， xiōngdì jiěmèi dōu bú xiàng rèn， hái jīyā le yīdàduī méi tuīxiāo chūqù de chǎnpǐn， wǒ qù zhǎo shuí ā ？" (她向消协同志哭诉说："要是早知道上当受骗，我就不干了。现在弄得一身麻烦，兄弟姐妹都不相认，还积压了一大堆没推销出去的产品，我去找谁啊？") *"She told staff at Consumer's Association in tears, 'Had I known it was a fraud, I would not have got involved. Now I am*

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[9] Cf. Giannakidou & Mari [6] for comparisons between these notions and for formal characterization of the newly defined notion.

all troubles. My brothers and sisters have all turned away from me. And I am
stuck with loads of unsold goods. Whom can I turn to? " "

(32) Cóngqián yǒu yīgè rén chī shāobǐng。dìyīgè shāobǐng méiyǒu chī bǎo，zài
mǎi dìèrgè。zhídào zuìhòu dìsāngè luòdù cái bǎo le。nàrén kāishǐ hòuhuǐ
qǐlái，shuō：zǎo zhīdào dìsāngè shāobǐng bǎo dùzǐ，hébì huāqián chī
qiánmiàn liǎnggè ？(从前有一个人吃烧饼。第一个烧饼没有吃饱，再买
第二个。直到最后第三个落肚才饱了。那人开始后悔起来，说：早知道
第三个烧饼饱肚子，何必花钱吃前面两个？) *"Once upon a time, there*
was a man eating sesame-seed cakes. Having taken one, he was still hun-
gry. So he bought another one, and the third one. Then he was full but start-
ed to regret, 'Had I known the third one would make me full, I wouldn't have
spent money on the first two!' "

Corpus findings immediately reveal that 'zǎo zhīdào' is not to be treated on a par
with 'yào bú shì'. As 'zǎo zhīdào' can follow 'rúguǒ' or 'yàoshì', it is not to be taken
as a conditional functor itself. Jiang & Wang [7] uses the notion of *antiveridicality* to
characterize the behavior of the Shanghainese me51hau3 /*Much-preferred…*/ (蛮好
……) as a counterfactual *desiderative*. Some relevant examples are quoted below:

(33) Mehau   ganggang   cen   ditik   qi   nao ![10]
     Much-preferred just-now   take   underground go   EM-SMP
     蛮好刚刚乘地铁启孬！
     (EM-SMP = emotive sentence-final particle)
     "It would have been much better that we took the underground at the time.
     刚才要是坐地铁去就好了。"

(34) Mehau   nong   ganggang   vyao   gang   bak   yi
     Much-preferred you   just-now   do-not   tell   to   him

     tin   nao.
     hear   EM-SMP

     蛮好侬刚刚勿要岗摆伊听孬！
     "It would have been much better that you did not let him/her know (that) at
          the time.
     你刚才要是不告诉他就好了。"

6   Contingency

Subjective veridicality constitutes one necessary condition for the use of 'yào bú shì',
but it still does not capture the intuition that 'yào bú shì' does not take on abstract
propositions like science or math laws, even though they can be subjectively estab-
lished as truth. In Armstrong [8], non-abstract counterfactuals are given the name
contingent counterfactuals: "Contingent counterfactual claims are often to be found

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[10] As tone sandhi in Shanghainese is very complicated, it is customary for non-phonetic studies
to omit tones in example sentences.

in ordinary discourse, for instance, 'If you had not put your foot on the brake so promptly just then, there would have been a nasty accident.'" Talks of *historical contingencies* are also frequently encountered: "What if there had been no American War of Independence? What if Ireland had never been divided?   What if Britain had stayed out of the First World War? What if Hitler had invaded Britain or had defeated the Soviet Union? What if the Russians had won the Cold War? What if Kennedy had lived? What if there had been no Gorbachev?" [9]

However, *contingency* seems to be a rather slippery term in philosophy. A consultation of philosophical literature reveals that all counterfactual hypotheses are about contingencies, and so are all conditional hypotheses. One other useful source is Rescher [7], in which he distinguishes between *falsifying* and *truthifying* causal counterfactuals. Falsifying counterfactuals hypothesize what actually did happen had not happened, whereas truthifying counterfactuals hypothesize what did not actually happen had happened. According to Rescher, historical counterfactuals of the falsifying type "are in general retrospectively cause-determinative in nature" and "generally address the preconditions for an actual occurrence". Such counterfactuals are less speculative and more situation-bound. This rightly fits the characterization of 'yào bú shì' counterfactuals. So what follows 'yào bú shì' can now be re-characterized as a proposition which is both veridical and a falsifying contingent. This is the conclusion we can reach at the present research stage.

7   Looking Ahead

The use of 'yào bú shì' counterfactuals only constitutes one kind of Chinese counterfactual conditionals, but it is the most prominent explicit counterfactual conditional in Mandarin. Implicit counterfactual conditionals involve inference and subtle lexical cues. That is a complicated issue that will have to be addressed elsewhere. [11]

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[11] Cf. Wang [11].

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