Presuppositions in Chinese Bare Conditionals[1]

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This paper examines the syntactic and semantic distributions of Chinese conditionals with a focus on presuppositions in bare conditionals uttered in episodic contexts. I show that *wh*-words/pronouns in CBCs used to describe actual events can be uniformly treated with the semantics of English free relatives with *ever* (FRs-*ever*) as definite descriptions denoting a maximal entity satisfying the description of *wh*-conjuncts. While -*ever* contributes either an ignorance or an indifference presupposition (Von Fintel 2000), I argue that CBCs are inherently prefixed with a counterfactual modal environment and that the indifference presupposition always enters the truth conditional content as an entailment, while the presupposition of ignorance is a mere implicature.

1. Introduction

There has been an extended theoretical debate over the syntax and semantics of Chinese Bare Conditionals (CBCs). According to Cheng and Huang's original account, CBCs are conditional donkey sentences which lack an overt leading element *ruguo* 'if', bear only future tense/aspect, disallow consequent pronouns/definite expressions, and require the presence of two identical *wh*-words to occur, one in each clause. *Wh*-words are treated as indefinites without inherent quantificational force and are unselectively bound by a covert necessity operator that serves as the source of the universal force possessed by the construction (1996):[2]

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[2] Conditional donkey sentences are conditional sentences with donkey anaphora. Cheng and Huang observe that in Mandarin Chinese, donkey sentences typically take forms of conditional sentences which may involve a *wh*-word in the antecedent clause and an element anaphoric to it in the consequent clause. See Cooper (1979) and Evans (1980) for a detailed discussion of donkey sentences.

(1) *Shei* xian lai, *shei /*ta/*[e]³/*na-ge-ren* (jiu) xian chi.
     who first come, who/he(she)/[e]/that person then first eat
     'If X comes first, X eats first.'
     = ∀x (you like x → x is lucky)

Ruguo- 'if' conditionals, on the other hand, disallow a second *wh*-word in the consequent clause and are treated with the traditional E-type pronoun strategy.

(2) Ruguo ni kandao *shei*, qing jiao *ta/*shei* lai jian wo.
     if you see who please tell him(her)/who come see me
     'If you see someone, please ask him/her to come see me.'
      = If (for some x, (x a person) (you see x)), then tell him/her to come in.

Some take Cheng and Huang's account at face value but seek alternative ways to explain how the default universal force of *wh*-words in CBCs is derived (Chierchia 2000). Others take issue with Cheng and Huang's two paradigmatic view of Chinese conditionals and argue that like *ruguo*- 'if' conditionals, CBCs can admit a consequent pronoun that is able to pick out a singular unique referent presuming the referential nature of Chinese pronouns (Lin 1996, 1998; Pan and Jiang to appear):[4]

(3) *Shei* shang xueqi na di-yi-ming, *shei/ta* zhe xueqi jiu keyi dang
     who last semester get top-one who/he this semester then may serve
     banzhang.
     leader
     'Whoever's performance was the best last semester may serve as the class
       leader this semester.

Lin (1996) terms CBCs that permit consequent pronouns "one-case bare conditionals" (3) and gives those that prohibit pronouns "multi-case bare conditionals" (1). Informants, nevertheless, consider that (3) with a consequent pronoun can be true even if there were three people who simultaneously had the best performance last semester. In that case, the pronoun *ta* 'he' can be used to refer to those three people who had the best score last semester. In my recent work (Huang forthcoming), I show that the use of a consequent pronoun in a bare conditional is not subject to an existence and uniqueness condition if CBCs are uttered in generic contexts. Consider the following examples:

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[3] Empty pronominal.

[4] If we adopt the view that Chinese *ta* 'he/she' can only be referential in nature as many have claimed (Chao and Sells 1983; Cheng and Huang 1996).

(4)   (Genju   xuixiao de guiding), *shei* <u>shangxueqi</u>   na   di-yi-ming,
        according school DE rule   who last semester get top-one
        ta/shei <u>zhexueqi</u>   jiu   keyi dang banzhang.
        he/who this semester then can   serve leader
        '(According to the rule of the school) whoever had the best score last
        semester can serve as the class leader this semester.'

(5)   *Shei* zhe beizi zuo hao   shi,   *shei/ta* xia beizi jiu keyi jixu   zuo
        who this life do good deeds who/he next life   then can continue be
        ren.
        human
        'Whoever does good deeds in this life can continue to be human in the next
        life.'

CBCs in (4~5) are generic statements, though their verb constellations denote a single
episodic event or state at the basic level of categorization. There is no presupposition of a
unique referent associated with the consequent pronoun.

Regardless of what the condition is that restricts the use of consequent pronouns in
CBCs, it is clear that CBCs can have either a universal or a definite quantificational force. It
is plausible to assume that the quntificational force of *wh*-words/pronouns in CBCs when
uttered to describe actual events is strikingly similar to that of English FRs-*ever*. In the first
part of this paper I show that *wh*-words/pronouns in CBCs uttered in episodic contexts can
be uniformly treated with the semantics of FRs-*ever* as definite descriptions denoting a
maximal entity, singular or plural (Jacobson 1995; Dayal 1997; Tredinnick 2005). In the
second part of this paper I compare CBCs and English FRs-*ever* focusing on modal
implication and presupposition in these two constructions. Specifically, I challenge the
commonly held assumption that CBCs are the Chinese version of English *whatever*
sentences.   While showing that *wh*-words/pronouns in CBCs are comparable to the
morpheme -*ever* that is presuppositional (Dayal 1997; Von Fintel 2000; Tredinnick 2005), I
argue that CBCs are not just the counterpart of FRs-*ever* and that CBCs are inherently
prefixed with a counterfactual modal base while the mood of *whatever* sentences varies
pragmatically. My diagnostics through standard presupposition projection tests reveal that
the indifference presupposition associated with CBCs always enters the truth conditional
content as an entailment, while the presupposition of ignorance is a mere implicature. This
paper is outlined as follows: Section 2 summarizes recent analyses of the semantics of
English FRs with -*ever*. Section 3 examines presuppositions in CBCs in episodic contexts
and introduces the "ignorance use of Chinese *wh*-words.". In Section 4 I draw a comparison
between Chinese bare conditionals and English *whatever* sentences focusing on
presuppositions in these two constructions.

2. Recent Analyses of English FRs-*ever*
2.1 Quantificational Force of FRs-*ever*

It is a well known fact that English FRs with -*ever* are definite descriptions (Jacobson 1995; Dayal 1995, 1997; Von Fintel 2000; Tredinnick 2005). The idea is that *ever* FRs are like plain FRs in that both can be paraphrased as definites or universals:[5]

(6) a. I ordered what he ordered for dessert. (= the thing he ordered for dessert)
b. Do what the baby sitter tells you. (= everything the babysitter tells you)
c. John will read whatever Bill assigns (= everything/anything Bill assigns)
d. Whoever was awake saw what happened. (= the person/everyone who was awake).

To provide a unifying account of FRs that allows for both definite and universal readings, Jacobson treats FRs-*ever* as definite descriptions denoting a maximal entity. A relative clause with or without -*ever* as in *what(ever) the baby sitter tells you* denotes the maximal individual, which can be singular (= *the thing the baby sitter tells you*), or plural (= *the sum of all the things (everything) the baby sitter tells you*). For the purpose of this paper, I will not go into the technical detail of her analysis. Instead, I will review the contribution of -*ever* that she and others have taken to be presuppositional.

2.2 FRs-*ever* as Presuppositional

The morpheme -*ever* of *ever* FRs contributes an additional modal flavor to an utterance which otherwise lacks in sentences with plain FRs without -*ever*. Dayal (1997) takes the role of the morpheme -*ever* as an indicator of a speaker's ignorance (7a) which is not signaled in (7b) with a plain FR that does not contain -*ever*:

(7) a. There's a lot of garlic in *whatever* Arlo is cooking.
b. There's a lot of garlic in *what* Arlo is cooking.

(7a) but not (7b) can be paraphrased as: "the speaker does not know what Arlo is cooking but the thing whatever it is that Arlo is cooking has a lot of garlic in it." According to Dayal, *whatever* asserts that the speaker cannot identify the referent of the FR which denotes *the thing that Arlo is cooking*. In other words, "in each epistemic alternative, the sentence without -*ever* is true" as Von Fintel puts it. However, Von Fintel soon notices that *whatever* does not always make an epistemic assertion. For instance, in embedded contexts (8), *whatever* does not contribute an epistemic certainty to the assertion of the sentence (p. 4):

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[5] Examples in (6a~c) taken from Jacobson (1995) and Dayal (1997).

(8) Unless there's a lot of garlic in *whatever* Arlo is cooking, I will eat out tonight.
≠ Unless I'm sure that there's a lot of garlic in *what* Arlo is cooking, I will eat out tonight.

This motivates Von Fintel to assume a presupposition of ignorance as to the denotation of the FR, thus replacing Dayal's "assertion of ignorance." In addition, he identifies an indifference presupposition associated with -*ever* in examples like (9), for instance:

(9)   I grabbed whatever tool was handy.

The preferred reading in (9) signals that the speaker grabbed the tool that was handy and he did so indiscriminately. Similarly, the sentence in (10a) has the preferred reading (10b) where Zack indiscriminately voted for the person at the top of the ballot:

(10)   a. Zack simply voted for whoever was at the top of the ballot.
        b. Zack voted for the person that was at the top of the ballot, and *if a different person had been at the top of the ballot, Zack would have voted for that person.*

Assuming the usual principles of presupposition, Von Fintel further detects that while the agent indifference presupposition projects locally (11), the presupposition of ignorance projects out of *unless*-clause (12):[6]

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[6] One can think of presupposition projection as accommodation. Following Beaver & Zeevat (2004), let us say that a presupposition projects globally is identified with accommodation in the global context:

(i)   If Mary's carrying an umbrella, then she knows that it is raining.
        = It is raining. If Mary's carrying an umbrella, then she knows that it is raining.

Here the factive verb "know" triggers a presupposition "it is raining" which projects globally. In the example below, the presupposition "it is raining" is accommodated locally and evaluated as part of the assertion:

(ii)   I wonder if it is raining. If Mary's carrying an umbrella, then she knows that it is raining.
        = I wonder if it is raining. If Mary's carrying an umbrella, then it is raining and she knows that it is raining.

In cases where fronted addition of the presupposition produces a felicitous discourse, global accommodation is preferred.

(11) Unless Zack simply voted for *whoever* was at the top of the ballot, he must
have spend at least 5 minutes in the voting booth.
= *Unless Zack simply voted indifferently* for the person at the top of the
ballot, he must have spend at least 5 minutes in the voting booth.
≠ Zack simply voted indifferently. Unless Zack simply voted for the person
at the top of the ballot, he must have spend at least 5 minutes in the voting
booth.

(12) Unless there's a lot of garlic in *whatever* Arlo is cooking, I will eat out tonight.
= *I'm not sure what Arlo is cooking*, but unless there's a lot of garlic in what
Arlo is cooking, I will eat out tonight.
≠ Unless I'm sure that there's a lot of garlic in *what* Arlo is cooking, I will eat
out tonight.

In embedded contexts speaker's ignorance presupposition projects out to the matrix level
(12), while the presupposition of agent's indifference does not (11). Von Fintel notices this
asymmetry between the ignorance and indifference presupposition. Still, he provides
whatever a conditional semantics and explicitly assumes a presupposition of indifference.
His idea is that the implication of a certain modality may give rise to either a speaker's
ignorance reading (concerns speaker's epistemic uncertainty), or to an agent's indifference
reading (concerns agent's deontic alternatives). He gives *whatever* the following analysis:[7]

(13) *whatever (w) (F) (P) (Q)*

presupposes: $\forall$ w' $\in$min$_w$ [F $\cap$ (λw'. ιx. P (w')(x) $\neq$$\iota$x. P (w)(x))]:
$$Q (w) (\iota x.\ P (w)(x))$$
asserts: Q (w) (ιx. P (w)(x))

F is the modal base. The **min**-operator triggers an existential presupposition which ensures
that the domain of quantification is non-empty and that the worlds being quantified over
differ minimally from one another. Depending on the modal base provided by contexts, a
counterfactual modal environment will give rise to an indifference reading and the
quantification is over counterfactual alternatives which differ from the actual world. An
ignorance reading will be derived in an epistemic modal environment and the quantification
is over speaker's epistemic alternatives. If the identity of an FR-*ever* (ι**x. P (x)**) differs
across the epistemic modal base, then the speaker does not know (is ignorant of) the identity
of ι**x. P (x)**. On the other hand, if the identity of an FR-*ever* (ι**x. P (x)**) remains the same

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[7] The iota operator is normally used only for singular expressions, but I will follow Tredinnick (2005)
and others and let it be used for both singular and plural definites.

across the epistemic modal base, then the speaker knows the identity of **ıx. P (x)**. Shortly put, regardless of what **ıx. P (x)** is in all *w′* minimally different from w with respect to *F*, the proposition **Q (w) (ıx. P (w)(x))** will have the same truth value in *w*. At the level of assertion, an FR with *-ever* is identical to an FR without *-ever*. Next, I discuss how Von Fintel's analysis of *whatever* in (13) can be extended to capture the meaning of CBCs. As the discussion progresses, I will also make adjustments to his formula.

3. Presuppositions in CBCs in Episodic Contexts

Let me begin this section with a set up of some preliminaries regarding the form of CBCs. As introduced in section 1 following Lin (1996) and Huang (forthcoming), I consider that CBCs can admit non-future tense/aspect and allow the presence of consequent pronouns contrary to Cheng and Huang's claim. Nevertheless, I do not believe that a consequent pronoun can only be admitted in a CBC if it picks out a singular unique referent. I observe that *wh*-words/pronouns allow both a definite and a universal reading in CBCs uttered in episodic and generic contexts. Let us set aside the meaning of CBCs in generic contexts and focus only on presuppositions in CBCs in episodic contexts. We will begin this section with a brief introduction of tense and aspect in Mandarin Chinese.

3.1 Tense and Aspect in Chinese Bare Conditionals

Tense and aspectual morphemes are syntactically optional in Mandarin. A sentence without tense/aspectual morphemes has both an open and a closed reading as the English translation in (14) indicates (Smith 1997):

(14) Zhangsan xiuli   yitai luyinji.
    Zhangsan repair one tape recorder
    'Zhangsan repaired/is repairing a tape recorder.'

(14) can mean either that Zhangsan finished repairing a tape recorder, or that the reparing is still ongoing. If uttered to describe a past event, CBCs can bear perfective aspect which can be overtly or covertly indicated by a perfective morpheme:

(15) Natian   didi   henguai,   Mama shou shenme, ta jiu zuo shenme.
    that day little brother well-behaved mother say   what   he then do what
    'That day little brother was very well-behaved. He did whatever mother said.'

(16) Zuotian,   wo zhishi xiangdao shenme, jiu   xie-le   shenme.
    yesterday I   just   think   what   then write-Perf what
    'Yesterday, I was only writing down whatever came to my mind.'

(17) Zuotian   shei zai xuanpiao shang, Dawei jiu tou-le   shei/ta.
        yesterday who is   ballot   on top David then vote-Perf what/he
        'Yesterday, David voted for whoever appeared on the ballot.'

In the presence of time adverbials such as *zuotian* 'yesterday' and *natian* 'that day', CBCs freely allow the verb to be modified by the perfective morpheme *le*.

3.2 Quantificational Force of *Wh*-words in CBCs

      I observe that *wh*-words in CBCs describing actual events (in both episodic and generic contexts) may share with English FRs-*ever* the semantics of a definite expression in its broad sense including both singular and plural definites.[8] Take the bare conditional in (15) as an example, *wh*-words denote the maximal individual–either *the thing* or *the sum of all the things that the mother said*. Apply Von Fintel's analysis in (13) to *didi* 'younger brother' in (15) and assume a counterfactual modal base, we derive a reading which says that "in all of the minimally different counterfactual worlds in which mother had said a different thing/things, little brother would have done the thing(s) that mother said." This is the desired reading intended in (15). The examples in (15~17) all have a preferred reading that presupposes the agent's indifference. In contrast to (15), a simple relative construction shown in (18) below lacks such presupposition:

(18)   Didi   zuo mama shuo de   shi.
        little brother do mother say   DE thing(s)
        'Little brother did what mother said.'

The utterance in (15) presupposes that *didi* 'younger brother' is acting indifferently (willingly or unwillingly) doing the thing(s) his mother said, while the sentence in (18) with a simple relative clause *mama shuo de shi* 'what mother said' does not.

      Besides an indifference reading, CBCs can also have a speaker's ignorance reading if an appropriately induced by contexts. Consider the following mini-discourse:

(19)   A: Natian   didi   zuo-le   shenme?
           that day little brother do-Perf   what
           'What did little brother do that day?'

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[8] As mentioned in 2.1 an FR in *what he ordered* is equivalent to the iota expression which denotes the maximal individual of which it is true–either that it is *a thing or the sum of all the things that he ordered*. Note that the term "definite" is used in Lin (1996) to refer to a singular unique individual.

B: Wo bu zhidao, mama shou-le   shenme, ta jiu   zuo shenme.
  I   not know   mother say-Perf   what   he then   do   what
'I don't know. He did whatever mother said.'

When the conversation concerns the speaker's epistemic state as the discourse context so provides in (19), the CBC in speaker B's utterance has an ignorance reading. It says that the speaker does not know, or is uncertain as to what her *didi* 'younger brother' did. It is important to note that the ignorance reading is only implicated, not presupposed. For, speaker B's utterance in (19) is compatible with a situation where the speaker does in fact know what it was that her *didi* 'younger brother' did but deliberately hiding it as a secret. In section 4 I will show in detail that calling both the ignorance and the indifference reading "presupposition" cannot be justified. Next, I continue to discuss the ignorance reading of CBCs. In passing I introduce the "ignorance use" of Chinese *wh*-words.

3.3 Ignorance use of Chinese *wh*-words

Some uses of Chinese *wh*-words have not been documented in the literature. When a speaker has a person in mind but is unable to properly identify the name of that person, she may use *shei* 'who' to signal that:

(20)   Ni xihuan DE neige shei , gancai   dadianhua lai-le.[9]
       you like   DE that   who   minute ago call   come-Perf
       'Whoever you like phoned a minute ago.'

Compare (20) with (21) where the head of the relative clause is *ren* 'person' instead of the *wh*-word *shei* 'who':

(21)   Ni xihuan DE   neige ren ,   gancai   dadianhua lai-le.
       you like   DE   that   person minute ago call   come-Perf
       'That man you like phoned a minute ago.'

A hearer, upon hearing (20), will automatically assume that the speaker wishes to supply more information about the identity of the person whom the addressee likes but is unable to do so.[10] The sentence in (21) is uttered without such intention. By no means will the hearer interpret (20) as a question asking who the person was that called. Likewise, in the example below, the use of *shei* 'who' is judged by native speakers as an indicator of speaker's inability to utter the person's name for whatever reason:

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[9] Some native speakers prefer not to have *neige shei* 'that who' embedded inside a relative clause, but still consider (20) well-formed.

[10] The *wh*-phrase in (20) can have another meaning that signals that the speaker considers the person whom the addressee likes is unimportant. This use of *wh*-words will not be considered in this paper.

(22)   Yuna xiang gen neige shei shuohua, keshi shei you bu li   ta.
        Yuna want with that   who talk   but   who then not bother her
        'Whoever Yuna wanted to talk, he didn't want to pay attention to her.'

The ignorance use of *wh*-word *shei* 'who' is preceded by a determiner *neige* 'that' in (20) and in the first clause in (22). In the second clause in (22), there is no determiner that precedes *shei* 'who'. The use of *shei* 'who' in both examples in (20) and (22) do not turn the sentences into questions (≠*shei dadianhua lai-le* 'who was it that just called'). Rather, they signal a speaker's ignorance/uncertainty as to the identity of the person under discussion. I will term this kind of use "ignorance use of *wh*-words." One should be reminded that there is no causal link between the two *wh*-conjuncts in (22). This is in sharp contrast with CBCs, since CBCs always require a causal relation to exist between two eventualities.[11] For the sake of clarity, let me emphasize that the "ignorance use" of *wh*-words does not require a causal relation to exist i.e., there is no need for the existence of a causal link between the liking of the person expressed by *shei* 'who' and the action of phoning in the example in (20).

4. CBCs vs. *Whatever*
4.1 A Default Counterfactual Modal Base in CBCs
        In this section I argue that *wh*-words in bare conditionals always contribute an agent/subject's indifference presupposition which is also an entailment, while a speaker's ignorance reading is only an implicature. Consider (17) again repeated here in (23):

(23)   Zuotian   shei zai xuanpiao shang, Dawei jiu tou gei-le   shei/ta.
        yesterday who is ballot   on top David then vote to-Perf what/he
        'Yesterday, David voted for whoever appeared on the ballot.'

The default reading in (23) is one that says *David voted indifferently*. A person's name being on the ballot is itself a sufficient condition for David to vote for him. If a different person had been on the ballot, he would have voted for him. The bare conditional in (23), as a matter of fact, entails that David voted indifferently as it cannot immediately precede an utterance which expresses David's strong preference for wanting to vote for a specific candidate:

(24)   #Shei zai xuanpiao shang Dawei jiu   tou shei. Dawei xiang tuo   Ma.
          who is   ballot   top David then vote who David want voted Ma.
          'He voted for whoever appeared on top of the ballot. David wanted to vote for
           Ma.'

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[11] Lin (1996) also claims that two *wh*-clauses without a causal relation cannot form CBCs.

In (25) the indifference entailment that *David voted indifferently* survives in a number of constructions, e.g., when embedded inside an *if*-clause (25a), and in negation (25b):

(25) a. Ruguo shei zai xuanpiao shang, Dawei jiu tou   gei shei,
      if   who be ballot   on   David then vote to who
      Ma you keneng   luo   xuan
      Ma has possibility lose election
      'If David voted for whoever appeared on the ballot, possibly Ma will lose.'
      = If David voted indifferently for the person/people who appeared on the
      ballot, Ma will possibly lose.

    b. Bushi shei zai xuanpiao shang, Dawei jiu tou   gei shei, Ma jiu hui ying.
      not   who be ballot   on   David then vote to who, Ma then will win
      'It is not the case that David voted for whoever appeared on the ballot, Ma
      will win.'
      = 'It is not the case that David voted indifferently for the person/people who
        appeared on the ballot, Ma will win.'

Evidently, the bare conditional in (23) not only entails but also presupposes that *David voted indifferently*. Given that two clauses that form a bare conditional must be in a causal relation (pace Lin 1996) and that causation is commonly associated with counterfactual reasoning (Lewis1973b), I propose that bare conditionals receive a causal interpretation by default and are always given a counterfactual modal base.[12]

As for the ignorance reading of the bare conditional in (23), i.e., *the speaker does not know whom David voted for* turns out to be an implicature rather than a presupposition. The use of a bare conditional is felicitous regardless of whether or not the speaker knows the identity of the person whom David voted for:

(26) Shei zai xuanpiao shang, Dawei jiu   tuo gei shei. Ta tuo Ma.
     who is ballot   on   David then vote to who he vote Ma
    'David voted for whoever appeared on the ballot. He voted for Ma.'

It can be concluded that *wh*-words in a bare conditional do not presuppose a speaker's ignorance. Given that the English translation of (26) containing *whoever* is also compatible with a situation where the identity of the person whom David voted for is known to the speaker, one may find it more adequate to consider calling the ignorance reading of CBCs and *whoever* "implicature," rather than calling it "ignorance presupposition" as originally

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[12] Exactly what is it for two propositions to be in a causal relation is a complicated matter. See Dowty (1979) and Lewis (1973b), among others for the discussion of causation.

proposed in Von Fintel (2000). Interestingly even if the identity of *wh*-words is the topic under discussion, the indifference reading is still presupposed and the ignorance reading remains an implicature. The mini discourse in (27) shows just this:

(27) A: Dengyixia   shei xian chi?
      in a minute who first eat
      'Who can eat first in a minute?'

    B: Shei laile,   shei/ta jiu   xian chi. Jiushi   David!
      who come-completive who/he then first eat   namely David
      'Whoever came first, eat first. Namely, David!'

4.2 Presuppositions in CBCs in Episodic Contexts with Future Reference

All the CBC examples discussed in this paper so far contain past tense/aspect. Treating *wh*-words/pronouns as definite expressions in CBCs with past episodic tense/aspect appears to be a sound strategy. Definite descriptions are known to limit the interpretation to a set of contextually specified individuals. Episodic contexts describing past events are able to supply just that. However, the existence and uniqueness presupposition traditionally associated with definite expressions may pose a problem for my claim that *wh*-words/pronouns denote definite descriptions in CBCs uttered in episodic contexts with future reference. For instance, *wh*-words/pronouns in a bare conditional with future tense fail to presuppose existence as shown in (28):

(28) Mingtian   shei zai xuanpiao shang, Dawei   jiu   tou gei shei/ta.
      tomorrow who is ballot   top   David   then vote to   what/he
      'Tomorrow, David voted for whoever appeared on the ballot.'

It becomes obvious that the iota operator employed in Von Fintel's analysis for *whatever* in (13) which presupposes the uniqueness and existence of an individual will be too strong to interpret *wh*-words/pronouns in CBCs and even English FRs *-ever*. To solve this problem, we may consider turning the iota operator into an existential operator and modify Von Fintel's formula for the presupposition of *-ever* in (13) roughly as (29):

(29)   *CBCs/whatever* (w) ($F_{counterfactual}$) (P_{Future}) (Q_{future})
       presupposes and entails:

$$\exists !x.P(w)(x) \rightarrow \forall w' \in min_w \,[\, F \cap (\, \lambda w'.\, \iota x.\, P\,(w')(x) \neq \iota x.\, P\,(w)(x)\,)]:$$
$$Q\,(w)\,(\iota x.\, P\,(w)(x)\,)^{[13]}$$

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[13] An exist operator was Professor Beaver's idea but was not intended to use for this case.

In episodic contexts for a bare conditional bears future tense with a counterfactual modal base, (28) presupposes and entails that "if the person denoted by *wh*-words/*whoever* exists, then in all of the minimally different counterfactual worlds in which a different person appears on top of the ballot, David will vote for that person in the actual world." Of course, let us not forget that if the context supplies an epistemic modal base, then we get an ignorance implicature.

Even though the interpretation of CBCs uttered in generic contexts are not discussed in this paper, one should be reminded that a CBC that bears future tense/aspect does not need to be used to describe a future episodic event, it may be used as a generic statement. Future research then, must capture presuppositions in CBCs uttered in generic contexts.

5. Conclusion

In this paper, I examine quantification, modal implication, and presupposition of CBCs drawing comparison with English free relatives with *-ever*. CBCs uttered in episodic contexts to describe actual events are compatible with non-future tense/aspect and permit consequent pronouns. I argue that *wh*-words/pronouns in these CBCs can be analyzed as definite descriptions denoting the unique maximal entity, singular or plural in the sense of Jacobson (1995) and Dayal (1997). I propose that *wh*-words in a bare conditional do not presuppose a speaker's ignorance and claim that *wh*-words in bare conditionals always contribute to an agent's/subject's indifference presupposition which is also an entailment, while the speaker's ignorance reading is only an implicature. The indifference presupposition always enters the truth conditional content as an entailment, while the presupposition of ignorance is a mere implicature.

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