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## ANTONYMS? PRESUPPOSITIONS?

### ON THE SEMANTICS OF TWO EVALUATIVE MODALS *JINGRAN* AND *GUORAN* IN MANDARIN\*

Jiun-Shiung Wu

#### ABSTRACT

*Jingran* indicates that the (non)occurrence of a situation that it presents contradicts the expectation, while *guoran* indicates that the (non)occurrence of a situation presented by it converges with the expectation. Arguing against Hsieh's (2005, 2006a, 2006b) proposal that evaluative modals in Mandarin do not have a model-theoretic semantics, I propose that, given that the expectation serves as a modal base *B* which an evaluative conversational background forms, *jingran* presents a proposition which represents a simple necessity of negation in a possible world *w* with respect to *B*, whereas *guoran* presents a proposition which is equivalent to a simple necessity in a possible world *w* with respect to *B*.

Contrary to Hsieh's claim that modality in Mandarin has a language-specific property, i.e., that the semantics of certain modals in Mandarin cannot be defined in terms of possibility and necessity, I seek to fit modality in Mandarin into a bigger picture of modality in general and show that it is possible to achieve a universally valid notional category of modality, similar to the works of Kratzer (1981), though different languages may have language-specific choices for modal bases, which result in different types of modality in languages.

Key words: *jingran*, *guoran*, evaluative modals, modality, semantics, Mandarin

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## 1. INTRODUCTION

In this paper, I examine the semantics of two evaluative modals in Mandarin: *jingran* and *guoran*. *Jingran* denotes the divergence of the (non)occurrence of a situation from the expectation, and *guoran* expresses the convergence of the (non)occurrence of a situation with the expectation. See the examples below:

- (1) a. ta jingran lai le  
he JINGRAN come Prc<sup>1</sup>  
'He came (contrary to expectation)!'  
b. ta jingran mei lai  
he JINGRAN not come  
'He did not come (contrary to expectation)!'
- (2) a. ta guoran lai le  
he GUORAN come Prc  
'He came (as expected).'  
b. ta guoran mei lai  
he GUORAN not come  
'He did not come (as expected).'

The two sets of examples clearly show the meanings of *jingran* and *guoran*. In (1a), *jingran* indicates that the occurrence of the *he come* event contradicts the expectation. In (1b), *jingran* denotes that the nonoccurrence of the same event contradicts the expectation. On the other hand, in (2a), *guoran* expresses that the occurrence of the *he come* event matches the expectation and in (2b) *guoran* indicates that the nonoccurrence of the same event matches the expectation.

The question as to whether the expectation is that of the speaker or of someone else's depends on the context. For example, without a context, such as those in the examples above, it is the expectation of the speaker. That is, by default, *jingran* and *guoran* evaluate a proposition against the expectation of the speaker. However, it is not always the expectation of

<sup>1</sup> The abbreviations used in this paper include: CL for a classifier, DE for the modifier-modifiee marker, Disp for a disposal marker, Exp for the experiential marker, pass for a passive marker, Pfv for the perfective marker, poss for a possessive marker, Prog for the progressive marker, Prc for a sentence particle, and Rel for a relative marker.

the speaker against which these two modals evaluate a proposition. See the example below.

(3) ta jingran lai le guoran bu chu wo suo liao  
 he JINGRAN come PRE GUORAN not out I suo expect  
 'He has come (contrary to general expectation), just as I expected.'<sup>2</sup>

This is a very interesting example. If both *jingran* and *guoran* relied on the speaker's expectation, they would be incompatible and could not occur in the same sentence. However, in (3), they occur in the same sentence. The second part of (3) specifies that the source of the expectation is the speaker. Hence, *jingran* in the first part of the sentence has to express that the occurrence of the *he come* event contradicts the general expectation.

Hsieh (2005, 2006a, 2006b) examines the semantics of modals in Mandarin and proposes that the semantics of evaluative modals cannot be captured by necessity and possibility and that evaluative modals do not have a model-theoretic semantics. She further suggests that to identify modals, Mandarin requires language-specific semantic criteria because the semantics of certain modals in Mandarin cannot be defined in terms of necessity and possibility, contrary to Kratzer (1981).

However, I would like to argue against Hsieh's proposal and demonstrate that the semantics of at least two evaluative modals, i.e., *jingran* and *guoran*, can be defined in terms of necessity. That is, contrary to Hsieh's idea, I would like to argue for model-theoretic semantics for these two evaluative modals and to try to fit modality in Mandarin into the bigger picture of modality in general.

Modals seem to have very different semantics, e.g., stipulation, obligation, permission, ability, etc. But, in the literature such as Kratzer (1977, 1981), modals are argued to share two semantic features: the semantics of all of the modals can all be defined in terms of possibility and necessity and their differences are due to different modal bases. In this paper I demonstrate that the semantics of both *jingran* and *guoran* can be defined in terms of necessity, and therefore that they are modals.

<sup>2</sup> I would like to express my gratitude to a reviewer for bringing this example to my attention. I also thank the audience at the 9<sup>th</sup> CLSW for providing another example that shows the same point.

They differ from other types of modals because their semantics rely on an evaluative modal base while the semantics of other types of modals rely on other kinds of modal bases.<sup>3</sup>

Few linguists, if any, have paid attention to the semantics of evaluative modals, much less their formal semantics. I choose to discuss the semantics of *jingran* and *guoran* because intuitively they are a pair of antonyms and they have higher frequency of occurrence in the Sinica Corpus than the other evaluative modals. By means of an examination of the semantics of *jingran* and *guoran*, I intend for this paper to serve as a starting point and a base for comparison for future studies on the (formal) semantics of the other evaluative modals in Mandarin and of those in other languages.<sup>4</sup>

This paper is organized as follows. Section 2 reviews the related literature on the semantics and classification of evaluative modals. Section 3 discusses examples. Section 4 provides model-theoretic semantics for the two evaluative modals *jingran* and *guoran*. Section 5 concludes this paper.

## 2. LITERATURE REVIEW

Little research, if any, has been devoted to the semantics of evaluative modals. The major types of modality most commonly discussed in the literature, such as Perkins (1983), Palmer (2001), etc., include epistemic modality, deontic modality, and dynamic modality. Perkins (1983: 12) even rules out evaluative modality, such as *good*,

<sup>3</sup> I would like to thank a reviewer's suggestion that this issue be discussed here so as to make the scope of this paper more clear. The reviewer also asks an important question: If *jingran* and *guoran* are modals, why can they not occur in negation, A-not-A, short answers, etc.? For this question, I would like to point out that not all modals in Mandarin can occur in the constructions mentioned above. Take *bixu* 'must' as an example. *Bixu* is a deontic modal which expresses a strong sense of obligation. *Bixu* cannot be negated, i.e., *bu bixu* 'no must' is bad. *Bixu* does not occur in A-not-A, i.e., *bixu bu bixu* and *bi bu bixu* are bad. *Bixu* does not occur as a short answer, e.g., if someone asks "wo bixu qu ma?" 'Must I go?', people usually do not respond "*bixu*", but "*dui* 'yes'" or simply repeat the whole sentence *ni bixu qu* 'you must go'. I agree with Kratzer and Hsieh in that modality is a semantic (notional) category. Since modality is a semantic category, not a syntactic one, it does not seem surprising that not all modals have the same syntactic behavior(s).

<sup>4</sup> I thank a reviewer for his/her suggestion to make these two points clear here.

know, amazing, etc., as a type of modality because these words express viewpoints on the situations of the real world and presuppose that the propositions they present are true. According to Perkins, words that denote evaluation do not talk about situations in the possible worlds and therefore are not modals.

In Mandarin, there is no agreement in the literature as to the syntactic categories of words that express evaluation. For example, what are categorized as evaluative modals in Hsieh (2005, 2006a, 2006b) are identified as adverbs in Liu et al. (1996: 123-124), Li and Thompson (1981: 321-322), Zhang (1994: 212-214), etc.

Hsieh (2006a) proposes that source of opinion or attitude and possible world are the two key semantic ingredients in the definition of modality. *Jingran* and *guoran* are both [+source] because they both indicate the expectation of the speaker. They are also both [+possible world] because, following Chung and Timberlake (1985) and Asher and Simpson (1994), Hsieh (2006a: 16) states that “once the speaker evaluates a proposition, the proposition is no longer a description of pure fact. Therefore, evaluative modality deals with non-real worlds, i.e., possible worlds [translation mine].” Since *jingran* and *guoran* both have the expectation of the speaker as their source<sup>5</sup> of evaluation and they both talk about situations in possible worlds, Hsieh concludes that they are modals.

Hsieh (2006a, 2006b) proposes that evaluative modals such as *jingran* and *guoran* evaluate the speaker’s presupposition and that they differ in terms of convergence and divergence.<sup>6</sup> By convergence, she means that the (non)existence or (non)occurrence of a situation presented by the evaluative modals matches the speaker’s presupposition about the situation, and by divergence she means that the (non)existence or (non)occurrence of the situation contradicts the speaker’s presupposition about the situation. See the examples below.

<sup>5</sup> For Hsieh, all modals need a source of opinion, attitude or evaluation. Those whose source is encoded in the semantics of modals, e.g., the source of evaluation for *jingran* and *guoran* is the speaker’s expectation, are [+source]. Those whose source is not encoded in the semantics of modals are [-source]. For the latter, the source is usually the subject.

<sup>6</sup> Hsieh identifies another type of evaluative modals that expresses wish. This type of evaluative modals is not discussed in this paper.

- (4) a. *lisi guoran chenggong le* [Lisi GUORAN succeed Prec]  
 'Lisi succeeded (as expected by the speaker)!'  
 b. *lisi jingran chenggong le* [Lisi JINGRAN succeed Prec]  
 'Lisi succeeded (contrary to the expectation of the speaker)!'

In (4a), the speaker presupposes Lisi's success. *Guoran* is used to express that the occurrence of the situation *Lisi succeed* matches the speaker's presupposition. In (4b), the speaker presupposes that Lisi would not succeed. *Jingran* is used to denote that the occurrence of the situation *Lisi succeed* contradicts the speaker's presupposition. In addition to establishing that evaluative adverbials such as *jingran*, *guoran*, etc., are modals, Hsieh (2005, 2006a, 2006b) raises the following four points about evaluative modals: First, they express the speaker's presupposition, second, they predicate on known facts, which have happened, third, they are antonyms, and fourth, their semantics cannot be captured by possibility and necessity, unlike the modals discussed in Kratzer (1977, 1981).

However, Hsieh's generalizations about *jingran* and *guoran* are not accurate.<sup>7</sup> First, the source for evaluative modals is not always the speaker, as (3) shows, and what these two modals evaluate is not a presupposition. It is well-accepted that a presupposition cannot be affected by negation, e.g., Fodor (1979), Wilson and Sperber (1979), etc.<sup>8</sup> However, negation does change so-called presuppositions in examples with *jingran* and *guoran*. See the examples below.

- (5) a. *John's brother lives here.*  
 b. *John's brother does not live here.*

<sup>7</sup> Since this paper deals with only two evaluative modals, I will not commit myself to the nature of Hsieh's analysis of the other evaluative modals, though I suspect that similar problems may also apply based on the discussion of Hsieh's analysis in this section. But I will leave this issue for future studies.

<sup>8</sup> There are contexts where presupposition is canceled or fails, as discussed in McCulloch (1989), Fodor (1979), etc. However, in the examples above, *jingran* and *guoran* do not appear in one of the contexts. Therefore, no presupposition failure can be observed even if there is any presupposition.

- (6) a. zhangsan jingran mei lai le  
Zhangsan JINGRAN come Pro  
'Zhangsan came (contrary to expectation).'  
b. zhangsan jingran mei lai le  
Zhangsan JINGRAN not come  
'Zhangsan did not come (contrary to expectation).'  
(7) a. zhangsan guoran lai le  
Zhangsan GUORAN come Pro  
'Zhangsan came (as expected).'  
b. zhangsan guoran mei lai le  
Zhangsan GUORAN not come  
'Zhangsan did not come (as expected).'

In (5a), the presupposition is that John has a brother. (5b) is the negation of (5a), but the presupposition is not affected and remains the same. *Jingran* and *guoran* do not behave like this. In (6), the expectation in (6a) is that Zhangsan would not come, but in (6b) it is that Zhangsan would come. Similarly, the expectation in (7a) is that Zhangsan would come, but in (7b) it is that Zhangsan would not come. As these two sets of examples show, negation makes a difference to the propositions that *jingran* and *guoran* present. Therefore, the expectation expressed by *jingran* and *guoran* is not a presupposition.

Second, these two evaluative modals do not necessarily predicate on a known fact which has happened. In the examples above, *jingran* and *guoran* both present a situation that has taken place, that is, they both predicate on a fact that has happened. However, they can also predicate on a situation that has not yet occurred. See the examples below.

- (8) a. zhangsan jingran hui canjia mingtian de huiyi  
Zhangsan JINGRAN will participate tomorrow DE meeting  
'Zhangsan will come to tomorrow's meeting (contrary to expectation).'  
b. zhangsan guoran hui canjia mingtian de huiyi  
Zhangsan GUORAN will participate tomorrow DE meeting  
'Zhangsan will come to tomorrow's meeting (as expected).'

In (8a) and (8b), *jingran* and *guoran* predicate on a future event, not on an event that has been realized. That is, it is not accurate to claim that evaluative modals predicate on known facts that have taken place.

One might argue that, although a future event has not happened, that it can always be a known fact.<sup>9</sup> For example, it is always possible that *Zhangsan will come to tomorrow's meeting* is a fact known to everyone. However, there are examples where these two modals predicate on a situation that is not a fact at all. Suppose that due to some miscommunication, Lisi thought that Zhangsan liked Xiaomei, even though that is not true. Under this scenario, Lisi can still utter (9a) to express that Zhangsan's having liked Xiaomei matches his expectation and (9b) to express that Zhangsan's liking Xiaomei was not expected by him.

- (9) a. zhangsan guoran xihuan xiaomei  
Zhangsan GUORAN like Xiaomei  
'Zhangsan liked Xiaomei (as expected)!'  
b. zhangsan jingran xihuan xiaomei  
Zhangsan JINGRAN like Xiaomei  
'Zhangsan liked Xiaomei (contrary to expectation)!'

Thirdly, *jingran* and *guoran* are not typical antonyms if they are, in fact, antonyms. Antonyms make sentences contradictory, as (10) shows. However, *jingran* and *guoran* do not seem to represent contradiction as in (11).

- (10) a. zhangsan zai shangmian shuizhuan  
Zhangsan Prg top sleep  
'Zhangsan was/is sleeping up there.'  
b. zhangsan zai xiamian shuizhuan  
Zhangsan Prg bottom sleep  
'Zhangsan was/is sleeping down there.'  
(11) a. zhangsan jingran lai guo zheli  
Zhangsan JINGRAN come Exp here  
'Zhangsan has been here (contrary to expectation)'

<sup>9</sup> I would like to thank a reviewer for bringing this point to my attention.

- b. zhangsan guoran lai guo zheli  
Zhangsan GUORAN come Exp here  
'Zhangsan has been here (as expected)!'

In (10), *shangmian* 'top, up there' and *xiamian* 'bottom, down there' are antonyms. They make (10a) and (10b) contradictory. That is, if (10a) is true, then (10b) is false and vice versa. However, it is not clear how to determine the truth values of (11a) and (11b) if the semantics of *jingran* and *guoran* are not decided. That is, the intuition that *jingran* and *guoran* are antonyms needs to be verified.

Given the discussions that Hsieh's first two generalizations above have been shown to present inaccuracies and that her third generalization awaits verification, I re-examine the data of these two evaluative modals in Section 3, then show that Hsieh's fourth generalization also presents problems, i.e., that it is possible to define the semantics of *jingran* and *guoran* in terms of necessity and possibility, and finally verify whether *jingran* and *guoran* are antonyms.

### 3. SEMANTICS OF GUORAN AND JINGRAN

In Section 2, I argue that *jingran* and *guoran* do not express a presupposition and neither do they predicate on a fact that has happened. In this section, I would like to argue that the convergence and divergence of a situation with respect to expectation are the only key issues relevant to the semantics of these two evaluative modals. Let us see more examples.

- (12) a. ta jingran xihuan lanqiu  
he JINGRAN like basketball  
'He likes basketball (contrary to expectation)!'  
The situation predicated of: He likes basketball.  
The expectation: He does not like basketball.

- b. ta jingran shuo le na zhong hua  
he JINGRAN say Pfv that kind words  
'He said such kind of words (contrary to expectation)!'  
The situation predicated of: He said such kind of words.  
The expectation: He would not say such kind of words.

c. ta jingran hui canjia nide hunli *accuse expect*

he JINGRAN will participate your wedding *will expect*

'He will come to your wedding (contrary to expectation)!' *will expect*

The situation predicated of: He will come to your wedding.

The expectation: He will not come to your wedding.

(13) a. ta jingran bu xihuan lanqiu *accuse like*

he JINGRAN not like basketball *like expect*

'He does not like basketball (contrary to expectation)!' *like expect*

The situation predicated of: He does not like basketball.

The expectation: He likes basketball.

b. ta jingran mei shuo zhen hua *accuse tell*

he JINGRAN not say true words *tell expect*

'He did not tell the truth (contrary to expectation)!' *tell expect*

The situation predicated of: He did not tell the truth.

The expectation: He would tell the truth.

c. ta jingran bu hui canjia nide hunli *accuse*

he JINGRAN not will participate your wedding

'He will not come to your wedding (contrary to expectation)!' *will expect*

The situation predicated of: He will not come to your wedding.

The expectation: He will come to your wedding.

The examples in (12) and (13) show that *jingran* can predicate on present tense sentences, such as (12a) and (13a), on past tense sentences,<sup>10</sup> such as (12b) and (13b), and on future tense sentences, such as (12c) and (13c). From the six examples above, we can clearly see that the expectation is always contrary to the situation predicated of: When the expectation is positive, the proposition predicated of is negative; when the expectation is negative, the proposition predicated of is positive. That is, the proposition that describes the situation *jingran* presents always has a truth value opposite to that of the expectation.

<sup>10</sup> Though Mandarin is a tenseless language, e.g., Li and Thompson (1981), there have been a few studies that have tried to determine the temporal reference of a Mandarin sentence, such as Smith and Erbaugh (2005), Lin (2003b; 2006), etc. For the temporal location of a Mandarin bare sentence, such as (12a), please refer to these three papers. For the temporal location of a Mandarin sentence with an aspect marker, such as (12b), please refer to Lin (2006). (12c) is future because it contains a future modal *hui*.

Bearing the above generalization in mind, let us look at the examples of *guoran* below.

- (14) a. ta guorán xìhuan lánqiú  
 he GUORAN like basketball  
 'He likes basketball (as expected)!'  
 The situation predicated of: He likes basketball.  
 The expectation: He likes basketball.

- b. ta guorán shuō zhè zhǒng huà  
 he GUORAN say Pfv that kind words  
 'He said such kind of words (as expected)!'  
 The situation predicated of: He said such kind of words.  
 The expectation: He said such kind of words.

- c. ta guorán huì cānjiā nǐ de hūnlǐ  
 he GUORAN will participate your wedding  
 'He will come to your wedding (as expected)!'  
 The situation predicated of: He will come to your wedding.  
 The expectation: He will come to your wedding.

- (15) a. ta guorán bù xìhuan lánqiú  
 he GUORAN not like basketball  
 'He does not like basketball (as expected)!'  
 The situation predicated of: He does not like basketball.  
 The expectation: He does not like basketball.

- b. ta guorán měi shuō zhēn huà  
 he GUORAN not say true words  
 'He did not tell the truth (as expected)!'  
 The situation predicated of: He did not tell the truth.  
 The expectation: He did not tell the truth.

- c. ta guorán bù huì cānjiā nǐ de hūnlǐ  
 he GUORAN not will participate your wedding  
 'He will not come to your wedding (as expected)!'  
 The situation predicated of: He will not come to your wedding.  
 The expectation: He will not come to your wedding.

<sup>11</sup> A reviewer suggests that a future use of *guoran* is not good and this example is unacceptable. I am afraid that there is a discrepancy in native speaker's intuition and judgments of grammaticality. The people I consulted all agree with me in that *guoran* can present a future situation and this example is good.

Just like *jingran*, *guoran* can also predicate on present tense sentences, such as (14a), and (15a), on past tense sentences, such as (14b) and (15b), and on future tense sentences, such as (14c) and (15c). But, unlike *jingran*, which expresses divergence, we can see clearly from the six examples in (14) and (15) that the expectation always converges with the situation *guoran* predicates on. That is, the proposition that describes the situation *guoran* presents always has the same truth value as that of the expectation.

One point that needs to be addressed is that there is a type of agreement between the proposition predicated of by the two evaluative modals and the expectation.<sup>12</sup> For the purpose of discussion here, we will put aside whether the proposition predicated on has a truth value which is the same as or opposite to that of the expectation.

The first kind of agreement is the agreement in tense, aspect and modals. That is, the proposition predicated on by evaluative modals must agree with the expectation in terms of tense, aspect and modals. For example, in (12a) and (14a), the propositions predicated on are all present tense and the expectations in these examples must be present tense as well. In (12c), (13c), (14c) and (15c), the propositions predicated of are (epistemic) future and the expectations in these examples must also be (epistemic) future. In (11), the propositions predicated on are (experientially) perfective, and their expectations must be (experientially) perfective too.

The expectations for negative propositions are more divergent. A negative proposition can agree with the expectation in tense, as in (13a) and (15a). But, negative propositions can select their own expectations. See the examples below.

- (16) a. ta jingran mei lai  
he JINGRAN no come  
'He did not come (contrary to expectation).'

The situation predicated of: He did not come.

The expectation: He came or he would (or should) come.

<sup>12</sup> I would like to thank a reviewer for pointing out this matter to me.

- b. *ta jingran bu lai*  
 he JINGRAN no come  
 'He will not come (contrary to expectation).'  
 The situation predicated of: He will not come or he is not willing to come.  
 The expectation: He will come or he is willing to come.
- c. *ta guoran mei lai*  
 he GUORAN no come  
 'He did not come (as expected).'  
 The situation predicated of: He did not come.  
 The expectation: He did not come or he would not (or should not) come.
- d. *ta guoran bu lai*  
 he GUORAN no come  
 'He will not come (as expected).'  
 The situation predicated of: He will not come or he is not willing to come.  
 The expectation: He will not come or he is not willing to come.

The negative marker *mei* is used to negate a past situation and *bu* is used to negate a future tense (Li and Thompson 1981). Therefore, when these two markers occur with *jingran* or *guoran*, the expectations can remain in the simple past tense as in the underlined part in the expectation of (16a) and (16c), or in the simple future tense as in the underlined part in the expectation of (16b) and (16d). However, since a negative past situation has not really taken place, the occurrence of the event could be a stipulation (expressed by the epistemic modal *would*) or an obligation (expressed by the deontic modal *should*) in (16a) and (16c). On the other hand, *bu* is ambiguous either in referring to the negation of a situation or to the negation of willingness. This is why the expectation in (16b) and (16d) can denote either simple future tense or the will of the subject.

Even though the expectations for negative propositions are more divergent, there is still agreement: Although the expectation for *mei* can be simple past tense, epistemic or deontic, it can never be simple future or the will of the subject; although the expectation for *bu* can be simple future or the will of the subject, it can never be simple past tense, epistemic or deontic. The expectation for a negative proposition must

agree with the negative proposition in the semantics identified by the negative markers.

To sum up, the discussion above shows that it is possible to decide the truth value of a proposition containing *jingran* and *guoran* by examining the truth value of the proposition that *jingran* or *guoran* presents, with respect to the expectation. The proposition that describes the situation that *jingran* presents always has a truth value opposite to that of the expectation, while the proposition that describes the situation *guoran* presents always has the same truth value as that of the expectation. In addition, the expectation must agree with the proposition predicated of by *jingran* or *guoran* in terms of tense, aspect, modals, and the semantics of the negative markers as discussed above.

#### 4. FORMALIZING THE GENERALIZATIONS

Hsieh (2006a, 2006b) proposes that the semantics of evaluative modals cannot be captured by possibility and necessity. However, I would like to demonstrate here that Hsieh is not correct in this respect and that the semantics of *jingran* and *guoran* can be defined in terms of necessity.

In the previous section, I show that the truth value of *jingran*( $P$ ) or *guoran*( $P$ ), where  $P$  is a proposition, can be determined by examining the truth value of  $P$  with respect to the expectation. This is a first step toward understanding the semantics of *jingran* and *guoran*. The next question is what the expectation is and how to examine the truth value of a proposition with respect to the expectation.

The expectation is a proposition. Kratzer (1981) proposes that a proposition is a subset of the set of all possible worlds, i.e., a proposition is a set of possible worlds. Divergence and convergence can be formalized as simple necessity (Kratzer 1981) and 'simple necessity of negation'. Kratzer (1981) defines the related concepts as below:

- (17) Let  $W$  be the set of all possible worlds.
- a. Simple Necessity: A proposition is a simple necessity in a world  $w$  with respect to the conversational background  $B$  if and only if it follows from  $B(w)$ .

b. Logical Consequence:

A proposition  $p$  follows from a set of propositions  $A$  if and only if  $p$  is true in all worlds of  $W$  where all propositions of  $A$  are true.

c. Truth of a Proposition: A proposition  $p$  is true in a world  $w \in W$  if and only if  $w \in p$ . Otherwise,  $p$  is false in  $w$ .

Basically, simple necessity means that a proposition is true in all of the possible worlds where the conversational background is true. In our present case, simple necessity captures the essence of the semantics of *guoran*. However, In order to define the semantics of *jingran*, we need 'simple necessity of negation', which means that a proposition is false in all of the possible worlds where the conversational background is true. Following Kratzer's (1981) idea of simple necessity, I define the simple necessity of negation as follows:

(18) a. Simple Necessity of Negation

A proposition is a simple necessity of negation in a world  $w$  with respect to the conversational background  $B$  if and only if it does not follow from  $B(w)$ .

b. Logical Inconsequence

A proposition  $p$  does not follow from a set of propositions  $A$  if and only if  $p$  is false in all worlds of  $W$  where all propositions of  $A$  are true.

Given that the evaluation of a proposition presented by *guoran* and *jingran* is equivalent to the evaluation of the proposition with respect to the expectation, and that the expectation can be regarded as a kind of conversational background, which is referred to as an evaluative conversational background in this paper, a proposition having the same truth value as that of the expectation means that the proposition is true in all of the possible worlds where the conversational background representing the expectation is true; a proposition having the truth value opposite to that of the expectation means that the proposition is false in all of the possible worlds where the conversational background standing for the expectation is true. Therefore, the semantics of *jingran* and *guoran* can be stated as in (19).

(19) a. Evaluative Conversational Background: *In view of what is expected...*

An evaluative conversational background is a function  $B$  which assigns sets of propositions to members of  $W$ , which is the set of all possible worlds, such that for any  $w \in W$ :  $B(w)$  contains all those propositions  $p$  such that  $p$  is expected in  $w$ .<sup>13</sup>

b. *Jingran* presents a proposition which is a simple necessity of negation in  $w$  with respect to an evaluative conversational background  $B$ .

c. *Guoran* presents a proposition which is a simple necessity in  $w$  with respect to an evaluative conversational background  $B$ .

Kratzer (1981) proposes that a conversational background constitutes the *modal base* because it decides for every world the set of worlds which are accessible from the world. With the incorporation of the idea of the ordering source, the semantics of *jingran* and *guoran* can be defined formally as in (20).

(20) Let  $B$  be the modal base for *jingran* and *guoran*, which an evaluative conversational background forms.

a.  $[[jingran(p)]]^{B,w} = 1$  iff for all  $w' \in B(w)$  there is a  $w'' \in B(w)$  with  $w'' \leq_w w'$  such that  $[p]^{w''} = 0$ .<sup>14</sup>

<sup>13</sup> A reviewer asks how the general expectation is formalized. It is formalized here in the definition of an evaluative conversational background. In this definition, it is stated that  $p$  is expected in  $w$ . Because the identity of the person having the expectation is not specified, it allows for the possibility that the expectation is the speaker's, someone else's or a general one.

<sup>14</sup> A reviewer kindly suggests that 'incompatible' is a better term to use than 'false'. There are two reasons why I do not use compatibility or incompatibility in this version. First, in Kratzer (1981), compatibility is used to define possibility, instead of necessity. Compatibility and incompatibility are mistakenly used in the earlier version. Second, a proposition being compatible or incompatible with the expectation in the literal sense is actually the same as a proposition being true or false with respect to the expectation. A proposition being compatible with the expectation means that the proposition is the expectation, which equals the proposition being true in the possible worlds where the expectation is true. A proposition being incompatible with the expectation means that the proposition is not the expectation, which means that the proposition is false in all of the possible worlds where the expectation is true. Based on these two reasons, I do not use 'compatible' or 'incompatible' in this paper.

b.  $[\text{guoran}(p)]^{B, \leq, w} = 1$  iff for all  $w' \in B(w)$  there is a  $w'' \in B(w)$  with  $w'' \leq w'$  and  $[p]^{w''} = 1$ .<sup>15</sup>

(20a) thus says that *jingran*(P) is true with respect to a modal base  $B$  which, an evaluative conversational background forms, an ordering source  $\leq$  and a possible world  $w$  if, and only if, for all possible worlds  $w'$  that are members of  $B(w)$  there is a possible world  $w''$  such that  $w''$  is at least as close to  $w$  as  $w'$  and  $p$  is false in  $w''$ . This semantics instantiates the essential point that the proposition *jingran* presents is a simple necessity of negation in a possible world  $w$  with respect to a modal base formed by an evaluative conversational background.

(20b) says that *guoran*(P) is true with respect to a modal base  $B$  formed by an evaluative conversational background, an ordering source  $\leq$  and a possible world  $w$  if and only if for all possible worlds  $w'$  that are members of the modal base  $B$  there is a possible world  $w''$  such that  $w''$  is at least as close to  $w$  as  $w'$  and  $p$  is true in  $w''$ . This semantics captures the essential point that the proposition *guoran* presents is a simple necessity in a possible world  $w$  with respect to a modal base formed by an evaluative conversational background.

In Section 2, I argue that Hsieh's (2005, 2006a, 2006b) generalizations about *jingran* and *guoran* are not accurate. She proposes four points about these two evaluative modals (and the other evaluative modals). First, *jingran* and *guoran* express the presupposition of speaker. Second, they predicate on known facts that have happened. Third, they are antonyms. Last, their semantics cannot be defined in terms of necessity and possibility.

(20) clearly shows that the semantics of *jingran* and *guoran* can be defined in terms of necessity. The semantics in (20) show that at least for two of the evaluative modals, i.e., *jingran* and *guoran* discussed in this paper, Hsieh's (2005, 2006a, 2006b) generalization is not accurate that

<sup>15</sup> A reviewer asks, "What are the differences between 'model-theoretic semantics' and 'generative syntax/semantics' with respect to modality in this paper?" Generative syntax deals with syntax, for example, the location in a syntactic tree where modals are located, not with the semantics of modals. It is not clear to me as to what generative semantics refers. If it refers to semantics in generative grammar, e.g., Heim and Kratzer (1998), it is still a type of model-theoretic semantics. It is just that the syntax used in Heim and Kratzer's (1998) approach to semantics is Chomskyan syntax. In this paper, I do not discuss the syntax of *jingran* and *guoran* because their syntax is irrelevant to the main points addressed here.

the semantics of evaluative modals cannot be captured by necessity and possibility. The semantics argued in this section can avoid the problems of presuppositional failure because *jingran* and *guoran* are not related to presuppositions.

The evaluative conversational background in (19) also avoids the problem of Hsieh that *jingran* and *guoran* evaluate against speaker's expectation, because in (19) *p* is expected in *w* and the expecter is not specified.

The semantics in (20) also support native the speaker's intuition that *jingran* and *guoran* are antonyms. With the semantics in (20), we can easily demonstrate how *jingran* and *guoran* cause contradiction. Under the same scenario, i.e. for all possible worlds  $w'$  that are members of the modal base  $B$ , there is a possible world  $w''$  such that  $w''$  is at least as close to  $w$  as  $w'$  and  $p$  is true in  $w''$ , *jingran*( $P$ ) is false, but *guoran*( $P$ ) is true. For example, when the expectation is Zhangsan likes Xiaomei, then *zhangsan guoran xihuan xiaomei* 'Zhangsan likes Xiaomei, as expected' will be true, but *zhangsan jingran xihuan xiaomei* 'Zhangsan likes Xiaomei, contrary to the expectation' will be false. The correct reflection of the intuition of a native speaker about the two evaluative modals being antonyms, in turn, verifies the accuracy of the semantics proposed in this section.

Finally, the semantics in (20) do not require that these two modals predicate on known facts that have happened. The two evaluative modals predicate on the expectation, which can be a fact or not.

To sum up, the semantics of *jingran* and *guoran* argued in this paper do not present the problems generated by Hsieh's generalizations, and they serve to verify the intuition that *jingran* and *guoran* are antonyms. It is also demonstrated that a universally valid semantic (notional) category of modality can be achieved since the semantics of *jingran* and *guoran* can be defined in terms of necessity.

## 5. CONCLUSION

In this paper, I argue against Hsieh's (2005, 2006a, 2006b) proposal with regard to the semantics of evaluative modals. I show that at least two of the evaluative modals, i.e., *jingran* and *guoran*, do not express the speaker's presupposition. I further argue for the model-theoretic semantics for these two evaluative modals.

On the one hand, *jingran*(P) is true with respect to a modal base *B*, an ordering source  $\leq$  and a possible world *w* if, and only if, for all possible worlds *w'* that are members of *B*(*w*), there is a possible world *w''* such that *w''* is at least as close to *w* as *w'* and *p* is false in *w''*. This semantics captures the essential point that the proposition *jingran* presents is a simple necessity of negation in a possible world *w* with respect to a modal base formed by an evaluative conversational background.

On the other hand, *guoran*(P) is true with respect to a modal base *B* formed by an evaluative conversational background, an ordering source  $\leq$  and a possible world *w* if, and only if, for all possible worlds *w'* that are members of the modal base *B* there is a possible world *w''* such that *w''* is at least as close to *w* as *w'* and *p* is true in *w''*. This semantics instantiates the essential point that the proposition *guoran* presents is a simple necessity in a possible world *w* with respect to a modal base formed by an evaluative conversational background.

I also try to fit modality in Mandarin into the bigger picture of modality in general. I show that, at least for two of the evaluative modals *jingran* and *guoran*, it is possible to achieve a universally valid notional category of modality, similar to the works of Kratzer (1981), and that the differences in the inventories of modality in different languages are due to language-specific choices for modal bases.

Little attention, if any, has been paid to the formal semantics of evaluative modals. This paper is the first attempt in the literature of modality in Chinese, and probably the first one in the literature of modality in general, to provide formal semantics for evaluative modals and proves that, at least for *jingran* and *guoran*, the semantics of evaluative modals can be defined in terms of necessity. This paper serves as a starting point and a base for comparison for future studies of the (formal) semantics of the other evaluative modals in Mandarin and of those in other languages.<sup>16</sup>

<sup>16</sup> A reviewer asks why the result of this paper is not applied to the other modals. If "the other modals" means epistemic, deontic and dynamic modals, the semantics of those types of modals in Mandarin are not that different from the semantics of such types of modals in other languages, e.g., German, English, etc., which have been discussed extensively in the literature such as Kratzer (1977, 1981), Li (2003), Wang (2003), etc. If "the other modals" refer to other evaluative modals, this paper serves as a pilot study and a starting point for further studies on the semantics of the (other) evaluative modals in Mandarin and in general.

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