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A Cognitive-Grounding Analysis on the Semantic Extension of Modal Auxiliary *Hui* from Futurity to Epistemicity

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Abstract

Modal auxiliary "Hui" has two relatively independent semantic extension trails. This study, on the basis of the grounding theory in cognitive grammar, focuses on its extension from futurity to epistemicity. A unified grounding-based model is proposed to analyse the functions of grounding elements involved in the semantic extension of "Hui". This thesis holds that "Hui" endows a momentum with the sentence, which will be manifested as the speculation on the development of the reality. As the validity of the evidence changes, the reliability of the inference will change accordingly, eventually making the whole sentence present different semantic expressions, which extends from the inference upon future events based on the facts to a subjective assessment of the present and past events, and finally shows the bleaching of futurity. The process is accompanied by the change of subjectivity.

Keywords

"Hui", grounding, futurity, epistemicity, subjectivity

1. Introduction

Reviewing the existing studies, the study upon futurity in Mandarin Chinese has been basically fulfilled, represented by Zhang (1998a, 1998b) and Shi (2010). The former gives a systematic overview of the Chinese tense system, and believes that Chinese belongs to the Retrospective Tense System, because the future tense in Chinese must contain time markers, while the sentences of the present and past tense are not necessarily in need of markers, and summarizes the usage of the three future time markers: "*Hui*" ("会"), "*Jiang*" ("将") and "*Yao*" ("要"). The latter scholar, in his monograph "Chinese Grammar", presents five typical future markers: "*Yao*" ("要"), "*Jiang Lai*" ("将来"), "*Hui Tou*" ("回头"), "*Kuai*" ("快"), and "*Jiu*" ("就"), and further points out that these markers can be identified and distinguished by the distance between the time reflected in the future and the present, as shown in

Figure 1.1:

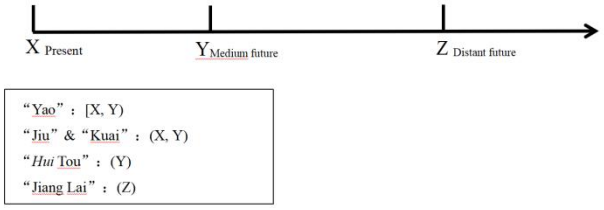

Figure 1.1 Semantic Functions of Future Markers (Shi, 2010, p. 258)

Shi (2010) distinguishes the semantic functions of these markers, which reflects one of the basic points of cognitive grammar that language study should focus on the meaning. His research outcome has laid a foundation for the subsequent cognitive research on the futurity of Mandarin Chinese.

This study believes that semantic factors should be included in the grammatical analysis. By observing different language schools, we find that the ideology of cognitive grammar (Note 1) best fits this study: As a typical cognitive approach to language study, CG, adhering to the basic concepts of cognitive linguistics, concerns the meaning as the process of conceptualization, and holds that language is not an independent system but highly related to our human cognition. Furthermore, CG posits only three basic kinds of structure: phonological and semantic structures, and symbolic links between them (Langacker, 1987, pp. 76-79). Differing from generative grammar which considers syntax as an autonomous system, CG holds that every phonological structure represents a semantic structure. Every grammatical structure can thus be characterized in terms of a particular semantic structure (De Wit & Brisard, 2014). The futurity in Chinese should be issued with its meaning rather than concentrate only on its forms, as stated above.

There are precedents both at home and abroad for studying the futurity from the perspective of CG. Abroad speaking, Giannakidou and Mari (2018), considering the future markers of Italian and Greek as operators reflecting the epistemic modality, points out that although the futurity can help realize the interaction between modality and tense, it is pure modality, because its essence is the prediction of reality. Thus the future is not symmetry to the past and present. This, to some extent, gives a feasible explanation of the distinctions between future and present & past. It suggests the type of reality presented by futurity is different from that presented by past and present.

Kratochvílová (2019), under the frame of Cognitive Grammar, has accomplished the analysis of all the uses of Spanish future tense, unveiling the interconnection of the modal, evidential, and temporal elements, and further pointing out that a unified account for all uses of what is traditionally called the "future tense" can be found only when all these elements are taken into account (Kratochvílová, 2019, p. 1).

As for domestic studies, Bai and Shi (2008) expounded the extension from future time markers to epistemic modality with the example of "will" in English and "Yao" ("要") in Mandarin Chinese, and

demonstrated the prevalence of this phenomenon in human language with the help of the diachronic investigation of future time markers in Mandarin Chinese.

Yang (2017) focused mainly on one of the future markers "Yao" ("要"), analysing the semantic and syntactic features of "Yao ("要")+ VP", presenting a detailed description of the epistemic status grounded by "Yao"("要") with different modal semantics: dynamic modality, deontic modality and epistemic modality.

Liu et al. (2023) conducted a cognitive analysis of "Le" ("了"), pointing out that it can be analysed in three dimensions: "the past of cognitive reasoning", "the past in cognition (imagination)" and "the past of synchronization". Then "Le" ("了") can have both tense, modal and evidential meaning, that is, "trinity". Although it is not aimed for the futurity, it provides feasible research ideas for this study. Different from the strictly distinguished meanings of tense and modality in English, markers in Chinese can be endowed with multiple dimensions at the same time. This is a major breakthrough in the study of Chinese language, which can be used to explain many previously unresolved phenomena, such as special cases of word usage.

The cognitive research of futurity in Mandarin Chinese has developed a systematic framework, but it still has limitations. First of all, previous studies mainly explain the cognitive pattern of language markers by summarizing and analysing their meanings and types of usage. However, the relationship between different semantics still needs further research: the trinity of "Le" ("了") proposed by Liu et al. (2023) belongs to this kind. Secondly, there is little research of typical future markers via the perspective of cognitive grammar, such as Yang (2017), and many markers are rarely involved. In this paper, one of the typical Chinese future time markers "*Hui*" will be analysed, considering it with the connection between the futurity and epistemic modality.

In both English and Chinese, the temporal meaning of auxiliary verb can be bleached with the rise of subjectivity. The study of subjectivity involves two interrelated dimensions: "the speaker's evaluation of the probability of the state of affairs" and "the speaker's evaluation of the quality of the evidence for that qualification" (Nuyts, 2001, p. 386). Both Chinese and English use modal auxiliaries as a means of conveying futurity, while modals, in most cases, express more than temporal meaning. In English, modals like "shall/should", "will/would", "may/might" express different levels of possibility, and the past tense "should", "would", and "might" state not temporal meaning, but the speaker's speculation upon the proposition. Similarly, modal auxiliary "*Hui*" in Mandarin Chinese also bears the same characteristic. In most cases, " *Hui*" expresses futurity; however, it can also refer to past and present events (Lyu, 1980; Chen, 2020). The semantic extension of "*Hui*" has been studied and the extension trail has been concluded (Chen, 2020). However, there is still a lack of explanation upon the incentive of the bleaching of futurity, and the grounding elements have been neglected, as well.

In this paper, "*Hui*" will be studied with its bleaching of futurity, under the perspective of grounding theory proposed by Langacker (1987, 1991, 2002, 2008, 2017, 2019) and further developed by researchers such as Niu (2015), Li and Wang (2023). One of the advantages of grounding theory is that

grounding elements are taken into accounts, which offers a special view upon the linguistic analysis. Factors such as speaker and hearer, the knowledge, the time and space are all considered grounding elements, each of which reflects different dimensions of a sentence, and are presented with various signifiers. Details will be stated in chapter 3. This study will emphasize the approaches by which different grounding elements take part into the semantic extension of "*Hui*".

Therefore, the following two questions will be covered in the present thesis.

What are the factors influencing the bleach of futurity in the semantic extension of "*Hui*" from dynamic modality to epistemic modality?

During the semantic extension "*Hui*", what grounding elements are involved and what function do they play?

2. The Semantic Extension of "*Hui*"

In most cases, "*Hui*" possesses two main senses: "*Hui* 1" and "*Hui* 2", which are named after Chen (2020).

2.1 Temporal and Modal Senses of "Hui"

*Hui*1 represents one's perception on something that may happen or not yet happen, especially an objective event (Zhu, 1982).

(1) 明天 会 下雨。

(2) 他 会 来的。

*Hui*2 represents capability, which can be translated as "know how", and the subject of *Hui*2 can be "inanimate", as Palmer has already discovered (Palmer, 2001, p. 78).

(3) 他 会 说英语。

(4) 阳光 会 驱散阴霾。

According to Chen's research on "*Hui*" (Chen, 2020), there are disputes upon the quality of "*Hui*1": whether it be the marker of epistemic modality or marker of future time. On the one hand, *Hui*1 contains the possibility of something to happen, see (1) & (2); on the other hand, it can be used to spotlight future time, see (1). Palmer (2001) considers future as the status of irreality, the grammatical reflection of which is modal auxiliaries. Besides, the future is associated with some modals (e.g. will & shall), for they always present themselves in "conditional futures", instead of "pure futurity" (Palmer 2001:104). In this sense, future is highly intertwined with modality, which is universal among world languages.

According to Palmer (2001), a detailed modality system can be presented (see Figure 2.1).

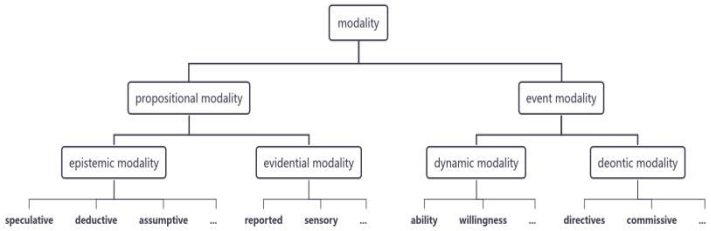

Figure 2.1 Modal Systems

It has been widely admitted that there is a trend of future time marker evolving to epistemic modality (Chen, 2020; Bai et al., 2008). Besides, future isn't as absolute as past and present, dependent on speaker's subjective initiative. In this sense, future is related to epistemic modality. In this research, I will review previous studied upon the semantic extension on "*Hui*", predominantly on the basis of Chen Zhenyu's research.

Chen (2020) points that "*Hui*" has two paralleled chains of semantic extension: chain1:"*Hui* 1" and chain2: "*Hui* 2". "*Hui* 1" represents the continuum of meanings from dynamic modality ("*Hui* 11") to epistemic modality("*Hui* 12"); "*Hui*2" represents dynamic modality. Chain1 comes earlier than chain2. Chen holds that these two chains, being parallel to each other, are not intertwined according to his diachronic researches. However, this phenomenon doesn't abide by the common mode:

dynamic modality --- deontic modality --- epistemic modality.

*(*Hui*11) --- (*Hui*2) --- (*Hui*12)

Chen divides "*Hui*1" to "*Hui*11" and "*Hui*12", the former entails so-called "natural development" (Chen 2020:17), which belongs to dynamic modality, while the initiative of the subject is not prominent. "*Hui*12", on the other hand, expresses speaker's certainty upon proposition, which can be used to spotlight past and present events. Lyu (1980, p. 278) has stated that sometimes "*Hui*" ("*Hui*12" in this paper) can refer to past and present time.

Thus the semantic chain of "*Hui*1" can be illustrated as follows (see Figure 2.2):

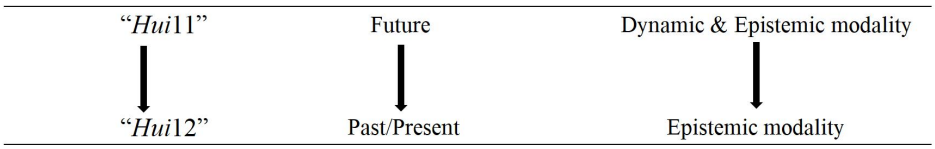

Figure 2.2 Semantic Extension of "*Hui* 1"

2.2 Semantic Extension of "Hui" from Futurity to Epistemicity

The core sense of "*Hui*11" is the possibility of the development of an event. According to Zhu (1982), "*Hui*" can be used only to predict something to happen instead of something already happened.

As has stated above, this can be concluded as "natural development", with a rather low subjectivity.

Chen defines natural development as the development of things themselves, excluding the initiative of the subject and the speaker. The development of things entails a dynamic process, thus "*Hui*11" can be included into dynamic modality. In this sense, "*Hui*11" expresses natural development when used in absolute future, in that the time reference is always the moment of speaking.

(5) 雨 会 停的。 (from Chen, 2020)

(6) 她不久就 会 死的。

(from CCL corpus)

On the other hand, when added time references in the sentence, "*Hui*11" expresses habitual movements.

(6) 他要是这么说，他老婆肯定 会 扇他一巴掌。

In Example 7, the time reference is set at the time of his speaking. Then "*Hui*11" is used to express the habitual movement of "his wife" under the presupposed circumstance "If he said that". In this sense, "*Hui*11" is used in relative future to express habitual movement with a slightly high level of subjectivity. Moreover, "*Hui*11" also includes following characteristics:

"*Hui*11" implies speaker's high certainty upon the future.

"*Hui*11" cannot be modified by markers of past time or perfect aspect.

"*Hui*11" expresses modality meaning, while its syntactic feature is close to temporal adverb.

"*Hui*12" is considered the marker of epistemic modality, in that it posits speaker's speculation upon something that the speaker is very sure of. Instead of future time marker, "*Hui*12" can be used to refer to past and present time, which is often found in interrogative and negative sentences, while sometimes exclamatory sentences. When used in exclamatory and interrogative sentences, "*Hui*12" usually posits a ground that what had happened breaches what the speaker believed (see Example 8 & 10), while in negative sentences, it uses negative mood to express the speaker's extreme certainty (see Example 9).

(8)你怎么会 知道呢？

(9)现在这个时间她肯定不 会 在办公室。

(10)我没想到 会 这么顺利！

(from Zhu, 1982)

In all these sentences, "*Hui* 12" refers to not future time but past and present time. Such three sentences have in common that they possess the level of subjectivity much higher than "*Hui*11 (natural development)" and "*Hui* 11 (habitual movement)". The subjectivity level of "*Hui*11" and "*Hui*12" can be illustrated as:

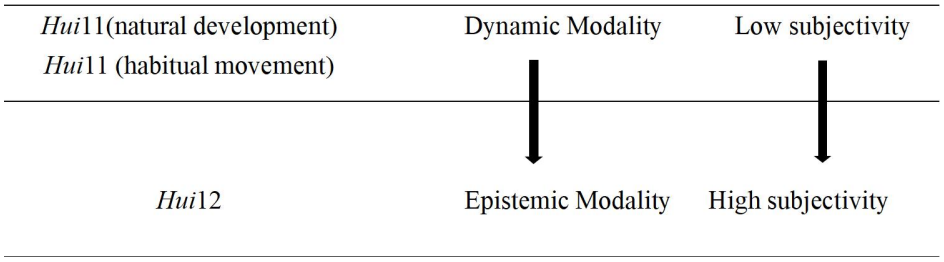

Figure 2.3 Subjectivity Level of "*Hui* 1"

2.3 Research Gaps

Although previous studies have noted the semantic bleach of futurity when "*Hui* 1" extends itself from dynamic modality (*Hui* 11) to epistemic modality (*Hui* 12), the motivation behind this remains unclear. The uses of "would", "might", "should" don't always present temporal meaning, though those auxiliaries are used in past forms. Instead, it shows the speaker's assessment of the low probability upon the proposition. Chinese auxiliary verb "*Hui*" also possesses such bleach of temporal meaning, which has been noticed by some researchers (Lyu, 1980).

Besides, studies upon "*Hui*" with cognitive-grounding perspective are rarely seen from home and abroad. Though previous studies have summarized the semantic extension of "*Hui*" and made several investigations upon its motivation, researches from the cognitive-grounding perspective account for only a fraction. Former researchers have found that the semantic extension of "*Hui*" involves the changes of both modal senses and temporal senses. However, the unified explanation underlying this remains vacant. This paper believes that CG, with the participation of grounding elements, can offer a feasible explanation on this gap. As two of the basic notions of human cognition, temporality and modality are not dependent from each other. All these notions are interrelated by the grounding process. However, the functions of grounding elements in this process have not been examined either. In this sense, the analysis on the grounding elements of "*Hui*" is necessary of unveiling the connection between language and cognition, and the universal characteristics among languages.

3. Theories Applied in this Paper

The basic notion of cognitive linguistics is that the language competence of human beings is not an autonomous system, which Chomsky holds as the basic concept of his generative grammar. In turn, it lays its basis on the universal cognitive system, in which grammar, according to Langacker (1987, p. 78), is "a structured inventory of conventional units." Here the "conventional units" refers to the pairing of phonological and semantic units. Each phoneme corresponds to a semantic unit, and the pairing of these basic units composes the analytical units of CG. In this sense, elements in phonological, lexical, syntactic, and semantic levels are unified to form a continuum, differing from the generative grammar, which holds that the syntax is an independent system.

3.1 A general Introduction of Cognitive Grammar

Grounding theory, first published in Langacker's monograph in 1987, proposed a new perspective of linguistic studies. In this theory, language components, especially nouns and verbs, are intertwined with cognitive elements and feasible research path across different languages are presented. Before getting down to this theory, we first introduce the term ground.

The term ground is used in CG to indicate the speech event, its participants, their interaction, and its immediate circumstances (Langacker, 2002, p. 1). There are grammatical relations between ground and depicted entities from the facets of time, space, reality and psychological co-reference (Niu, 2013; 2015). Through this process, nominals and finite clauses can be conceptualized, reaching their communicative function by relating the profiled events to the ground. "Grounding is characteristic of the structures referred to in CG as nominals and finite clauses. More specifically, a nominal or a finite clause profiles a grounded instance of a thing or process type. Thus to understand grounding, we must first examine the distinction between a type and an instance of that type" (Langacker, 2008, p. 264).

The initial parts of nominal and clausal structures are nouns and verbs. These lexemes serve their functions by making types. In Langackerian theory, a noun designates a type of a thing while a verb a type of a process (Langacker, 2008, p. 265). However, types entail no connection to the ground and they need grounding elements to capture the status in the process of conceptualization. The way these things or events relate to the ground include some very basic epistemic notions such as time, reality, immediacy and identification (Langacker, 2002). In this sense, these notions, when being conceptualized, come into the grounding elements. Generally speaking, grounding elements include all the elements from the immediate circumstance: the speaker, the hearer, the speaking time and space, knowledge shared by the speaker and hearer, embodied experience, etc.

As two of the basic categories in grammatical units, nouns and verbs play different roles in shaping the meaning of sentences. When these lexemes combine with the ground, the communicative significance can be finally reached and conceptualized by the speaker and hearer. Nouns without grounding elements can only refer to basic concept of the thing itself, rather than the exact thing in the real world. For instance, the word "person" can only refer to an unrealized type. When being endowed with the referential words such as articles: "this person", "that person", etc., this noun has the referential function to an instance. The relationship between type and instance is the foundation of nominal grounding. Instances are the type being restricted by certain elements in the domain of instantiation, as presented in the following figure.

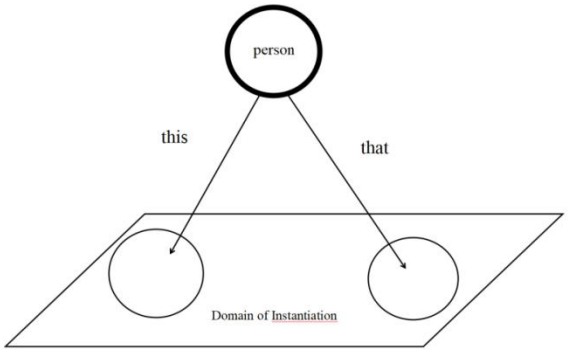

Figure 3.1 The Instantiation of the Noun "person"

The process of transferring types into instances is the grounding. Through this process, basic lexemes can be related to specific cognitive circumstances to realize their contextual and communicative meaning. In this process, the instances of a type are selected and situated in the domain of instantiation so as to build the connection between the ground and the profiled thing or process. The grounding of a nominal can be achieved by the deployment of articles, determiners, and quantifiers; meanwhile, the grounding of a finite clause can be achieved mainly by markers of tense-modal complex. These grounding elements comprise of the grounding of tense-modal complex, relying mainly on the deployment of grammatical and lexical units and functioning mainly on the internal of a clause.

	Definite	Quantatificational
Nominal	th+prox/dist(-is,-at…)	Ø, sm, a some, most…
Finite Clausal	Ø+prox/dist(Ø,-ed…)	may, will,…prox/dist

Figure 3.2 The Nominal and Clausal Grounding (Langacker, 2002, p. 30)

As the researches goes on, grounding has been continuously polished and supplemented. Based on the distance of the moment of speaking (MoS) and the profiled events, CG constructs a tense-modal clausal grounding system.

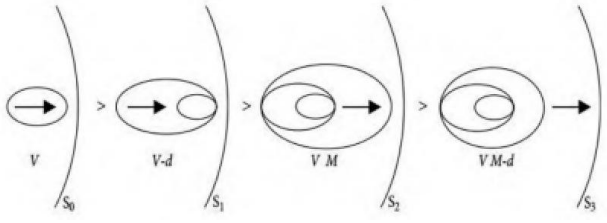

Figure 3.3 The Tense-Modal Grounding Strata (Langacker, 2017, p. 28)

These four levels construct a baseline-elaboration model. The baseline reality S0 profiles an event V

(marked by the arrow) that can be directly captured by the speaker. S1, S2 and S3 are the elaboration of S0. S1 profiles an event V-d taking place in the basic reality which can be located through tense marker "-d". "V M", as a probability event, holds its locus in the projected reality and potential reality. This event is marked by modals, as mentioned above. "V M-d" represents an imagined event located in epistemic reality, which belongs to the category of irreality. This is marked by the past tense of modals (M-d). The epistemic distance to the baseline reality becomes longer as the process of elaborations extending from S1 to S3.

In Langackerian framework, grounding elements are considered being conveyed by highly grammaticalized units, such as suffixes "-ing" and "-ed" used to present temporal status. However, Mandarin Chinese, without inflectional approaches to convey grounding elements, relies much highly on its lexicons, word order, and context to convey meaning aligned with the inflectional affixes in Indo-European languages. The distinction between Chinese and English in the conveyance of grammatical and semantic categories has gained prevalent attention (Zhang, 1998a; 1998b). All those papers acknowledge the non-inflectional components in sentence (for instance adverbs, clauses, etc.) and contextual elements are deployed to balance the semantic gap resulting from the lack of inflectional affixes prevalent in Indo-European languages (i.e. English, French, German, etc.).

For Example:

(11): 他来了。

(12): 他昨天说来找我，他来了吗？他来了。

In Example 11, it's difficult to locate the epistemic status of the occurrence "他来了" (He comes/He did come), in that the immediate circumstance is highly implicit as for this sentence. Only by placing it into the certain context can we identify the epistemic status of this occurrence, as presented in Example 12. The adverb "昨天"(yesterday) helps locate the sentence to the conceived reality (Reality that has been perceived to be happened). These are called contextual ground. When precipitating to a certain context, whether written or oral, the known information in the previous sentences can still be considered as elements in the ground. Hence, the grounding elements are not strictly confined in inflectional units.

Chinese researchers Li and Wang (2023), based on the grounding strata and the evidentiality system proposed by Langacker (2017), constructed a model of English grounding system based on the epistemic status while post a hypothesis that this model can be applied to conduct cross-linguistic studies (see Figure 3.4). In this model, a stable continuum is constructed with three progressive dimensions composed: (1) temporal reality, profiling present and past events, grounded by tense markers; (2) epistemic reality, profiling events in projected and potential reality, grounded by modal auxiliaries and adverbs; (3) evidential reality, profiling evidentiality external to the clausal structures, grounded by elements external to clauses, such as evidential verbs and adverbs. The subjectivity showed in these three dimensions gradually rises up. In CG, an event characterizes an epistemic status, based on the types of reality. The clausal structure can be conceptualized through accessing the

epistemic status of "reality". In English, futurity is conveyed through modals, and its epistemic status is located in potential reality and projected reality, as can also be seen from the dynamic evolutionary model. Potential reality and projected reality is captured by speaker as epistemic reality/irreality, while the present and past events are perceived as reality, namely what has been perceived as happened, unchangeable events. Modal auxiliaries, abiding by this model, are situated in epistemic reality, in which two dimensions of reality are involved: potential reality and projected reality. Modal auxiliaries, in the framework of CG, are considered as a kind of grounding element to designate a verb. The grounding of modal auxiliary will be discussed in the following paragraph.

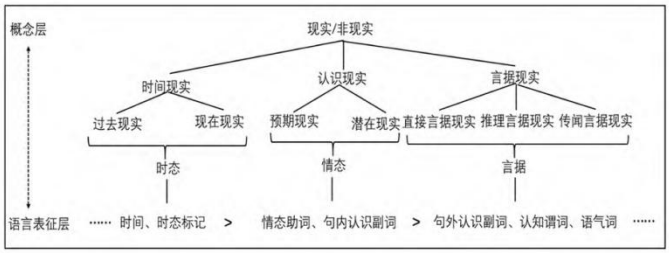

Figure 3.4 The Grounding Strata (Li & Wang, 2023, p. 34)

3.2 The Grounding of Modal Auxiliary

According to Langacker (2008), what a modal verb ascribe to the event is a "potency", which can lead to "the execution of an action" (Langacker, 2008, p. 304). English modal auxiliaries are derived from the verb expressing meanings such as "want to do", "know how to do", and "have the power to do". Those source verbs possess two features: "future-oriented" and "momentum-dynamic". The futurity is therefore conveyed by modal auxiliaries. However, the futurity is not the attached meaning, in that the temporal status is one of the basic elements composing the designation of a clausal structure, without which the situation of the type can not be recognised. When the occurrence is situated while profiled in the sentence, the futurity activated by the corresponding modal auxiliary is thus expressed.

When the features of "future-oriented" and "momentum-dynamic" posit themselves to connect the ground to become the "potency". Potency refers to the final effect of the momentum grounded by modal auxiliaries. Two types of modal potency can be distinguished: root modality (dynamic modality and deontic modality) and epistemic modality.

Root modals are aimed at effective control of occurrences, and epistemic modals are aimed at epistemic control (Langacker, 2008, p. 306).

Root modals exert its potency on the main verb to bring about the realisation of the occurrence, and the outcome of the grounded process is at the vantage point. Thus, in root modal sense, the momentum invoked by modal auxiliary is the extension of current reality, in which the projected and potential reality are diverged. On the other hand, if we say that root modals pertain to the reliasition of occurrences, the epistemic modals "pertain to the knowledge" (Langacker, 2008, p. 306). The

knowledge enables the speaker to assess the possibility of the grounded process. The potency, in turns, aims to integrate the envisaged process in the speaker's conception of reality (Note 2). RC represents "the speaker's force-dynamic experience in mentally extrapolating the current reality conception—imagining its future evolution—in such a way that RC comes to include it" (Langacker, 2008, p. 306). It turns out that the potency of epistemic modals is aimed at not bringing about the outcome, but assessing and accepting the outcome of grounded process as real. The graphic explanation of epistemic modals can be showed through the following figure (see Figure 3.5). The main difference between this figure and the dynamic evolutionary model is that in this figure, the column in full lines stands for the RC instead of the current reality. Generally speaking, there is no distinction between RC and Reality. The former is the specific description of the latter. The extension of potential and projected reality is based on not only the objective reality, but more of the reality being conceptualized by the speaker, and this view has laid the foundation of the further discussion of the semantic extension of "*Hui*".

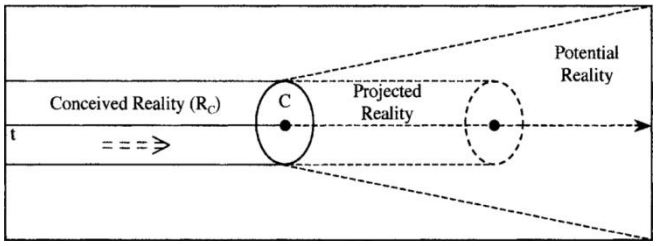

Figure 3.5 The Revised Version of Dynamic Evolutionary Model (Langacker, 2008, p. 306)

Niu Baoyi has studied the grounding function of "may", and as the conclusion, he pointed out that "grounding element 'may', imposes a momentum of assumption, prediction, imagination, etc" (Niu 2017, p. 12). Driven by such momentum, the future-oriented process profiled by may-sentences varies into different levels of possibility. When it comes to "*Hui*11", things run similarly to Niu's study on "may"; however, when comes to "*Hui*12", an obvious question appears that what "*Hui*12" profiles are not always future-oriented. In this sense, chapter 3.3 will propose the grounding model of "*Hui*", in an attempt to construct the framework of the grounding analysis in this study.

3.3 A Proposed Grounding Model of "Hui"

This paper holds that "*Hui*" in the process of semantic extension profiles the inference from the speaker. This momentum post a momentum onto the occurrence to foster its progressing into the futurity, which, according to the evolutionary dynamic model, comprises of potential and projected reality. According to the above discussion, the fundamental grounding process of "*Hui*" can be illustrated as the following figure:

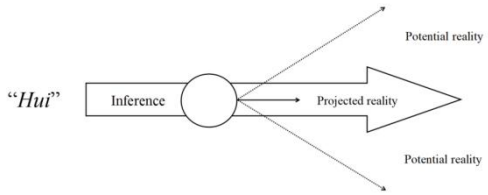

Figure 3.6 The Fundamental Grounding Process of "*Hui*"

In this model, the dynamic momentum of "*Hui*" endows the conceptualizer with a motivation, extending it to the futurity, namely projected reality and potential reality. In most cases, modal verbs posit themselves in potential reality and projected reality, as stated above. Under the momentum profiled by the modal auxiliary, the reality develops and diverges into the future irreality, among which exist the paths of various possibilities of realisation. As the speaker perceives the development of reality, things that might happen in the future compose the potential reality, represented by two dispersed lines. Within potential reality, certain things that are more likely to be realized construct projected reality, represented by dashed column.

"*Hui*" profiles the inference process in the sentence, which requires sources of inference (evidence) and inference results. This process (i.e., the logical relationship between evidence and results) is embodied in the ground. This also fits with Langacker (2008)'s definition of grounding elements. The evidence, according to Langacker (2008), belongs to the correlation part of the ground and the arena, which is reflected in the sentence through the conditional clause. The result of the inference, as the focus of attention, is placed onstage.

Based on the all the discussions that have been made above, a unified grounding model of "*Hui*" can be extracted as follows (Figure 3.7: A Unified Grounding Model of "*Hui*"). In these series of figures, the arrow stands for the occurrence. The blackened arrow refers to the high reliability of the inference itself, the less reliable one is represented by the arrow stuffed with vertical lines. The immediate circumstance is represented by the circle and speaker by the cross. Sources of the evidence are presented within the circle. The epistemic status of the occurrence is represented by the rectangular under the arrow.

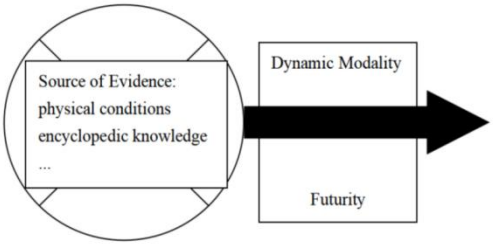

Figure 3.7a Dynamic Sense Model of "*Hui*" (Stage 1)

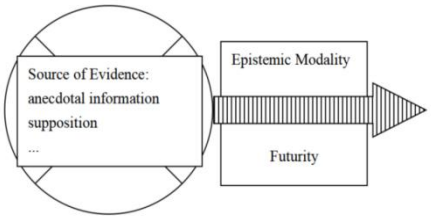

Figure 3.7b Epistemic Sense Model of "*Hui*"(Stage 2)

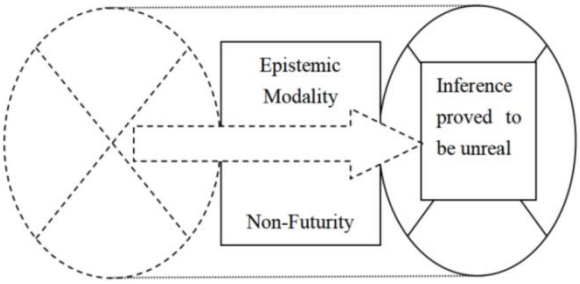

Figure 3.7c Non-Futurity Sense Model of "*Hui*"(Stage 3)

Figure 3.7 A Unified Grounding Model of "*Hui*"

From a to c, the validity of evidences declines, and the reliability of the inference in turn bleached from blackened real line arrow to whitened dotted line arrow. According to Langacker (2008), modal verbs have different meanings and different types of momentum. The type of momentum in root modality (dynamic and deontic) is the ultimate "realisation" of the occurrence. The type of momentum in epistemic modality is the assessment of the possibility of the occurrence.

When "*Hui*" is manifested as the root modal sense (3.7a), the validity of the evidence endows the realisation of the inference result with more reliability, so that the speaker does not assess the "realisation" of the process too much. When the validity of the evidence reduces, the possibility of the realisation of the inference results recesses either, and the speaker's evaluation of its possibility is partially placed onstage, so that "*Hui*" expresses the meaning of both dynamic modality and epistemic modality (3.7b). But because the inferred results does not happen, it is essentially "future-oriented". When the inferred result is denied by the conceived reality, the meaning of "*Hui*" is completely changed to assess the occurrence. In 3.7c, the extended part in dotted line represents the grounding process of "*Hui*" in non-futurity sentences, in which the inference led by "*Hui*" has proved to be unreal. This is represented by the dotted arrow. Thus, this process is prior to the immediate circumstance and the speaking time, and the sentence conveys the meaning of non-futurity. However, this does not mean that "*Hui*" has the past time meaning, and it still expresses "inference" and "future-oriented", but the cognitive assessment of the speaker is not aimed at the realisation of the occurrence, but the evaluation itself from the speaker (which will be exemplified in the next chapter). Therefore, under the participation of the grounding elements, the whole sentence reflects the speaker's non-future

assessment upon the occurrence.

As Langacker (2017, p. 53) has stated that the objective of his study is to "seek unity in diversity". One of the most significant creeds in CG is to present a unified account of linguistic framework which can be applied to any languages. It is obvious, according to the above discussions, that the boundary between temporality and modality is quite vague, hard to completely distinguish one from the other. This is also the reason why a unified model is presented in this study. Similar to the view of Kratochvílová (2019), this paper holds that only when all the elements, whether onstage or offstage, are taken into consideration can a complete sentence (both syntactically and semantically) be fulfilled and conceptualized.

4. A Cognitive-grounding Analysis of the Semantic Extension of "*Hui*"

This dissertation holds that the conditional clauses are the source of evidences, thus being categorized as grounding elements. When it comes to certain examples, the inference profiled by "*Hui*" varies as the evidences in specific contexts changes. Previous discussions mainly focus on the theoretical models; hence, in the following discussion, I will examine their connection with the modal auxiliary "*Hui*" and how these conditions affect the speaker's assessment upon the reliability of the inference.

What worth extra mentioning is that the subjectivity in this research is considered not a Langackerian concept, but an independent dimension conveyed via the sentence, which interacts its function with the speaker's inference upon certain propositions. Here speaker's inference is profiled and externalized by modal auxiliary "*Hui*", and the subjectivity is presented through many language forms such as conditional clause, adverbs, interjections, and the like.

In this part, I will use the graphic representation to unify the previous discussion with the following part. This approach is proposed by Kratochvílová (2019, p. 9), with three basic shapes: a square, a cross, and an arrow. The arrow represents the occurrence (event), which, according to Kratochvílová's idea, is based on the dynamic evolutionary model. The square and the cross stand for the grounding elements, which comprise of the speaker and speaking moment (discussed in 4.2), and sources of the evidence. The cross stands for the former while square stands for the latter. The epistemic status is illustrated by a two-dimensional process that extends from left to right, representing the past, present and future time. In this way, elements from the left side are located in the conceived reality, elements coinciding with the square are in the present reality, elements beyond the square are in the projected and potential reality.

4.1 Futurity of "Hui": Its Extension to Epistemicity

As mentioned in the second chapter, the temporal meanings of "*Hui*" mainly include "natural development" and "habitual movement". According to the Dynamic Evolution Model, the two semantics are usually conceptualized as "projected reality".

(13) 天色不好，恐怕 会 下雨。

(14) 在野生状态下，菊花应该 会 结果实。

(15) 一会儿就八点了，这些卫兵很可能 会 睡觉的。

The above sentences are selected from the CCL corpus, which express the meaning of dynamic modality, in that the realisation of the outcomes [“下雨” (rain), “结果实” (bear fruits), “睡觉”(sleep)] are profiled. Among them, Examples 13-14 represent the meaning of natural development and Example 15 is of habitual behavior. By observing Examples 13-15, we find that it is not difficult to find that both natural development meaning and habitual behavior meaning are a kind of cognitive inference with certain conditions. The difference between the two is that topics of the former is often about things, such as “天气” (the weather) in 13 and “菊花” (chrysanthemum) in Example 14, while the latter is about people other than the speaker, such as “卫兵” (guards) in Example 15. The latter is more subjective than the former, but it does not reach the height needed to the epistemic modality. Most of the conditions stated in these sentences come from the embodied experience of the speaker, such as “天气不好” (the bad weather) in Example 13, “在野生状态下” (in the wild condition) in Example 14, and “一会儿就八点了” (soon it will be 8 o’clock) in Example 15. These conditions are all situated in the objective reality.

In Examples 13-15, the inference made by the speaker is aligned with the natural and habitual trend. These knowledge reside in the immediate speaking circumstance. In Examples 13 and 15, the conditions (“the bad weather” and “soon it will be 8 o’clock”) are physical conditions captured directly from the immediate speaking circumstance. While the condition in Example 14 (“in the wild condition”) belongs to the encyclopedic knowledge from the speaker’s conception. The speaker uses these knowledge to lay down the inference upon future events. Usually these kind of things are of high certainty, for few things can violate the natural trend. Thus the evidences possess high validity, and the inference is therefore highly reliable. In this situation, the inference is of the most salience, and the evidences are set implicit. As shown in Figure 4.3, the arrow is placed in the future time. The process of inference is the most salient part of the whole sentence, thus it is represented by the thickest line. As for the rest of the shapes, the lines are not thickened, in that these elements are not set onstage, being implicit in the sentence.

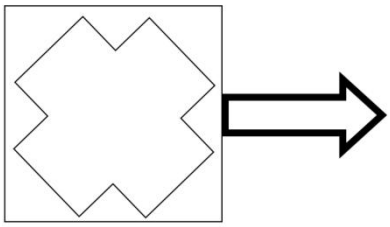

Figure 4.1 The Dynamic Modality Meaning of “*Hui*”

Under the conditions of objective reality, “*Hui*” profiles the process with the cognitive momentum of inference with low subjectivity of the source of evidences, and the meaning of “natural development” and the meaning of “habitual behavior” are derived with the different themes of sentences.

However, when the conditions in the sentences are endowed with a certain degree of subjectivity, making their epistemic status gradually divorced from the objective reality to the epistemic reality, the meaning conveyed by "*Hui*" will be transferred. See the following two examples.

老二是不 会 逃走的，我问过他！

假若我再去罗嗦，他们 会 结果我的性命！

By observing the conditions of Examples 16-17, we can learn that the conditions of these two sentences are not completely objective reality, but with a certain degree of subjectivity, reflecting the subjective assessment of the speaker upon certain people or things. Although the anecdotal source of evidence "我问过他" (I have asked him) in Example 16 is located in conceived reality, it possesses a rather high level of subjectivity, which makes "*Hui*" in Example 16 express not only the habitual behavior, but the epistemic inference as well. The epistemic inference of the Example 17 is even more obvious, because the envisaged condition "假若我再去啰嗦" (if I go again wordy) has been divorced from the objective reality and entered the level of subjunctive mood.

Examples 16-17 contain less valid evidences. These conditions might be the information heard from others or hypothesis made by the speaker. The inference possesses rather low reliability, and the grounding elements encompassing the evidences are partially set onstage, with markers such as "假若" (if) or exclamatory mark (!). Though they are to some extent explicit, the salient part is also the inference, and these elements post their effects on the speaker to cripple the reliability of the inference. Therefore, the line of the arrow is of the most thickness as well, meanwhile the lines forming the square and the square are set thicker, compared with Figure 4.1.

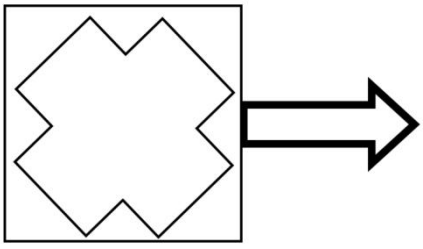

Figure 4.2 The Epistemic Futurity Meaning of "*Hui*"

Although Examples 16-17 have a certain degree of habitual behavior meaning, the less reliability given by the recessed evidences makes "*Hui*" elaborate the whole sentence to present a meaning of epistemicity, which suppresses the meaning of habitual behavior to a certain extent. Therefore, there exists a transitional stage in which the cognitive momentum of inference from "*Hui*" extends its meaning from dynamic modal sense to epistemic modal sense, accompanied by the recession of the validity of evidence sources, which also means that in this stage, the effective control and epistemic control from the potency of "*Hui*" co-exist with each other.

It can now be found that the more reliable the inference is, the more implicit the evidentials are, vice

versa. Now suppose the extreme situation that the inference is completely unreliable, then the evidences are supposed to be of a high level of salience. The one situation that can realize the above supposition is the inference has been proved to be false. In the following discussion, this phenomenon will be presented with examples.

4.2 Epistemicity of "Hui": From Futurity to Non - futurity

Examples 13-17 show that "*Hui*" sentence changes its meaning with the rising of subjectivity, but its temporal status is not divorced from the futurity (potential reality and projected reality). However, as we said before, as for modal auxiliaries under certain conditions, the futurity will be suppressed, instead expressing the past and present time. This phenomenon was noticed by Lyu (1980). Take the following 5 sentences as examples.

(18) 可是没有料到他竟 会 这么穷。

(19) 他没想到教书 会 这么难！

(20) 我们都有一二百斤气力，这点子东西，怎么竟 会 这么的重？

(21) 厂方以为学生们这天不 会 出门了，结果到晚上一打听，各个组全都撒出了人马。

(22) 我也不知道我怎么 会 活下来。

None of the events described in Examples 18-23 are future events, and instead, are located in the present time and past time. What these sentences have in common is that the events they describe all contain violations of the speaker's perception, namely the violation between the projected and potential reality extended from conceptualized world and the happened result from actual world. Usually, the source of evidences captured by the speaker based on personal experience, knowledge, anecdotal information, and the like will be presented via conditional sentences. However, in these examples, no such information can be found. Instead, lexicons that express speaker's assessment are placed onstage. For example, in the 18 sentence, "没有料到" (unexpectedly) means that the poverty of "他" (him) in the speaker's perception is much lower than that in reality. "没想到 (unexpectedly)" in Example 19 means that "他" (he) has far less difficulty in perceiving teaching than experiencing teaching in reality. Example 20 contains "厂方" (the manufacturer's) understanding upon students' behaviour: students will not go out in this weather. But the reality is the opposite to the deducted results pushed by "*Hui*". Example 21 also contains inference: "我们" (we) can lift these things, but the reality is the opposite. In Example 22, "我" (I) has doubts about the event of "活下来" (survive), so that it can be learned that in the conception of the speaker, he himself can hardly survive at some point in the past.

The present study holds that in Examples 18-22, "*Hui*" still endows the cognitive momentum of inference with the sentences, but the profiled events will deviate from the presupposed future, that is, the inference made by the speaker occurs before the profiled event. The event then occurs after that inference behaviour, and is contrary to the possible result made by the speaker's inference. At this point, the cognitive momentum profiled by "*Hui*" prompts the whole sentence to highlight the speaker's assessment, which is mostly manifested as exclamation or question. Therefore, when "*Hui*" is used in the non-future time, it often appears with "可是" (but), "没想到" (unexpectedly), "竟" (to one's

surprise) and other words expressing adversative relation, exclamation or question.

In these five sentences, the modal word "*Hui*" specifies the possible futurity in the conceived timeline, while the event is captured from the actual timeline in the objective reality, and the actual time is corresponding to the futurity predicted by the inference in the conceived time, as shown in the figure below.

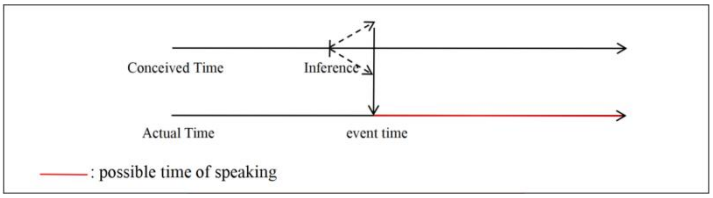

Figure 4.3 Temporal Status of Non-Futurity "*Hui*" Sentences

At this point, the time being invoked is captured from the immediate speaking circumstance, rather than the time of the inference. The speaking time may coincide with the time of the real event, and it may also occur after the time of the event. Therefore, we can know that multiple timelines in a sentence can be posited by different components simultaneously, but only one point from one of those timelines will be grounded. In this case, the semantics of the epistemic assessment, which is at a higher level of subjectivity than others, is specified, and the highlighted time will also suppress the time of the act of inference. Whether the time of the sentence posits in the present time or the past time depends on the distance between the speaking time and the event time.

As we have discussed, the violation of the reality proves the inference to be completely invalid, and in this situation, the inference is suppressed by the speaker's assessment upon the occurrence. Here the evidences are neither knowledge nor information, instead, these are direct evidences that prove the falseness of the inference, which are profiled by tones, adversative conjunctions, adverbs, negations, and the like. These elements co-operate with the modal auxiliary "*Hui*" to locate the whole sentence into the conceived reality and convey the meaning of assessment instead of inference, though "*Hui*" still plays the same role of profiling the cognitive momentum of inference.

In Figure 4.4, the salience is removed to the speaker and His/Her speaking time, so the lines forming the cross is of the most thickness. Moreover, the grounding elements have co-existed in the sentence in a more explicit way. Hence the lines forming the square is thicker than that in Figure 4.3. The horizontal line, however, transfixes from the left to the right boarder line of the square, representing the epistemic status to be in the conceived and present reality. What worth noticing in this figure is the extended square surrounded by the dotted lines. This corresponds to the conceived reality in which "*Hui*" diverges the inference process (the arrow). This part, if taking the viewpoint of the immediate speaking time (the cross), has already become part of the ground shared by the speaker and the receiver, thus not directly conveyed in the sentence, but can be indirectly inferred by the explicit elements in the sentence such as the words of adversative relation, exclamation or question as discussed above. In this

sense, the futurity can be seen expressed within the space of the dotted square. However, it is not coincided with the immediate speaking circumstance, and are expressed bleached in sentences.

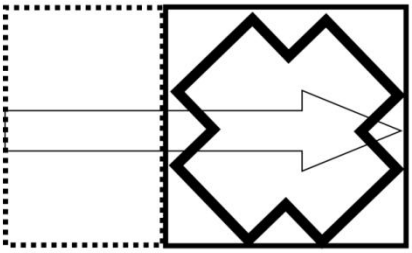

Figure 4.4 The Epistemic Non-Futurity Meaning of "*Hui*"

Although the cognitive inference momentum profiled by "*Hui*" can promote the sentences to convey the meaning of assessment, this study does not mean that "*Hui*" has specified such cognitive momentum. First of all, Langacker (2008) believes that the cognitive momentum of modal verbs is often given to the trajector a sort of potency, leading to the implementation or realisation of some actions or situations. But cognitive assessment does not have such potency, it usually states the speaker's attitude towards happened events. Secondly, under this meaning, the syntactic limit of "*Hui*" is relatively large. "*Hui*", only when being in common with some specific words, can make sentences express the meaning of epistemic assessment, just as the words of adversative relation, exclamation or question mentioned above. Therefore, "*Hui*", whether posited in the sentences with futurity, or in the non-futurity, always specifies the momentum of inference.

4.3 Grounding Elements, Potency, and Subjectivity in the Semantic Extension

Combining the discussions above, the semantic extension of "*Hui*" from futurity to epistemicity is clarified. The modal senses and temporal senses are intertwined to each other. As for the modal senses, there is an extension from dynamic modality to epistemic modality; for temporal senses, there is an extension from futurity to non-futurity. The combination of modal sense and temporal sense is illustrated as follows (Figure 4.5). The futurity can be expressed by both dynamic modal sense and epistemic modal sense, while non-futurity is conveyed solely by epistemic modality.

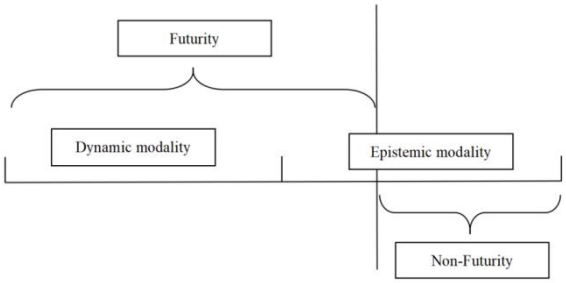

Figure 4.5 The Combination of Senses of "*Hui*"

More significantly, the grounding elements functioning in this process are examined. The mainly discussed elements in this essay are the immediate speaking time, and the source of evidences. The validity of the evidences plays a vital role in this process, in that it affects the reliability of the inference, and in depths post a motivation upon the semantic extension of "*Hui*". The immediate speaking time and the immediate circumstance, on the other hand, directly diminish the salience of the inference, causing the bleach of the futurity. Therefore, the influence of grounding elements upon the proposition is of an indispensable position. Although "*Hui*", as a modal auxiliary, functions as the carrier of cognitive momentum, it can make the whole sentence convey different meaning when different grounding elements are taken into account.

On the basis of above discussions, the grounding process of "*Hui*" is extracted as follows (Figure 4.6). In the semantic extension of futurity-epistemicity trail, "*Hui*" endows the target conceptualizer with the momentum of epistemic inference. In dynamic modal sense, the momentum functions as promoting the development of the event and bringing about the outcome in projected reality. The potency of the modal auxiliary in this sense is to realise the effective control to bring about the outcome of the grounded event.

When the validity of evidence sources declines, the reliability of the inference therefore recesses. Within this process, the cognitive momentum profiled by "*Hui*" begins to push the whole sentence to break away from the projected reality and extend to the potential reality and epistemic modal sense is conveyed. This process is also aligned with the rise of subjectivity. Also, in this process, the potency of the modal auxiliary becomes the epistemic control to accept the grounded event to be real.

When the inferred result of the event in the sentence deviates from the possible results driven by the cognitive momentum, speaker's assessment upon the deviation between the reality and possible results led by "*Hui*" is of the highest level and of the maximal salience. Under this circumstance, the reliability of the inference is dropping to the lowest point. In this sense, the speaker's assessment upon the proposition takes the place of the realisation of the process. The immediate time of speaking, namely the time of speaker's assessment, takes the control, while the futurity that the momentum of "*Hui*" driving upon the conceptualizer is suppressed, and the non-future meaning is expressed externally. The subjectivity level, as stepping in to this stage, rises much higher than the former two stages.

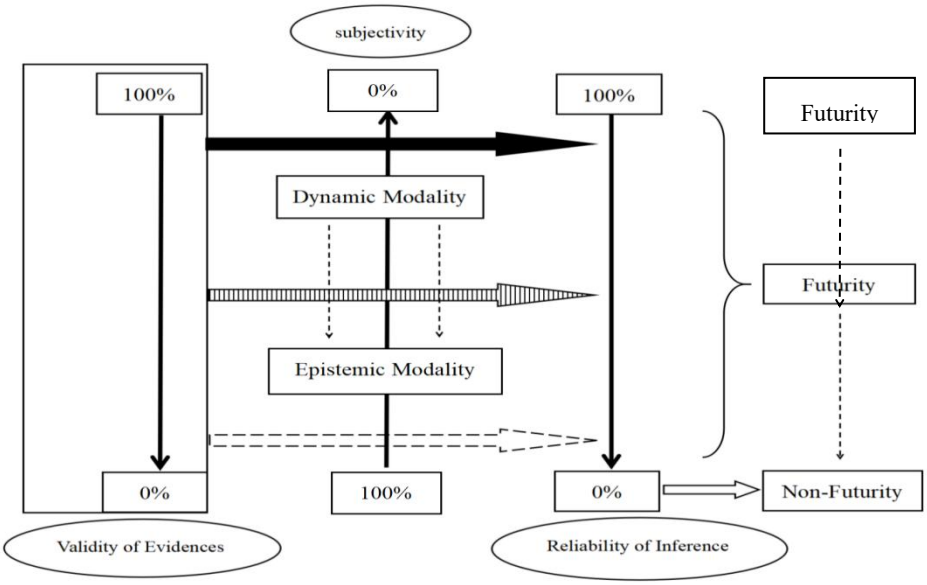

Figure 4.6 The Semantic Extension of "*Hui*" with Grounding Analysis

The analysis of the fourth chapter starts from the semantic extension of "*Hui*" as the basic viewpoint, while we argue that the change of subjectivity is being accompanied, running through the whole analysis. From the above analysis, it can be seen that both the trail from dynamic to epistemic modality and that from futurity to non-futurity possess a common point: they all entail the increasing of subjectivity by degrees.

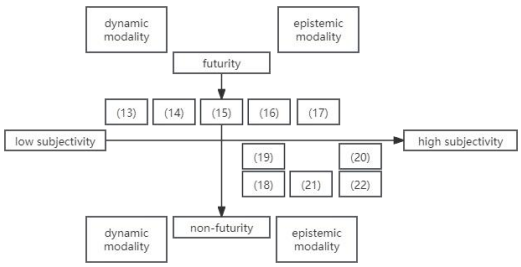

Figure 4.7 The Subjectivity Distribution in the Semantic Extension of "*Hui*"

The above chart illustrates that with the above 10 example sentences, the more subjective the sentence, the closer its status is to epistemic modality. Seeing through Examples 13-22, we find that the fluctuation of subjectivity reflects different meanings of the "*Hui*" sentences from futurity to non-futurity and from dynamicity to epistemicity.

However, this does not suggest that the high subjectivity directly affects the bleach of futurity. From the above discussion, it can be clear that the temporal meaning is attached to the speaker's inference, which holds its epistemic status to the potential reality and projected reality. This temporal meaning (futurity)

can be diminished with the salience of other elements. The time of speaking, when the speaker is making assessment, directly suppresses the futurity. This time of speaking is, however, determined by the immediate circumstances. According to the analysis of the previous studies, the most intuitive factor affecting the semantic bleach is whether the inferred result that the "*Hui*" sentence profiles goes against the existing reality. In epistemic evaluative sentences, when the event of the sentence violates the reality, the momentum of epistemic inference profiled by "*Hui*" precedes the happening of the event. At this time, modal auxiliary "*Hui*" can indicate the non-future meaning. Therefore, the "*Hui*" sentences representing non-future semantics are usually of high subjectivity. Thus, the fluctuation of subjectivity is merely associated with the semantic extension process, rather than the direct cause of that.

5. Conclusion

In this research, the findings can be concluded as the following points:

First and the foremost, the semantic extension of "*Hui*" from futurity to epistemicity is thoroughly studied. The intertwined temporality and modality are presented with graphic representation. Also, This paper believes that the two aspects should be taken as a whole to scrutinize. Precipitating into this study, the modal senses extend from dynamicity to epistemicity, while temporal senses extend from futurity to non-futurity. The epistemicity contains both futurity and non-futurity.

Secondly, the momentum of "*Hui*" in this semantic extension is examined. Although the epistemic statuses in three stages are different, the momentum of "*Hui*" is always the inference. One of the characteristics of modal auxiliary's potency is "future-oriented". This is the source of the futurity in the dynamicity and part of the epistemicity. Besides, a transition stage (stage 2) is found that the potency of "*Hui*" possesses aims of both the effective control and epistemic control.

Thirdly, the grounding elements are scrutinized in this process. The predominant effecting factors are the reliability of inference, which can be reflected via the validity of evidence. During the whole process, the validity of evidences endures a falling progress, which directly cripple the reliability of the inference. As the inference becomes less reliable, the subjectivity level rises. When the evidence becomes the least reliable, that is, to be denied by the reality, another grounding element, the immediate speaking time, takes the control of the temporal meaning of the "*Hui*" sentences. The non-futurity sense is thus conveyed, determined by the distance between the immediate speaking time and the event time. As a result, the meaning of the sentence is transferred into the speaker's assessment upon the event.

Last but not least, both the fundamental and unified grounding models of "*Hui*" are extracted. The former depicts the grounding function of "*Hui*" itself; the latter blends it with grounding elements, illustrating the evolution process among all the three stages.

This study, on the basis of previous literature, presents a fundamental investigation on the semantic extension of Chinese modal auxiliary "*Hui*", focusing on the semantic extension from futurity and to epistemicity. What makes difference in this study is that the perspective of this study deploys the

elements of the ground, especially the source of the evidences, to construct a grounding-based model of "*Hui*", examining the roles played by these elements in the process of semantic extension and the motivation of the bleach of futurity via the cognitive-grounding perspective. Eventually a unified explanation of the semantic extension of "*Hui*" from futurity to epistemicity is concluded, which can be used as a reference pertaining to the application of CG in the study of modal auxiliary in Chinese language. Moreover, the successful application of the grounding theory in CG has proved the feasibility of the construction of a unified analytical model including Chinese language, shedding a new light on the further study of Chinese language.

In this thesis, I try to analyse the semantic changes of the Chinese modal auxiliary "*Hui*" with the view of grounding theory. Although some conclusions have been drawn, it is still too simple to be more in-depth and comprehensive. The assertion that the syntactic restrictions of "*Hui*" in non-futurity sentences only stays at the level of simple observation from the corpus, and does not make more in-depth quantitative statistics, so accurate inferences cannot be drawn.

In addition, this dissertation only mentions the deontic meaning of "*Hui*" in chapter 2. Previous literature points out that the emergence of this meaning is later than the epistemic modality meaning of "*Hui*", so it can be regarded as a new semantic trajectory. However, this paper focuses on the semantic chain of "futurity---epistemic modality", so it does not mention much about the meaning of deontic modality of "*Hui*". But this semantics is very important, because in the actual language usage, the frequency of the deontic use shall never be ignored. Therefore, this study is not comprehensive, nor in-depth, while needs further investigation and statistic supports.

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