

New Perspectives in Role and Reference Grammar

Edited by

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P U B L I S H I N G

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Edited by Wataru Nakamura

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MODALITY IN TAIWAN SIGN LANGUAGE

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Abstract

This paper discusses modality in Taiwan Sign Language within the framework of Role and Reference Grammar (Van Valin and LaPolla 1997; Van Valin 2005), with the goal of accounting for the correlation between the semantic and syntactic representations of modals. First, it is observed that the modals with a wider semantic scope (e.g. epistemic modal) have a freer syntactic distribution. Second, the same modals in different syntactic positions exhibit different degrees of subjectivity. To convey stronger subjectivity, the modal in the sentence-final position tends to involve non-manual features. Third, the modal with a wider semantic scope (e.g., epistemic modal) always precedes the one with a narrow scope (e.g. deontic modal).

Keywords

Taiwan Sign Language, modality, epistemic modals, deontic modals

1. Introduction

Modality is a grammatical category on a par with tense and aspect. Generally speaking, tense is concerned with anchoring events in time, whereas aspect is related to the internal temporal structure of events (Comrie 1976, 1985). Modality differs from tense and aspect in that it does not refer to the properties of the event, but rather to the speaker's attitude to the proposition of the sentence. Thus, modality is defined as the grammaticalized expression of the speakers' attitudes and opinions toward the proposition of the sentence (Lyon 1977; Palmer 2001). In spoken languages, modality is expressed through various linguistic devices, such as morphological inflections, lexical items, syntactic patterns, or intonation

(Bybee and Fleischman 1995). For example, English uses modals to distinguish a judgment about a proposition from a statement. The sentence in (1a) is a statement without expressing the speaker's attitude, whereas the sentence in (1b) makes use of the modal "may" to convey the speaker's lack of confidence to the proposition. The sentence in (1c) uses the modal such as "must" to convey the speaker's confidence in his reporting of facts.

- (1) a. Kevin is sick today.
 b. Kevin may be sick today.
 c. Kevin must be sick today.

Over forty years of researches on sign languages have shown fruitful results and evidenced that signed languages and spoken languages have many linguistic properties in common, such as diachronic language acquisition time (Newport and Meier 1985; Lillo-Martin 1999), the speed that the proposition is transmitted (Bellugi and Fisher 1972; Fischer et al. 1999), the complex grammatical structures that encode the relationship between form and meaning (Klima and Bellugi 1979; Sutton-Spence and Woll 1999; Liddell 2003; Tai 2005, 2008; Chang et al. 2005; Tai and Su 2006; Sandler and Lillo-Martin 2006; Chang 2008, 2009). The major difference between signed languages and spoken languages resides in how their messages are produced and perceived. The messages of spoken languages are articulated by vocal tract and perceived through audition, whereas those of signed languages are produced by physical action and perceived visually. That is, human language can be produced and perceived through two different channels, namely, the auditory-vocal channel in spoken languages and the visual-gestural channel in signed languages.

It has been well-accepted that modality is a cross-language grammatical category. In signed languages, modality can be expressed through two manual ways or one non-manual way. The first manual way is to use lexical items, for instance, British Sign Language [BSL] uses modals such as "SHOULD", "CAN" and "MUST" (Sutton-Spence and Woll 1999:126). The second manual way is to express scalar degree of tenseness, strength and size in the verb sign, for example, in BSL, the movement for "MUST^ASK" is larger, tenser and stronger than that of "COULD^ASK" (Sutton-Spence and Woll 1999:126). However, the non-manual way is to incorporate non-manual features into the sentence, such as head nodding, chin lifting and so forth (Wilcox and Wilcox 1995).

Modality in signed languages has been studied in many different ways.

For example, some studies discuss the expression of modality (Fisher and Gough 1978; Padden 1988; Ferreira-Brito 1990; Wilcox 1996; Sutton-Spence and Woll 1999). Others explore the grammaticalization of modals (Wilcox and Wilcox 1995; Wilcox and Wilcox 1995; Shaffer 2000; 2002; Janzen and Shaffer 2002; Meir 2003; Wilcox and Shaffer 2005). Still others investigate the syntactic distribution of modals (Aarons, Bajan, Kegl, and Neidle 1995; Shaffer 2004). However, not much attention is given to the correlation between the semantic and syntactic representations of modals. This paper discusses modality in Taiwan Sign Language [TSL] within the framework of Role and Reference Grammar [RRG] (Van Valin and LaPolla 1997; Van Valin 2005), with the goal of accounting for the correlation between the semantic and syntactic representations of modals.

This paper has centered on the following issues. The first issue discusses the syntactic distribution of modals in TSL. The second issue explores the correlation of syntactic position and the degree of subjectivity. The third issue concerns the correlation between the semantic scope of modals and their ordering, when there are double modals within a sentence. The methodology we use to elucidate the above issues is a discourse-based analysis, and the TSL data discussed in this paper were collected from deaf informants and from sign language news in Taiwan Public Television Service by the authors. This paper is organized as follows: Section 2 introduces the theoretical background, Section 3 discusses the syntactic distribution of modals, Section 4 explores the correlation between syntactic positions and degree of subjectivity, Section 5 investigates the word orders of modals, while Section 6 concludes this paper.

2. Theoretical Background

RRG is a linguistic theory based on languages with diverse structures such as Lakhota, Tagalog and Dyirbal, with an aim to capture and explain the interaction of syntax, semantics and pragmatics (Van Valin and LaPolla 1997; Van Valin 2005). RRG postulates three representations: syntactic, semantic, and discourse-pragmatics representation. The syntactic and semantic representations are linked together by a set of linking algorithms, and pragmatics will be taken into consideration while operating linking algorithms. With regard to syntactic representation, it consists of two projections. One is a constituent projection which deals with verbs, arguments, and adjuncts, and the other is an operator projection which deals with functional categories such as modality, aspect, negation, tense and so forth.

As for constituent projection, the representation of a clause structure is

called the layered structure of clause. The predicating element is realized by a verb without taking any argument and it is defined as “nucleus [NUC]” in the layer structure of the clause. The next layer is the “core [CORE]” which contains a NUC and core arguments of the predicate. The non-argument of predicate is projected as “periphery [PERIPHERY]” which joints to the CORE to formulate a “clause [CLAUSE]”. Figure 1 shows the constituent projection. The verb “drive” is projected as a NUC, and then combines with the core arguments, “Sarah” and “the car”, to formulate a CORE. The temporal adverb “yesterday” is a non-core argument, so it is projected as a PERIPHERY and linked to the CORE. Finally, the CORE incorporates with PERIPHERY to formulate a CLAUSE. The CLAUSE is further projected as a SENTENCE.

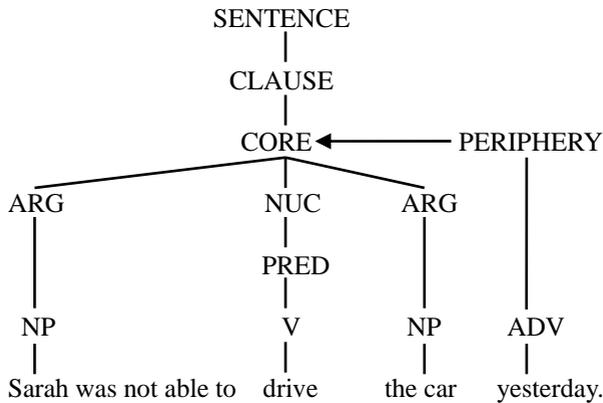


Figure 1: Constituent projection

As for operator projection, each layer may be modified by one or more operators. The scope of nucleus operators is over NUC; thus, they modify the action without reference to the core arguments. Core operators modify the relation between the action and the core arguments. Clausal operators modify the entire clause as a whole. Note that the operator projection mirrors the constituent projection in terms of layered structure. Three layers of operators are demonstrated as in Table 1.

Table 1: Operators in layered structure of the clause (Van Valin 2005: 9)

Nuclear operator:
Aspect Negation Directionals
Core operators:
Directionals Event quantification Modality (root modals) Internal negation
Clausal operator:
Status (epistemic modals, external negation) Tense Evidentials Illocutionary force

Figure 2 shows the operator projection. The modal “able” conveys the ability of Sarah, thus it is projected as a Modality which modifies the CORE. The negation “not” negates Sarah's ability to carry out an action, so it is projected as a Negation which modifies the CORE. The copula “was” conveys the time of the event and the type of speech act, thus it is identified as a clausal operator modifying the entire proposition.

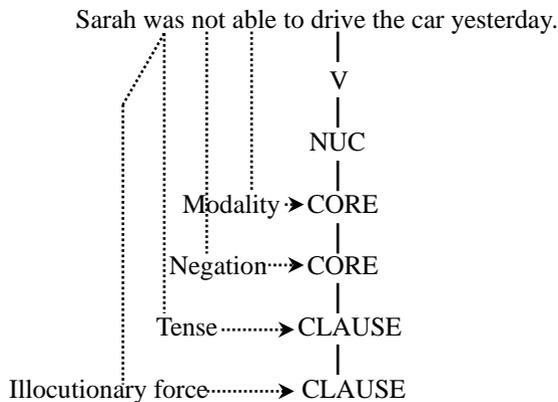


Figure 2: Operator projection

RRG is characterized by its layered representation. Within the syntactic representation, the operator projection mirrors the constituent projection in terms of the layered structure. In this paper, the operator projection will be adopted to account for the syntactic distribution of modals in TSL. In Section 3, the syntactic distribution of modals and its correlation with the degree of subjectivity will be discussed.

3. Syntactic Representation of Modality

3.1. Syntactic Distribution of Modals

Following Palmer (1979), modality is classified into deontic and epistemic modality. Epistemic modality is concerned with the speaker's degree of commitment to the truth of the proposition (Payne 1997:246). Deontic modality is concerned with permission or obligation for the performance of actions (Hoye 1997:43). In simple terms, epistemic modality conveys necessity or possibility, while deontic modality denotes permission and obligation. The English sentences with epistemic and deontic modals are given in (2) and (3). The sentence in (2) has an epistemic interpretation, since the modal "may" conveys the speaker's inference of the proposition. The sentence in (3) has a deontic interpretation, since the modal "can" is used to signify the speaker's permission of the event.

(2) Mark may be in his office. [Epistemic modality]

(3) Kelly can take a ten-minute break. [Deontic modality]

Like spoken languages, it has been noted that signed languages also have such two-way distinction in modality (Wilcox and Wilcox 1995; Shaffer 2000, 2002; Janzen and Shaffer 2002; Wilcox and Shaffer 2005). Further, it has been suggested by Shaffer (2000) that in American Sign Language there is an iconic correlation between the semantic and syntactic representations. She points out that the modals with lower subjectivity (e.g., deontic modals) tend to occur in the preverbal position, while the ones with higher subjectivity (e.g., epistemic modals) usually occur in the postverbal position.

In TSL, the epistemic modals can occur in the preverbal position, the sentence-final position, and the sentence-initial position, as exemplified in (4)-(6). The TSL modal "MUST" in (4) conveys necessity of the proposition, while the modals in (5) and (6) convey possibility of the

proposition.

(4) In the preverbal position:

NIGHT DRIVE MUST_E LIGHT.

“Driving in the night, you must turn on the light.”

(5) In the sentence-initial position:

NOW AIRPLANE WRECKAGE PART FIND-OUT.
MAYBE_E AIRPLANE PEOPLE TOTAL 228 HEALTHY
DIFFICULT.

“Parts of the aircraft’s wreckage were found out now. The 228 people may have died in the crash.”

(Sign language news in Taiwan 06/03/2009)

(6) In the sentence-final position:

MAY JUNE PLUM^RAIN TIME SHOULD_E.

“May and June should be the raining seasons.”

(Sign language news in Taiwan 06/02/2009)

In addition, it is found that the epistemic modality can also be realized via non-manual features. That is, the occurrence of epistemic modals is optional, since the epistemic interpretation can be expressed in a non-manual way, as shown in (7). The sentences in (7a) and (7b) have the same interpretation, but they differ in the syntactic representation. In (7a), the TSL modal “MUST” is used to convey the speaker’s strong commitment. In (7b), the non-manual features, such as upward-backward head tilt and strengthened movement, are employed to convey the same degree of commitment, as shown in Figure 4c.

(7) a. HE DRIVE MUST UNABLE

“I am sure that he is unable to drive.”



a. HE



b. DRIVE



c. MUST



d. UNABLE

Figure 3 (upward-backward head tilt)

b. HE DRIVE UNABLE

“I am sure that he is unable to drive.”



a. HE

b. DRIVE

c. UNABLE

Figure 4

Further, it is interesting to find that the signer can manipulate non-manual features to reflect the speaker's degree of commitment. Comparing the sentence (8) with (7b), it shows that the non-manual features, such as head tilt and lip corners depressed, are used to signify the speaker's uncertainty.

(head tilt and lip corners depressed)

(8) HE DRIVE UNABLE

“I am uncertain that he is unable to drive.”



a. HE

b. DRIVE

c. UNABLE

Figure 5

Unlike epistemic modality, deontic modality can only be expressed in a manual way. In TSL, deontic modals can occur in the pre-verbal position and the sentence-final position. As shown in (9) and (10), the TSL modals such as “CAN” and “SURE” are employed to convey the speaker's permission for the event.

(9) In the preverbal position:

FILM PEOPLE CAN_D ENTER LOOK-FOR FILM-EDITING
SUPPORT AND-SO-FORTH.

“The film staffs are allowed to enter (the center), and look for support such as film editing and so forth.”

(Sign language news in Taiwan 06/02/2009)

(10) In the sentence-final position:

NOW SENIOR-HIGH-SCHOOL STUDENT NOON GO-OUT
EAT SURE_D.

“Senior high school students are allowed to eat out by noon now.”

(Sign language news in Taiwan 06/03/2009)

The discussion above demonstrates that epistemic modality can be expressed either manually or non-manually, whereas deontic modality can only be expressed manually. It also shows that epistemic modals have a much freer syntactic distribution than deontic modals. It is reasonable to assume that the semantic scope of modals plays a role in determining their syntactic distribution. RRG postulates two operators to account for modality, which are “modality [MOD]” and “status [STA]”. The modality conveying the sense of ability, permission, and obligation (e.g., deontic modals) is defined as the core operator MOD, while the modality conveying the sense of necessity and possibility (e.g., epistemic modals) is categorized as the clausal operator STA. That is to say, the modal with a wider semantic scope has a much freer syntactic distribution than the one with a narrow semantic scope.

3.2. Syntactic Positions and Speaker's Subjectivity

It is well known that some languages have the corresponding tentative forms to express a weaker strength of modality. For instance, the modals in English, “will”, “can”, and “may”, have corresponding tentative forms, such as “would”, “could”, and “might”. An interesting parallelism observed in TSL shows that TSL uses different syntactic distribution to locate different degrees of subjectivity.

Subjectivity is defined as devices whereby the speaker, in making an utterance, simultaneously comments upon that utterance and expresses his attitude to what he is saying (Lyons 1977:739).

Consider the sentences in (11) and (12). These two sentences only differ in the syntactic position of the modal, but they express different degrees of

subjectivity. To convey stronger speaker's subjectivity, the modal in the sentence-final position tends to involve non-manual features, such as upward-backward head tilt and chin lift, as shown in Figure 7.

(11) In the preverbal position:

ECONOMY SITUATION BAD, POOR[^]PEOPLE GOVERNMENT
ABLE_D TAKE-CARE+POOR[^]PEOPLE_{CL}

“Due to economic recession, the government will take care of the poor.”

(12) In the sentence-final position:

ECONOMY SITUATION BAD, POOR[^]PEOPLE GOVERNMENT
TAKE-CARE+ POOR[^]PEOPLE_{CL}ABLE_D

“Due to economic recession, it is obligatory for the government to take care of the poor.”



Figure 6: ABLE (from Ex.11)



Figure 7: ABLE (from Ex.12)

Likewise, epistemic modals can convey different degrees of subjectivity by manipulating their syntactic positions, as exemplified in (13) and (14). These two sentences only differ in the syntactic position of modal. To convey stronger subjectivity, the modal in the sentence-final position occurs with non-manual features, as shown in Figure 9.

(13) In the preverbal position:

SISTER STUDY DILIGENT. SHE MUST_E EXAM SUCCESS

“My sister studies so hard. She can pass the exam.”

(14) In the sentence-final position:

SISTER STUDY DILIGENT. SHE EXAM SUCCESS MUST_E

“My sister studies so hard. She surely can pass the exam.”



Figure 8: MUST (from Ex.13)



Figure9: MUST (from Ex.14)

Due to visual-gestural channel of signed languages, the signer can resort to non-manual features to vary the degree of subjectivity. TSL has shown that non-manual features can be used to express epistemic modality. Further, to convey stronger subjectivity, the modal in the sentence-final position tends to involve non-manual features.

4. Double Modals in TSL

Some spoken languages allow single modal in a sentence, such as Standard English, while some spoken languages allow double modals in a sentence, such as Catalan, Icelandic, Chinese, and English dialects in the southern United States (DiPaolo 1989; Nagle 2003). With regard to TSL, a sentence containing two modals is allowed. However, it is noted that the word order of modals is closely related to the interpretation of modality, as in (15) and (16). These two sentences only differ in the word order of the modals, and they have different interpretations. In (15), the TSL modal “SURE” precedes the modal “CAN”, in which “SURE” is interpreted as in epistemic sense, while “CAN” is in deontic sense. In (16), the modals are in the inverse order. Thus, “SURE” is interpreted as in deontic sense, while CAN is in epistemic sense.¹

(15) HE GO TAIPEI SURE_E CAN_D.

“It is sure that he is allowed to go to Taipei.”

(16) HE GO TAIPEI CAN_E SURE_D.

“It is probable that he will go to Taipei.”

¹ Due to the process of meaning extension, a single modal may convey different modal senses. In many languages, the different modal senses may share the same modal forms (Hoye 1997)

Sometimes, the reverse order of modals may lead to unacceptability, as given in (17a) and (17b). In the sentence-final position, the TSL modal “ABLE” cannot precede the modal “SHOULD”. It seems that the order of modals have to comply with some semantic constrains. In the following discussion, RRG is employed to account for the correlation of the word order of modals and their interpretations in TSL.

- (17) a. ELDER-BROTHER GO DRIVE EXERCISE, HE DRIVE
SHOULD_E ABLE_D.
“The elder brother ever took driving lessons. It’s sure that he is
able to drive.”
- b. *ELDER-BROTHER GO DRIVE EXERCISE, HE DRIVE ABLE
SHOULD.

To capture the order of operators, RRG proposes the basis principle of scope assignment to govern operators. This principle indicates that the semantic scope of clausal operator is over the core operator, and the scope of core operator is over the nucleus operator. Those operators are syntactically ordered with respect to each other in terms of two rules, as given in (18). The first is the universal operator linear precedence rule which indicate that the operators are syntactically ordered and represented with respect to each other in terms of the scope principle. The second is language-specific linear precedence rules which indicates that the operators are simply line up according to their scopes on one side of the nucleus or the other. That is, the order of operators in non-verb-final languages is illocutionary force, tense, status, modality and aspect, whereas that in verb-final languages is in the inverse order.

- (18) a. Universal operator linear precedence rule
CLAUSE \supset CORE \supset NUCLEUS
- b. Language-specific linear precedence rules
OPs $>$ NUC or NUC $>$ OPs

(Van Valin and LaPolla 1997:72)

It has been mentioned that the deontic modal is categorized as the operator MOD, and the epistemic modal as STA. That is, the epistemic modal has to precede the deontic in the non-verb-final languages and the modals are in the reverse order in the verb-final languages. Take Chinese for example. As in (19), the epistemic modal “yiding” conveys the speaker’s confidence about what he is saying, and the deontic modal “hui” points out the participant’s ability. Thus, the epistemic modal “yiding”

precedes the deontic modal “hui”.

(19) Chinese

Zhangsan yiding_E hui_D da lanqiu
 Zhangsan must able play basketball
 “Zhangsan must know how to play basketball.”

We would like to illustrate the word order of modals, using verb-final languages such as Turkish, and dependant-marking languages such as Japanese. In Turkish, the deontic modal “emi” precedes the epistemic modal “yebil”, as given in (20). In Japanese, the deontic modality can be expressed by altering the form of verb, for instance “hanas-er-u” in (21a), or by an individual morpheme, for instance “dekiru” in (21b), and the epistemic modal “hazu” consistently follows the deontic modal in Japanese, as shown in (21a) and (21b).

(20) Turkish

Gel-emi_D-yebil_E-ir-im
 Come-ABLE.NEG-PSBL-AORIST-1SG
 ‘I may be unable to come.’

(Van Valin and LaPolla 1997:44)

(21) Japanese

- a. 彼は中国語が話せるはずだ。
 Kare wa chuugokugo ga hanas-er-u_D hazu_E da.
 He TOP Chinese NOM speak can should COP
 “He should be able to speak Chinese.”
- b. 彼は中国語が話すことができるはずだ。
 Kare wa chuugokugo ga hanasu koto ga dekiru_D
 “He TOP Chinese NOM speak NMZ NOM can
 hazu_E da.
 should COP”
 “He should be able to speak Chinese.”

Figure 10 summarizes how epistemic modals and deontic modals are represented in the operator projection and projected onto the syntactic representation in terms of universal operator linear precedence rule.

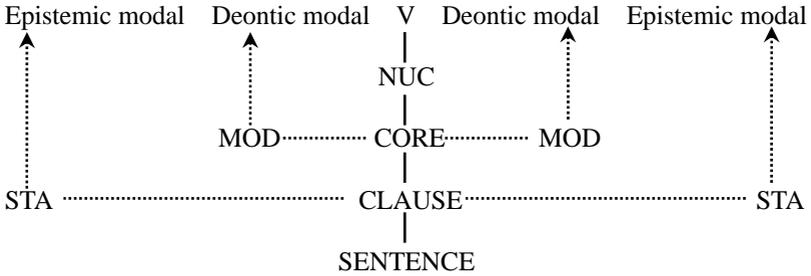


Figure 10: The operator projection and the syntactic representation of modals

It has been mentioned that the modals in TSL can occur either in the preverbal position or in the sentence-final position. The combination of an epistemic modal and a deontic modal can occur in the sentence-final position, as in (22a), the preverbal position, as in (22c) or both positions, as in (22e). It shows that the TSL epistemic modal “SHOULD” has to precede the TSL deontic modal “ABLE” either in the preverbal position or in the sentence-final position. When two modals occur separately, the epistemic modal “SHOULD” has to occur in the preverbal position, while the deontic modal “ABLE” occurs in the sentence-final position. That is, the epistemic modal always precedes the deontic modal in a sentence. The word order of modals in TSL is summarized as in Table 2.

- (22) a. GRADUATE FINISH, HE GO FIND WORK SHOULD_E ABLE_D
 “After graduation, it is probable that he will seek a job.”
- b. * GRADUATE FINISH, HE GO FIND WORK ABLE_D SHOULD_E
- c. GRADUATE FINISH, HE SHOULD_E ABLE_D GO FIND WORK
- d. * GRADUATE FINISH, HE ABLE_D SHOULD_E GO FIND WORK
- e. GRADUATE FINISH, HE SHOULD_E GO FIND WORK ABLE_D
- f. * GRADUATE FINISH, HE ABLE_D GO FIND WORK SHOULD_E

Table 2: The word order of modals in TSL

The word order of modals		
Epistemic modal > Deontic modal	V	
	V	Epistemic modal > Deontic modal
Epistemic modal	V	Deontic modal

In general, deontic modals modify the relation between the participant and the action, and epistemic modals are concerned with speaker’s judgment. Following the linear precedence rules, the modals are ordered

with respect to each other in terms of their semantic scopes, in which the deontic modals should occur more closely to the verb than the epistemic modals. It is worthy of noting that in TSL the combination of modals occurring in the sentence-final position contradicts this generalization. As shown in (22a), the epistemic modal occurs more closely to the verbal predicate than the deontic modals in the sentence-final position. In addition, the epistemic modal has to precede the deontic modal, but not vice versa, when these two modals occur separately, as exemplified in (22e) and (22f). That is to say, in TSL, the modal with a wider semantic scope (e.g., epistemic modal) always precedes the modal with a narrow semantic scope (e.g., deontic modal). The operator projection and the syntactic representation of the modals in TSL are summarized as in Figure 11.

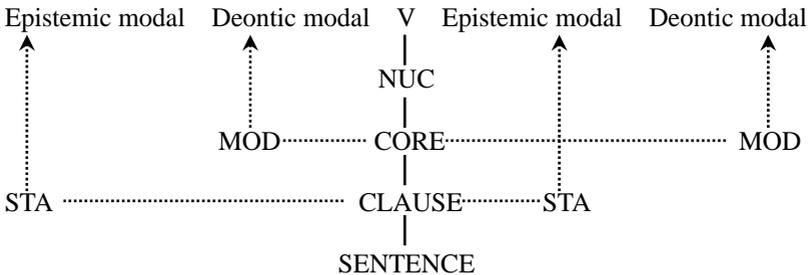


Figure 11: The operator projection and the syntactic representation of modals in TSL

5. Conclusion

This paper has discussed modality in TSL within the framework of RRG. It has been found that modality in TSL can be expressed either by manual or by non-manual ways. By manual way, the modal with a wider semantic scope (e.g., epistemic modal) has a freer syntactic distribution than the one with a narrow semantic scope. In addition, the modal in the sentence-final position conveys stronger subjectivity than the same one in the preverbal position. The modal with a wider semantic scope (e.g., epistemic modal) always precedes the one with a narrow semantic scope (e.g., deontic modal), when a sentence contains two modals at the same time. However, by non-manual way, the epistemic modality can be expressed via non-manual features, and the signer can manipulate these non-manual features to convey different degrees of subjectivity.

List of Abbreviations

—	the scope of non-manual markers	AORIST	aorist tense
		CL	classifier predicate
		COP	copular
^	compounds	D	deontic modals
+	Two signs are produced currently with different hands	E	epistemic modals
		NEG	negation
		NMZ	nominalizer
		NOM	nominative
1	first person	PSBL	possibility
$A \supset B$	The scope of A is over B	SG	singular
		TOP	topic
$A > B$	A precedes B		

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