Modality in Taiwan Sign Language

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Research Background

- Modality is defined as the grammaticalization of speakers' attitudes and opinions (Lyon 1977; Palmer 1986).

- In spoken languages, modality can be coded in a variety of ways such as morphological inflection, lexical items, syntactic patterns, or intonation (Bybee and Fleischman 1995).

Research Background (cont'd)

- In signed languages, modality can be expressed by manual or non-manual ways (Sutton-Spence and Woll 1999:125-126):

Manual:

(a) to use modal lexical signs (e.g., CAN, MAY)

(b) to change the tenseness, strength, and size of verb sign.

Non-manual:

(a) to incorporate with non-manual markers.

Literature Review

- The previous discussion of modality in signed languages has focused on:

(a) How the modality is expressed (Fisher and Gough 1978; Padden 1988; Ferreira-Brito 1990; Wilcox 1996; Sutton-Spence and Woll 1999).

(b) How the modals are grammaticalized (Wilcox and Wilcox 1995a, 1995b; Shaffer 2000; 2002; Janzen and Shaffer 2002; Meir 2003; Wilcox and Shaffer 2005).

(c) The distribution of modals (Aarons, Bajan, Kegl and Neidle 1995; Shaffer 2004).

Purpose of this paper

- This paper discusses modality in TSL within the framework of Role and Reference Grammar (Van Valin and LaPolla 1997; Van Valin 2005), with the goal of finding out the distribution of modals, and their semantic scopes, when associated with negation.

Issues

This paper has focused on the following two issues:

(a) How is the speaker's subjectivity represented in syntax of TSL?

(b) What are the word orders and semantic scopes of modals in TSL, when a clause involves both epistemic and deontic modals?

Data

The data of this paper are collected from:

(a) Individual informants.

(b) Sign language news of Public Television Service (PTS) in Taiwan.

Categorization of Modality

■ Modality can be classified into deontic and epistemic modality (Palmer 1979; Hoye 1997):

(a) Epistemic modality is concerned with matters of knowledge or belief on which basis speakers express their judgments about states of affairs, events or actions (Hoye 1997:42).

(b) Deontic modality is concerned with the possibility or necessity of acts in terms of which the speaker gives permission or lays an obligation for the performance of actions at some point in the future (Hoye 1997:43).

Modality in RRG

| **Nuclear operator** |
| Aspect
Negation
Directionals |
| **Core operators** |
| Directionals
Event quantification
<mark>Modality (root modals, e.g., ability, permission, obligation)</mark>
Internal negation |
| **Clausal operator** |
| <mark>Status (epistemic modals, external negation)</mark>
Tense
Evidentials
Illocutionary force |

Deontic modality → Modality (root modals, e.g., ability, permission, obligation)

Epistemic modality → Status (epistemic modals, external negation)

Operators in layered structure of the clause

(Van Valin 2005:9)

Modality in RRG

- In RRG, syntactic representation consists of two types of projections:

  (a) the constituent projection

  (b) the operator projection

- Modality is represented in the operator projection. The deontic modality belongs to the core operator 'modality' (MOD), whereas the epistemic modality the clausal operator 'status' (STA).

Syntactic distribution of modals in ASL

- The modals in American Sign Language (ASL) can occur in the pre-verbal, clause-final, or clause-initial positions (Shaffer 2000).
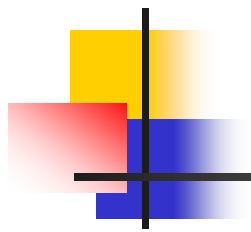
Syntactic distribution of modals in TSL

Syntactic distribution of deontic modals in TSL

- The deontic modals in TSL can only occur in the pre-verbal (e.g., (1)) or clause-final positions (e.g., (2)).

In preverbal position:

(1) FILM PEOPLE [**MAY 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. '

[PTS Sign Language News 20090602]

In clause-final position:

(2) NOW SENIOR-HIGH-SCHOOL STUDENT NOON GO-OUT EAT [**SURE D**].

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

[PTS Sign Language News 20090603]

Syntactic distribution of epistemic modals in TSL

- The epistemic modals in TSL can occur in the pre-verbal (e.g., (3)), clause-final (e.g., (4)), or clause-initial positions (e.g., (5)).

In preverbal position:
(3) NIGHT DRIVE [**MUST E**] LIGHT.
  'Driving in the night, you must turn on the light. '

In clause-final position:
(4) MAY JUNE PLUM^RAIN TIME [**SHOULD E**].
  'May and June should be the raining seasons. '

[PTS Sign Language News 20090602]

In clause-initial position:
(5) NOW AIRPLANE WRECKAGE PART FIND-OUT.
  [**MAYBE E**] AIRPLANE 228 SURVIVOR DIFFICULT.
  'Parts of the aircraft's wreckage were found out now. 228 people may have died in the crash.'

[PTS Sign Language News 20090603]

Summary of the syntactic distribution of modals in TSL

Syntactic distribution		Clause-initial	Pre-verbal	Clause-final
TSL	Deontic modals		✔	✔
	Epistemic modals	✔	✔	✔

Modality and 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).

- The subjectivity of an utterance is usually represented by modality.

- Deontic and epistemic modality are different in the degree of subjectivity. The subjectivity of epistemic modals is stronger than that of deontic modals.

Syntactic positions and subjectivity in TSL

- In TSL, the modal in the clause-final position conveys stronger subjectivity than that in the preverbal position.

- The clause-final modal is usually marked by the non-manual features such as <u>upward-backward head tile</u> and <u>chin up</u> to reflect the stronger subjectivity.

Deontic modal in the pre-verbal position:

(6) ECONOMY SITUATION BAD, POOR^PEOPLE GOVERNMENT [**CAN** $_D$] TAKE-CARE+POOR^PEOPLE$_{CL}$

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

CAN

- The sentences with the deontic modal 'CAN', as in (6) and (7) only differ in the syntactic positions. But the sentence with the modal in the clause-final position, as in (7) conveys stronger subjectivity.

Deontic modal in the clause-final position:

(7) ECONOMY SITUATION BAD, POOR^PEOPLE GOVERNMENT TAKE-CARE+ POOR^PEOPLECL [**CAN** D]

'Due to economic recession, the government is obligated to take care of the poor.'

upward-backward head tilt, chin up

CAN

- The non-manual features (e.g., upward-backward head tilt, chin up) are incorporated into the clause-final deontic modal to show the stronger subjectivity.

Epistemic modal in the preverbal position:
(8) SISTER STUDY DILIGENT. SHE **[DEFINITE $_E$]** EXAM SUCCESS
'My sister studies so hard. She will pass the exam.'

DEFINITE

- The sentences in (8) and (9) describe the same situation, but the modals in these two sentences occur in different positions. The sentence with the modal in the clause-final position, as in (9) conveys stronger subjectivity.

Epistemic modal in the clause-final position

(9) SISTER STUDY DILIGENT. SHE EXAM SUCCESS [**DEFINITE** E]

'My sister studies so hard. It is certain that she will pass the exam.
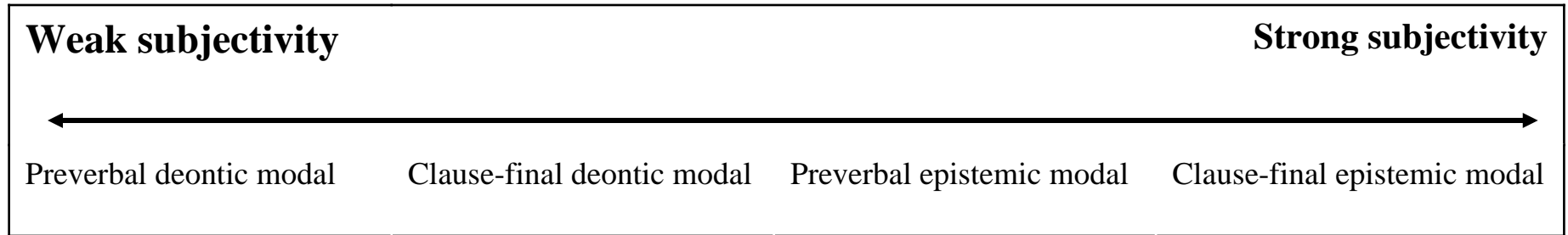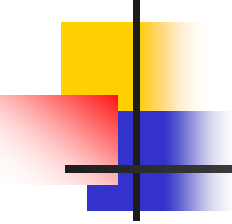

upward-backward head tilt, chin up

DEFINITE

- The non-manual features (e.g., upward-backward head tilt, chin up) are incorporated into the clause-final epistemic modal to represent the stronger subjectivity.

The continuum of modals in subjectivity in TSL

Weak subjectivity			Strong subjectivity
Preverbal deontic modal	Clause-final deontic modal	Preverbal epistemic modal	Clause-final epistemic modal

The continuum of modals in subjectivity in TSL

The order of operators

- RRG suggests that those operators are syntactically ordered with respect to each other in terms of the scope principle:

(a) Universal operator linear precedence rule
   CLAUSE $\supset$ CORE $\supset$ NUCLEUS

(b) Language-specific linear precedence rules
   1. OPs > NUC   (e.g., Chinese)
   2. NUC > OPs   (e.g., Japanese)
                        (Van Valin and LaPolla 1997:72)

Word order of deontic and epistemic modal in TSL

(10)

In clause-final position:

a. GRADUATE FINISH, HE GO FIND WORK [**SHOULD $_E$**] [**CAN $_D$**]

  'After graduation, it is probable that he will find a job. '

b. *GRADUATE FINISH, HE GO FIND WORK [**CAN $_D$**] [**SHOULD $_E$**]

In preverbal position:

c. GRADUATE FINISH, HE [**SHOULD $_E$**] [**CAN $_D$**] GO FIND WORK

d. *GRADUATE FINISH, HE [**CAN $_D$**] [**SHOULD $_E$**] GO FIND WORK

In both positions:

e. GRADUATE FINISH, HE [**SHOULD $_E$**] GO FIND WORK [**CAN $_D$**]

f. *GRADUATE FINISH, HE [**CAN $_D$**] GO FIND WORK [**SHOULD $_E$**]

Word order of modals in TSL

Spoken Languages:
   (a) [Epistemic modal] [Deontic modal] V
   (b) V [Deontic modal] [Epistemic modal]

TSL:
   (a) [Epistemic modal] [Deontic modal] V
   (b) V [Epistemic modal] [Deontic modal]
   (c) [Epistemic modal] V [Deontic modal]
   (d)* V [Deontic modal] [Epistemic modal]
   (e)* [Deontic modal] V [Epistemic modal]

Word order of modals in TSL (cont'd)

- In spoken languages, the modals are ordered with respect to each other in terms of their semantic scope, in which the deontic modals should occur more closely to the verb than the epistemic modals.

- In TSL, there is an iconic relationship between the scopes of modals and their order, in which the modal with wider semantic scope (e.g., epistemic modal) always precedes the modal with a the narrow semantic scope (e.g., deontic modal).

The syntactic distribution of negated modals in TSL

- When modals are negated, the syntactic distribution of the modals will be influenced. The negated epistemic modal can only occur in the clause-final position, whereas the negated deontic modal can occur in preverbal or clause-final positions.

Syntactic distribution		Clause-initial	Preverbal	Clause-final
TSL	NEG^Deontic		✓	✓
	NEG^Epistemic			✓

- The negated deontic modal 'NEG^CAN' can occur in the clause-final, as in (11) and pre-verbal position, as in (12).

In clause-final position:

(11) THIS BASKETBALL GOVERNMENT GIVE SUBSIDIZATION **[NEG^CAN ᴺ^ᴰ]**

'It is certain that the government will not subsidize this basketball game.'

In pre-verbal position:

(12) THIS BASKETBALL GOVERNMENT **[NEG^CAN ᴺ^ᴰ]** GIVE SUBSIDIZATION

'The government will not subsidize this basketball game.'

- As shown in (13) and (14), the negated epistemic modal 'NEG^SHOULD' can only occur in the clause-final position.

In clause-final position:

(13) OTHER BAG YOU STEAL **[NEG^SHOULD $_{N^E}$].** TELL BOSS SORRY.

   'You should not steal other's bag. Say sorry to the boss.'

In preverbal position:

(14)? OTHER BAG YOU **[NEG^SHOULD $_{N^E}$]** STEAL. TELL BOSS SORRY.

Word order of the negated modals in TSL

- Aside from the impact on syntactic distribution, the word order of modals will be adjusted when these modals are associated with negation.

- When the deontic modal is negated, while the epistemic modal is not, the deontic modal has to occur after the epistemic modal.

[Epistemic] > [NEG^Deontic]

(15) ELDER-BROTHER GO DRIVE EXERCISE NEVER, HE DRIVE **[SHOULD $_E$] [NEG^CAN $_{N^D}$]**.

'The elder brother never took driving lessons. He may be unable to drive.'

[NEG^Deontic] > [Epistemic]

(16) *ELDER-BROTHER GO DRIVE EXERCISE NEVER, HE DRIVE **[NEG^CAN $_{N^D}$] [SHOULD $_E$]**.

- When the epistemic modal is negated, while the deontic modal is not, the epistemic modal has to occur after the deontic modal.

[Deontic] > [NEG^Epistemic]:
(17) HE FAMILY TEACH SEVERE. HE MAHJONG **[CAN $_D$]** **[NEG^DENIFITE $_{N^E}$]** .

'He is in the best-regulated family. It is uncertain that he knows how to play mahjong.'

[NEG^Epistemic] > [Deontic]:
(18) *HE FAMILY TEACH SEVERE. HE MAHJONG **[NEG^DENIFITE $_{N^E}$][CAN $_D$]**.

- When both modals are negated, and the negated epistemic modal has to occur after the negated deontic modal.

[NEG^Deontic] > [NEG^Epistemic]:

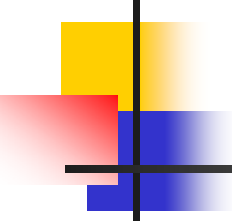(19) HE WIFE INDEX RESTURANT WORK. HE WIFE FOOD COOK **[NEG^CAN $_{N^D}$] [NEG^SHOULD $_{N^E}$]**.

  'His wife works in restaurant. It is not possible that she does not know how to cook.'

[NEG^Epistemic] > [NEG^Deontic] :

(20) *HE WILE INDEX RESTURANT WORK. HE WIFE FOOD COOK **[NEG^SHOULD $_{N^E}$] [NEG^CAN $_{N^D}$]**.

The order of negated modals in TSL

The order of modals	The order of negated modals
(a) [Epistemic] [Deontic] V	(a) [Epistemic] [NEG^Deontic] V
(b) V [Epistemic] [Deontic]	(b) * [NEG^Epistemic] [Deontic] V
(c) [Epistemic] V [Deontic]	(c) * [NEG^Epistemic] [NEG^Deontic] V
	(d) V [Epistemic] [NEG^Deontic]
	(e) *V [NEG^Epistemic] [Deontic]
	(f) *V [NEG^Epistemic] [NEG^Deontic]
	(g) V [Deontic] [NEG^Epistemic]
	(h) *V [NEG^Deontic] [Epistemic]
	(i) V [NEG^Deontic] [NEG^Epistemic]

- In RRG, the operator 'negation' can be either nucleus, core, or clausal operator. When the 'negation' is a core operator (so–called internal negation), the scope of negation is only over the core argument and the action. When the 'negation' belongs to the clausal operator (so-called external negation), the scope of negation is over the entire clause.

- Since the deontic modals code the relationship between the core arguments and the nucleus, they can be modified by the internal negation. The epistemic modals which can be modified by the external negation have scope over the entire clause as a whole.

Generalization for a clause containing both epistemic and deontic modals

Modals:

(a) The modal with a wide semantic scope (e.g., epistemic modals) always precedes the modal with a narrow semantic scope (e.g., deontic modals) within a clause.
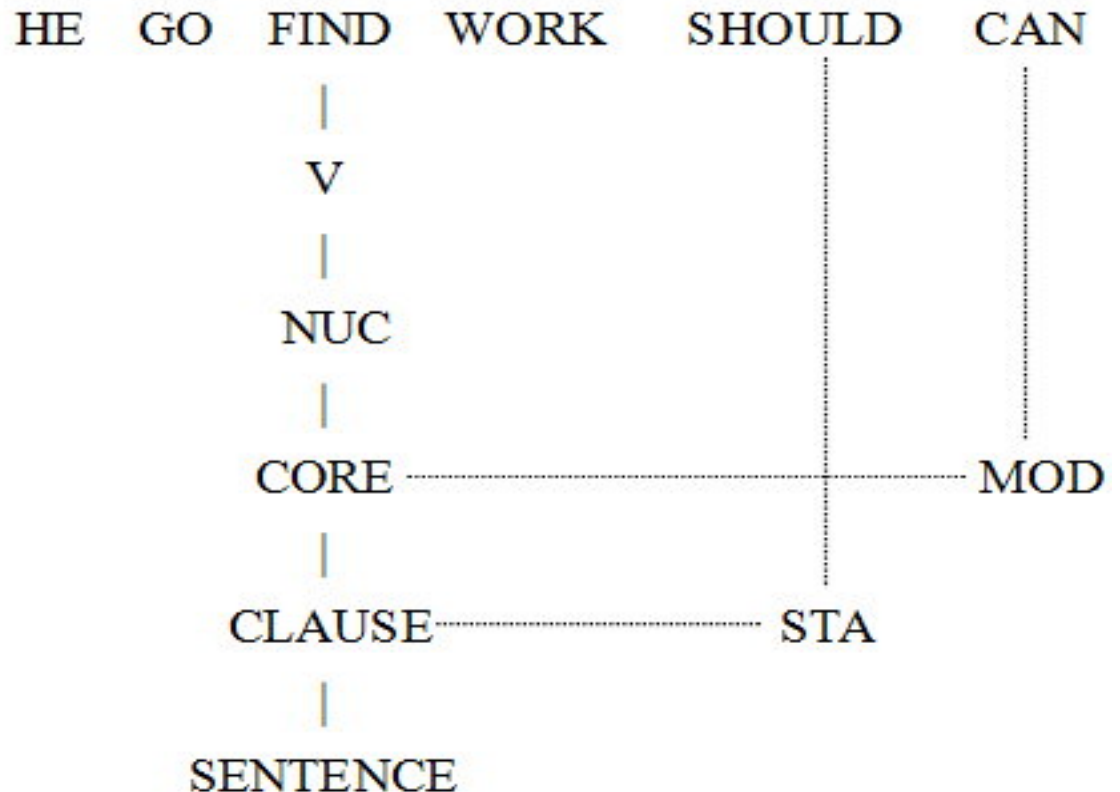
Negated modals:

(a) The negated modals tend to appear in the clause-final position.

(b) When the deontic modal is modified by the internal negation, there is no impact on the word order of the modals in a clause.

(c) The epistemic modal with the external negation can only occur in the end of the clause.

Operator projection
(The clause contains both epistemic and deontic modals.)

(21) GRADUATE FINISH, HE GO FIND JOB [SHOULD$_E$] [CAN$_D$]

  'After graduation, it is probable that he will find a job. '

```
        HE   GO   FIND   WORK     SHOULD    CAN
                    |
                    V
                    |
                   NUC
                    |
                  CORE ·································· MOD
                    |
                 CLAUSE ························ STA
                    |
                SENTENCE
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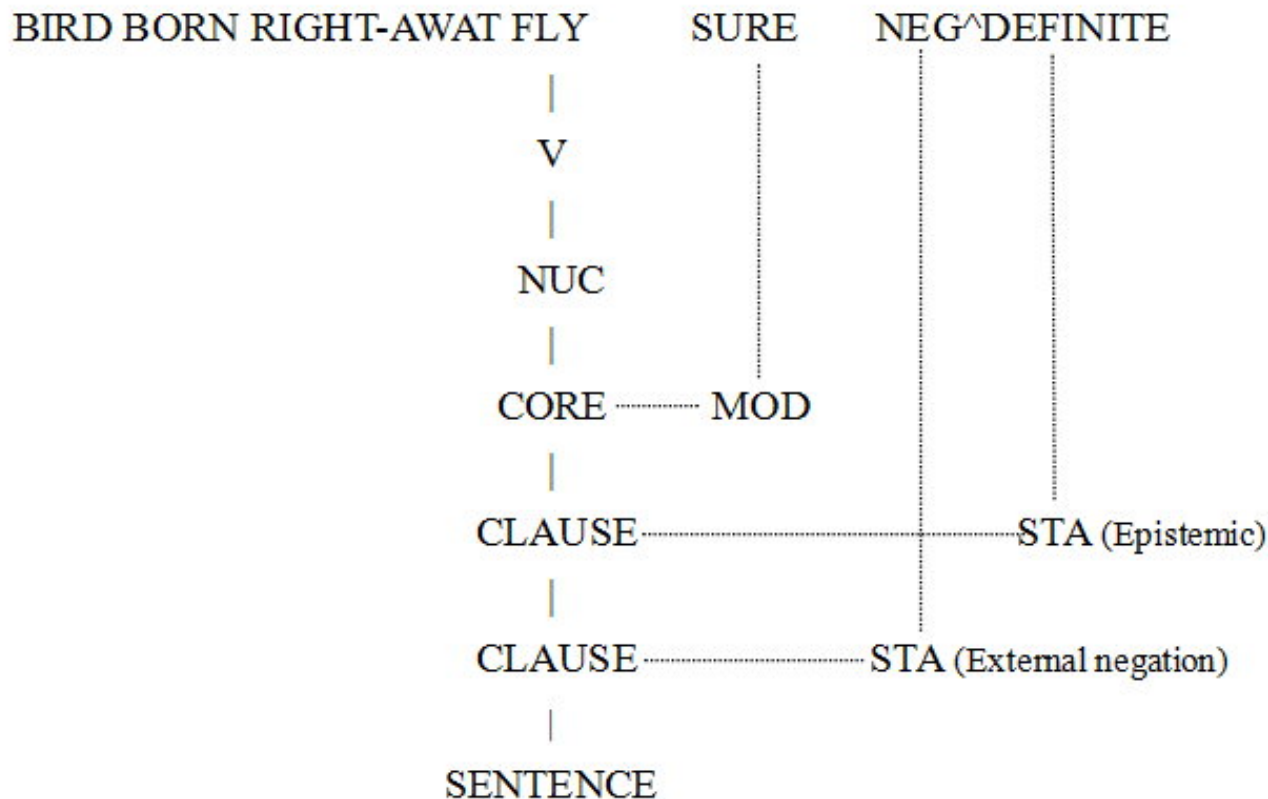
Operator projection

(The clause contains a deontic modal and a negated epistemic modal.)

(22) BIRD BORN RIGHT-AWAT FLY [SURE $_D$] [NEG^DEFINITE $_{N^E}$]

    'It is uncertain that birds are able to fly when born.'

                                    [PTS Sign Language News 20090611]

BIRD BORN RIGHT-AWAT FLY   SURE   NEG^DEFINITE

                |

               V

               |

           NUC

               |

       CORE --------- MOD

             |

     CLAUSE----------------------------------STA (Epistemic)

             |

     CLAUSE----------------------------STA (External negation)
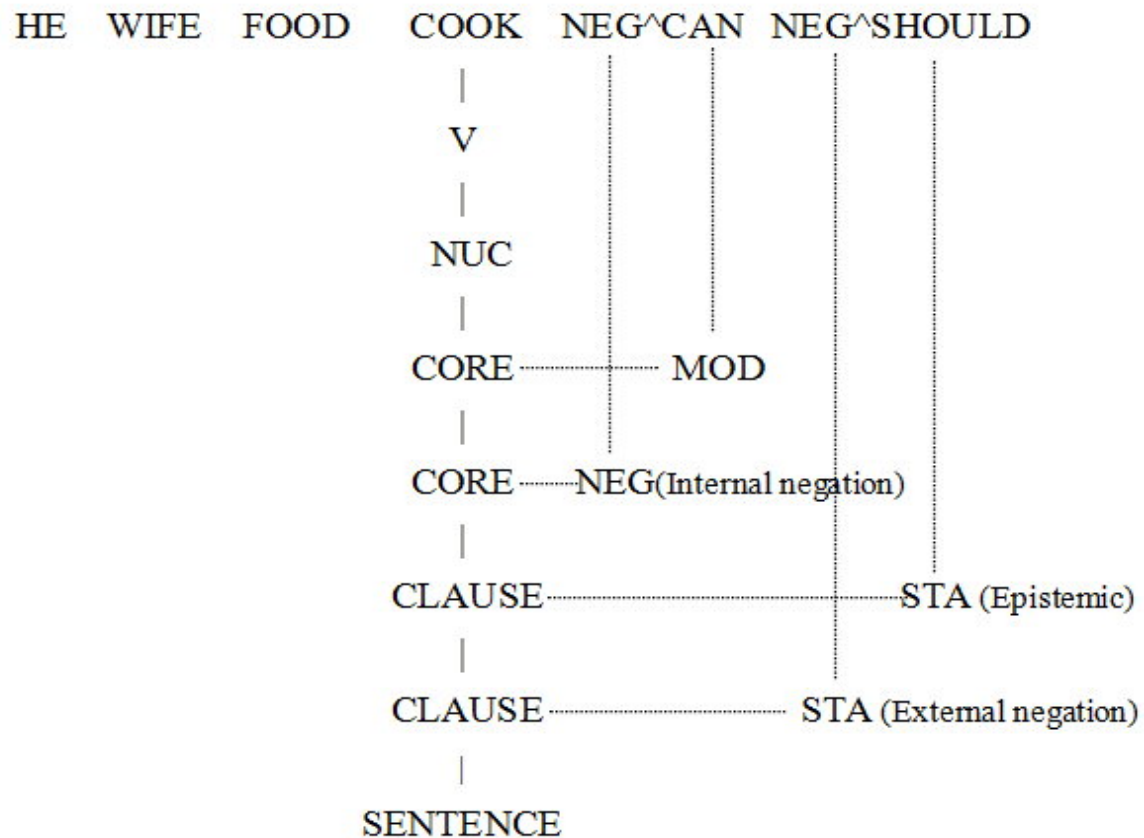
             |

     SENTENCE

Operator projection
(The clause contains a negated epistemic modal and a negated deontic modal.)

(23) HE WIFE INDEX RESTURANT WORK. HE WIFE FOOD COOK
$$[NEG^{\wedge}CAN_{N^{\wedge}D}] \; [NEG^{\wedge}SHOULD_{N^{\wedge}E}]$$
'His wife works in restaurant. It is not possible that she does not know how to cook.'

```
HE   WIFE   FOOD    COOK   NEG^CAN  NEG^SHOULD
                      |
                      V
                      |
                     NUC
                      |
                    CORE ------------ MOD
                      |
                    CORE ------NEG(Internal negation)
                      |
                   CLAUSE ---------------------------STA (Epistemic)
                      |
                   CLAUSE ------------------ STA (External negation)
                      |
                  SENTENCE
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Conclusions

- In TSL, different syntactic positions of modals convey different degrees of subjectivity.

- There is an iconic relationship between the scope of modals and their order. In TSL, the epistemic modals always precede the deontic ones.

- Whether the modals are negated has an impact on the syntactic distribution and the word order of modals.

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