

The Semantic and Morphosyntactic Transfer in L3 Acquisition of Modals: Take Chinese (L1)-English (L2) Learners of German (L3) as Example

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Abstract:

Some pivotal notions generated from human thought (e. g. opinions, desires, imaginings) are expressed by modality. Without the linguistic means, the ability to communicate these complex thoughts would be largely limited. The importance of recognizing and properly using modals should never be underestimated. A line of inquiries about modality seem to be probed into exhaustively in linguistics. However, it has not yet aroused wide concerns and interest in language acquisition, though a scattering of modal studies have been conducted to examine the output of L2 learners especially children. As a preliminary attempt, this study aimed to investigate whether there occurred L1- or L2-to-L3 semantic and morphosyntactic transfer in Chinese (L1)-English (L2) adult learners' (N=60) acquisition of German (L3) modals and which acquired language may contribute more to the transfer. Meanwhile, the Typological Primacy Model (TPM) was tested by the gathered data. The data were elicited by two questionnaires, two cloze tests and two oral interpretation tasks. One of the presumed results indicated that although both L1 and L2 played a role in semantic transfer of modals in L3 acquisition, L1's role was greater for learners who are less proficient in L2 than for those who are more proficient in L2. The other showed that the morphosyntactic transfer occurred from L2 to L3 since L2 and L3 are typologically similar. The finding is consistent with TPM. This study can provide new evidence of morphosyntactic transfer in L3 acquisition and the pedagogical implication which emphasizes the importance of recognizing and properly using of modals.

Keywords:

Modals, L1- or L2-To-L3 Semantic and Morphosyntactic Transfer, L3 Acquisition

1. Introduction

Human languages, though diverse, bear some resemblances. A salient one is that some pivotal notions stemmed from human thought (e. g. opinions, desires,

imaginings) are expressed by modality. Without linguistic means, the ability to communicate these complex thoughts would be largely limited. As Cook (1978) has pointed out, the importance of recognizing and properly using modals should never be underestimated. [4] However, language learners, more often than not, ignore the importance of differentiating and using modals properly. Also, the semantic and syntactic research of modality is still dominant in related studies. Less importance, therefore, has been attached to the acquisition of modality. Therefore, the primary impetus of this study is to call more empirical interest in the acquisition of modality.

2. Literature Review

2.1. Studies on modality

There exist a multitude of studies on modality ranging from the semantic, syntactic and pragmatic perspectives. [31] [30] [34] The modality systems of languages vary in representations, meanings and classifications. [29] [33] [3] [16] The current interest is limited to the widely acceptable systems of modality in English, German and Chinese.

2.1.1. English modality

Despite different ways of classification, an agreement has been reached on three general types of English modality: deontic modality which denotes obligatory or permissibility [10] [19], epistemic modality which conveys the degree of one's commitment to the truth of a proposition [19] and dynamic modality expressing ability and willingness. [18] Part of the English modal items are polysemy such as can which denotes ability, willingness, probability and permission. In English, a set of tools used to articulate modality include but are not limited to verbs encoded with modal concepts (e.g. wish, think), adverbs denoting degrees of certainty (e.g. probably, definitely), auxiliaries (e.g. can, may, will) as well as subjunctive mood represented by inflectional affixes (e.g. would). The most common means of expressing modality is through the grammatical modal system. [18] [21] The current interest lies in the core sets of modals (i. e. can, may, will, should, could, might, would).

2.1.2. German modality

German modality resembles its English counterparts syntactically and semantically. Two languages have a conspicuous syntactic feature in common: the negation on the proposition (it is preceded by the modal, at least, in simple tenses). Similar to other Germanic languages, German modality is composed of root (deontic/dynamic), propositional (epistemic/evidential) primarily. [7] The current concern is about six core German modals: kann, soll, darf, muss, will, möchte. There has been a semological sketch of German epistemic modals, as is shown in Figure 1. [16]

	imminent	biased	precarious
objective	MUSS	SOLL	DARF
subjective	WILL	MAG	KANN

Figure 1. Five dimensions of German epistemic modals

Six modals here are in the form of the single present tense and the third person singular. Five dimensions reflect that the event is realized with different degrees of probability and initiated by the actor or something other than the actor. In fact, some German modals like English modals encode more than the degree of probability. For example, the modal will can also express a burning desire or plan.

Morphosyntactically, German modals, though have similarities to English ones, are much more complicated. English modals are tightly combined with tense and mood while German modals possess intricate conjugation depending on person, tense aspect and mood, e.g. müssen (the base form)→ müsste (the first or third singular person, the simple present tense, the subjunctive II form,). Another salient feature of German modals is represented in a “Satzklammer” (i.e. a sentence clamp). Ich möchte nach Berlin (fahren), for example. The modal verb möchte and notional verb fahren are separated in the sentence forming a Satzklammer. Also, the notional verb fahren can be omitted when it is preceded by an expression of direction, e.g. nach Berlin (to Berlin).

2.1.3. Chinese modality

In Chinese, the delimitation of modal forms remains controversial since a clear boundary has been drawn neither between modal verbs and modal adverbs nor between modal verbs and notional verbs [35] but some of the studies have attempted to construct Chinese modal systems. [29] [15] [32] [25] [33] Chinese modal adverbs have been tentatively divided into two types which respectively encode knowledge and obligation. [32] Another version that makes a reference to the classification of English modality comprises epistemic and evaluative modality. [33] In the perspective of construction grammar, Chinese modality is not confined to word classes (elemental modality) but can be extended to constructional modality (e.g. bu ... caiguai, i.e. abnormal if it were not for ...). [29] Influenced by systemic functional grammar, a primary opposition of Chinese modality has been proposed between modalization and modulation. [11] [15] [25] The former is akin to epistemic modality while the latter is analogous to the combination of deontic and dynamic modality. Shu (2021) summarized the Chinese modality system in terms of typology, value, manifestation and polarity. [25] The value of Chinese modality ranges from high through median to low, which can be deemed as a cline of meaning. The polarity deals with positive and negative modality. Different from English and German counterparts (e.g. can not, kann nicht), Chinese modality is characterized by the negative on either proposition or modal items, that is, the negation preceded by or followed by the modal item, for example, bu keyi and keyi bu (*not can, can not). The negative bu is allowed to be positioned in front or back of the modal item keyi but switch the value from low to high or from high to low. Conversely, the median value of modality is unaffected when the negative is transferred between proposition and modality. For example, yinggai bu (should not) and bi yinggai. Considering the variability of Chinese modality, only modals such as yinggai are covered in this study.

A line of inquiries about modality seem to have been probed into exhaustively in linguistics. However, it has not yet aroused wide concerns and interest in second language acquisition (SLA) and even third language acquisition (TLA), though a scattering of modal studies have been conducted to examine the output of L2 learners especially children. [27] [28] There has been evidence that Chinese EFL learners tend to overuse high-value modals such as should, must and need and underuse low-value modals such as might and would. [27] A case study of a Korean learner of Chinese showed the learner's inclination to express diverse modality by single modal items. The peripheral status of modality in L2 or L3 research is partly accounted for by two main reasons. For one reason, it seems easier for learners to memorize grammatical rules of English modal items than to recognize the difference in meaning accurately though it is not the case in German. Therefore, they tend to be treated as

interchangeable. The other reason lies in that they occur frequently as a peripheral part rather than a focus of politeness studies. [2] [17] [20]

2.2. L3 acquisition

According to a widely recognized definition of L3 (Hammarberg, 2001), it refers to the additional language with “all other foreign languages are labeled L2”. [9]

Compared with SLA research, TLA research, though new emerging, has made theoretical progress especially in empirical studies of multilinguals. Some constructive models have been proposed including the Cumulative Enhancement Model (henceforth CEM) [8], the “L2 status factor” [1] and the Typological Primacy Model (henceforth TPM). [23] CEM argued that L1 being the transfer default, any prior language makes a scaffolding effect in enhancing subsequent language acquisition. [8] The “L2 status factor” can be simply explained as the stronger predictor of initial transfer in L3 than typology. [1] Based on CEM, TPM claimed that initial state transfer for multilingualism occurs selectively in the sense that syntactic properties of the closest (psycho)typological language (though not necessarily typologically similar) are activated for transfer. [23]

2.3. The transferability of modals

Jarvis et al. (2008) has summarized five categories of factors that interact with transfer: linguistic and psycholinguistic factors, cognitive, attentional, and developmental factors, factors related to cumulative language experience and knowledge, factors related to the learning environment and factors related to language use. [13] Among their subcategories, transferability of modals in this study probably are the most explainable by the language distance, frequency, recency, general level of proficiency and the order of acquired language. Typologically speaking, English and German are both Germanic languages, which accounts for a high likelihood of transfer. Previous studies have provided the evidence that semantic transfer more likely occurs when the source and recipient languages are topologically distant [26] and the evidence that the source of semantic transfer strongly tends to be the language in which the learner is highly proficient (most commonly the L1. [13] [22] As for frequency, modals are such structures that occur frequently in Chinese, English and German due to their numerous semantic and pragmatic functions. For English majors whose second foreign language is German, English is acquired most recently and just prior to German, which accounts for the likelihood of L2-to-L3 transfer. There is also evidence that L2 can affect the acquisition of L3 if the learner is proficient enough in L2. [22] In addition, system-wide transfer can occur in the case where a person’s use of one language is affected by the corresponding system from another language that she knows [12], which indicates the transferability of the modality system.

3. Research Gap

There exists at least three gaps in the research of modality. Firstly, great progress has been made in semantic, syntactic and pragmatic perspectives of modality itself while relatively less concern have been raised about the acquisition of it. Secondly, a dearth of L3 acquisition research to date focuses on both semantic and morphosyntactic transfer of modality. Thirdly, the extant studies are confined to case studies of individual modals lacking a holistic view. As a preliminary attempt, this study aimed to explore the source of semantic and morphosyntactic transfer in

Chinese (L1)-English (L2) learners' acquisition of German (L3) modals and tested the TPM by the elicited data.

4. Research Questions

According to the research objective, two research questions are as follows:

- 1) How do participants show their preference or errors in a series of tasks?
- 2) Is there L1- or L2-to-L3 semantic transfer occurring in participants' L3 acquisition of modals (i.e. muss, will, soll, kann, darf, möchte)?
- 3) Which acquired language plays a more important role in semantic transfer for L3, L1 or L2?
- 4) Are the present data consistent with Typological Primacy Model?

5. Theoretical framework

Error analysis (EA) [5] is the first method to study SLA based on the investigation of the actual errors in learners' L2 use. It has been widely applied in L2 research e.g. [6,14] since the "errors" in the learners' outputs are predicative of the growth of SLA significantly. [24] This study made an error analysis of the participants' outputs in several tasks in order to identify semantic and morphosyntactic transfer in the acquisition of German modals.

6. Methodology

6.1. Participant

The participants (N=60) composed of Chinese (L1)-English (L2) learners of German (L3) were recruited from the foreign language school of a Chinese university. They had at least 10-year L2 learning experience without interruption. Also, they learned German modals just before conducting this study. According to their CET 6 and TEM 4 scores, they were divided into the L2 intermediate group (Group I) and L2 advanced group (Group A). The criterion of grouping is shown in Table 1.

Table 1. The criterion of L2 grouping.

	Group I	Group A
CET 6 scores	550-600	> 600
TEM 4 scores	70-80	> 80

6.2. Measures

Measures were composed of two questionnaires, two cloze tests respectively in English and German as well as instant Chinese-English and Chinese-German interpretation tasks. As to the first questionnaire, the participants were required to rate 10 items on a seven-point rating scale, which was designed to measure the learners' perceptions of language distance, i.e. psychotypology, between three languages. In the second questionnaire, they should select the modals they possible used in 20 scenarios and sort them by their preference, which aimed at their knowledge of and preference for Chinese modals. Each cloze test including 25 fill-in-the-bank questions without prompts was used to measure their preference or error in modal meanings in certain scenario. Besides, they were required to explain the answers. In each of two interpretation tasks, they were exposed to ten scenarios described in Chinese. They

should instantly interpret these Chinese descriptions, which included the expressions of modality, into English or German. The two tasks were intended for participants' semantic and morphosyntactic features in the production of modals. The process of taking tasks was video-recorded. The aforementioned measures are illustrated by example, as is shown in Table 2.

Table 2. The illustration of measures by example.

Type	Example
Questionnaire 1	你觉得“should”和“sollen”语义上是什么关系？（请打1-7分，并说明原因） 1-完全不一样；2-大多数情况不一样；3-不一样的情况较多；4-一样和不一样的情况各半；5-一样的情况较多；6-大多数情况一样；7-完全一样
Questionnaire 2	假如看到天色稍微变暗，你会说：（天）_____要下雨。（请选出你可能会用的情态动词，并按照偏好程度从大到小排序） 1、应该；2、可能；3、要；4、会；5、一定
The cloze test in English	—It's so cold here! Why haven't you turned on your air-conditioned? —Well, it _____ turn on.
The cloze test in German	—_____ du heute Abend Deutsch lernen oder _____ du mit uns essen gehen? —Ich _____ heute leider Deutsch lernen. Wir haben morgen eine Prüfung. Vielleicht _____ wir am Wochenende zusammen essen gehen.
The instant Chinese-English interpretation task	请用情态动词补全下列内容并用英语口述。 —你打算考试后怎么度假？ —我还没决定呢。我_____有别的选择。
The instant Chinese-German Interpretation task	请用情态动词补全下列内容并用德语口述。 Paula Mars 本来不_____成为女服务员。她的父亲_____家里有一个牙医。但她更_____（喜欢）旅游。

7. Results and Discussion

The results of Questionnaire 1 (see Table 3) showed that both L2 (English) proficiency groups were inclined to regard English and German as psychotypologically closer than Chinese and German. However, there existed a difference in the perceptions of two groups. The high-level L2 proficiency group tended to give each item a relatively concentrated rating while the ratings of intermediate-level L2 proficiency learners varied more saliently within the group. Considering the reasons given for the ratings, the high-level L2 proficiency group was able to articulate the similarities and differences between modal meanings in three languages accurately while the intermediate-level group generally appeared not to be confident in their choices. In addition, the high-level L2 proficiency group was capable of making more connections between Chinese and German than the intermediate-level group.

According to the results of Questionnaire 2 (see Table 4), three of the most frequently used Chinese modals were *keneng*, *yao* and *hui* successively. The participants tended to use these modals interchangeably and seldom differentiated

them, which indicated that they were possibly insensitive to the Chinese modality system. In this sense, there is no significantly difference between two groups.

In the cloze test on L2 English modals (see Table 5), both the intermediate- and high-level L2 proficiency groups performed well, though there existed some errors, for example, the misuse of the modal *can* in the context where the modal *will* is more appropriate. Here is an example:

—It's so cold here! Why haven't you turned on your air-conditioned?

—Well, it _____ turn on.

In this context, the reason why the addressee haven't turned on the air-conditioned lie in the electric device itself. The use of modal blurs the source of problem.

Such misuses of L2 modals even occurred in the high-level L2 proficiency group. The finding of Questionnaire 2 indicates that the insensitivity of the L1 Chinese modality system may influence their establishment of L2 English modality system.

In the cloze test on L3 German modals (see Table 6), the high-level L2 proficiency group performed better than the intermediate-level L2 proficiency group. As to their explanations for the answers, the high-level L2 proficiency group was apt to decide what German modal should be used in certain scenario directly based on their L2 experience while the intermediate-level L2 proficiency group tended to resort to both L1 and L2 counterparts. It can be found that part of the errors in their using German modals have some association with their preference for English modals. For example, a few participants with difficulty in discriminating the modal *should* and *shall* face a dilemma between *sollen* and *dürfen* as well, despite no sheer equivalence of the two German modals with their counterparts.

The results of the instant Chinese-English interpretation task (see Table 7) showed the participants' overuse of high-value modals such as *should* and *must* and underuse low-value modals such as *might* and *would*, which is consistent with the finding of Xiao's (2017). Both groups didn't make any syntactic error. It is easy to acquire the syntactic structures of English modals considering that both English and Chinese are "SVO languages". Nevertheless, the participants seemed to encounter more problems in the instant Chinese-German interpretation task (see Table 8). Although they had memorized the modal conjugation in advance, they were prone to omit the inflections of modals (e.g. *müsste* → **muss*) or express the inflections in either the third singular form (e.g. *muss*) or the first person plural form (e.g. *müssen*).

As to the negative modality, all the participants had a tendency to position the negative in front of the Chinese modal item and in back of the English modal item. In spite of the consensus on the postpositioned negative, they were divided on whether the negative should be positioned next to the modal item or prior to the corresponding main verb. For example, *ich kann nicht zu Hause (nicht) gehen* (*I can not go home*).

Table 3. The results of Questionnaire 1.

	Mean rating (each item)	SD
Group I	6.14	0.53
Group A	5.16	0.20

Table 4. The results of Questionnaire 2.

Modals	yinggai	keneng	yao	hui	yiding
Mean number	0.12	16.90	2.42	0.56	0.00

Table 5. *The results of the English cloze test.*

	Mean error rates	SD
Group I	3.00%	0.03

Table 6. *The results of the German cloze test.*

	Mean error rates	SD
Group I	10.13%	0.04
Group A	2.53%	0.04

Table 7. *The results of the instant Chinese-English interpretation task.*

Modals	High-value			Middle-value			Low-value			
	must	should	ought	will	would	shall	can	could	may	might
Mean number	2.05	2.38	0.73	1.03	0.07	0.89	1.12	0.67	1.04	0.02
Standard	1	1	1	1	1	1	1	1	1	1

Table 8. *The results of the instant Chinese-German interpretation task.*

Modals	müssen	sollen	dürfen	wollen	mögen	können
Mean number	1.18	2.32	1.58	2.06	0.82	2.04
Standard	1	2	2	2	1	2

8. Conclusions

8.1. Findings

Based on the results mentioned above, there are findings in response to the research questions. Firstly, the semantic transfer does exist from L1 to L3, mediated by L2. The L3 learners' insensitivity to Chinese modality system probably accounts for interchangeably using semantically similar modals both in English and German especially for the intermediate-level proficiency group. L1's role appears to be greater for learners who are less proficient in L2 than for those who are more proficient in L2. German is, though typologically close to English, far more complex particularly in conjugation. Secondly, the morphosyntactic transfer of modals exists from L2 to L3 at least. There is no clear evidence of L1-to-L3 morphosyntactic transfer of modals, though. It probably stems from the verb conjugation in English that a large part of the learners spontaneously use German modals in the third singular form and the first plural form instead of other forms. Their knowledge and use of the negative modality is mainly influenced by L2, as is suggested by the postpositioned negative in their use of L2 and L3. Thirdly, the results are consistent with the Typological Primacy Model. The syntactic properties (i.e. the verb conjugation, the postpositioned negative) of the closest psychotypological language (English) are activated for transfer.

8.2. Limitations

The present study is not unproblematic. There exist at least three limitations. Firstly, this study is limited to investigate the unidirectional transfer of modals. The second limitation is attributed to the not large sample size. Thirdly, measures in this study are confined to questionnaires, cloze tests and oral interpretations.

8.3. Suggestions for future research

The subsequent research of the modal transfer can focus on large-scaled L3 learners with different language backgrounds and employ techniques like E-prime, eye-tracking and brain imaging. Also, it is worth exploring the forward and reverse

transfer of modality in terms of other modal items like modal adverbs and modal particles.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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