L2 Acquisition of the Word Order of a Mandarin Attributive-Head Construction May Not Be Affected by L1 or Word Frequency

Kun Yu, The Hong Kong University of Science and Technology, Hong Kong SAR

The IAFOR International Conference on Education in Hawaii 2024
Official Conference Proceedings

Abstract
Word order can be a difficult dimension for L2 learners to acquire, especially for learners whose L1 exhibits a different order pattern. For example, previous research reported difficulty in the acquisition of Mandarin [Attributive-Head] constructions for Thai learners with [Head-Attributive] constructions, and has attributed the difficulty to negative L1-to-L2 transfer. However, whether this difficulty is truly L1-specific remains unknown, since research often focused on a single demographic. Adopting a corpus-based comparative approach, this study investigates whether there is a differential difficulty experienced by L1-Thai and L1-English learners whose pattern violates and follows the Mandarin [Acquisition-Head] order respectively, and also whether difficulty may be further modulated by word frequency of the Mandarin attributive. Mandarin attributives were selected and grouped into pre-established frequency bands A and B in descending order of word frequency, with 70 attributives in each band. Learner data was extracted from the Global Chinese Interlanguage Texts Corpus containing sentences with the attributives written by L1-Thai and L1-English learners. Sentences were coded as correct and incorrect based only on erroneous word order by two independent L1-Mandarin raters. A total of 2042 sentences were analyzed. Results showed no effect of L1 or frequency, nor any further interaction. This finding may provide evidence for universality in the difficulty of Mandarin [Attributive-Head] word order, instead of L1-specific negative transfer.

Keywords: Attributive, Word Frequency, L2 Acquisition, Cross-Linguistic Comparison

Introduction

Attributives are words or phrases that modify a head noun and provide additional information about the noun they modify, such as its size, color, shape, or other characteristics. Attributives can be adjectives, nouns, or phrases that function as adjectives. For example, in English, a noun can be used as an attributive to modify another noun, such as "a *car* factory" or "a *stone* wall". In Mandarin Chinese, classifiers can additionally function as attributives to modify nouns, such as *"yī gè rén" (one person)*, where *"gè"* is a mandatory sortal classifier that functions as an attributive to describe *"rén"* (person); in addition, Mandarin adjectives in pre-nominal position require a modification marker *"de"*, such as "*měi lì* ***de*** *rén" (beautiful person)*, where the omission of *de* would result in an ungrammatical construction.

Cross-Linguistic Characteristics and Differences in Attributive-Head Word Order

One relevant characteristic for the current purposes is the issue of word order in attributive-head constructions. In many languages, attributives are placed before the noun they modify. For example, this is the case for both English and Mandarin as exemplified above. However, in some languages, such as Thai and some other Southeast Asian languages, attributives usually come after the noun they modify. Examples in Thai include (cf. Reid & Savetamalya, 1997):

1. baan jaj
   house big ("big house")
2. rooŋriən nii
   school this ("this school")

Differential word order patterns have posed a theoretical challenge for identifying universal word order typologies as well as pinpointing explanatory variables in predicting word orders in a language. In Thai, the situation is further complexified by intra-linguistic inconsistencies where constructions do not always follow the head-attributive order, such as quantified noun phrases that specify a time, a distance or a measurement:

3. saam khraŋ
   three time ("three times")
4. haa meet
   five meters ("five meters")

Such cross-linguistic differences as well as intra-linguistic inconsistencies have been proposed to underlie L1-specific difficulties in the acquisition of L2 attributive-head constructions. Bai (2014) found that L1-Thai learners of L2-Mandarin exhibited frequent misorder of attributives, both in the single-attributive case (with only one attributive before the head noun, e.g. *"**zuo bian de** fang zi" (lit: **left** house; trans: the house on the **left**)*), or multiple-attributive case (with more than one attributive before the head noun governed by order constraints, e.g. *"**zuo bian de di er ge** fang zi (lit: **left second** house; trans: the **second** house on the **left**)*). A recent study by Kitikanan & Dandamrongrak (2018) identified L2 experience as a major factor predicting the correct use of attributive word order in the multiple-attributive case, where L1-Thai learners with more experience with the target language exhibited fewer errors than learners with less experience.

However, a common shortcoming of the above studies is that they only focused on a single demographic, and whether the difficulty is truly L1-specific is unknown. To investigate this, a comparative approach is needed where data is collected for demographics whose L1's that either follow or violate the attributive-head word order. This study aims to investigate this by comparing the use of Mandarin attributive head constructions by L1-Thai (which violates the word order) and L1-English (which follows the word order) learners respectively.

The Role of Word Frequency in the Acquisition of Word Order

The previous section reported L2 experience as a contributing factor to the correct use of L2 attributive-head word order. This suggests that the frequency of exposure, or word frequency of attributive as a possible proxy, may be a predictor of correct word order use. In studying naturalistic speech, it has been found that children tend to use certain syntactic constructions only with certain lexical items. The ability to abstract the use of the construction across different lexical contexts to a fully productive state develops only gradually over time (e.g. Tomasello, 1992; Wilson, 2003). Crucially, the lexical items that bootstrapped the syntactic use were more familiar items that children had more input of. This provided early evidence that the quantity of input might modulate the acquisition of syntactic constructions. Studies in controlled experimental contexts are also aligned with this hypothesis. In studies of English word order acquisition, it was observed that older children (indicative of more natural English exposure) had increased reliance on the canonical word order schema (e.g. English SVO order) than younger children (Bates et al., 1994).

On the contrary, some studies have suggested that high word frequency might not be needed in the formation of certain syntactic structures. This is proposed in line with the "poverty of the stimulus" arguments, and has been demonstrated in empirical studies of the acquisition of structures like constituency and recursion (Crain & Nakayama, 1987). Furthermore, a review by Lieven (2010) has also pointed out some arguments against a *pure* word frequency account (i.e. frequency effects may further interact with other factors). For example, Lieven points out that child acquisition of the English TENSE forms (e.g. base verb GO) is not based on how frequently the children heard each of the forms *per se* (e.g. *go* vs *went* vs *gone*), but on how frequently the children associates each form in a form-meaning mapping. This is evidenced by the fact that younger children use each TENSE forms with limited semantic meanings *in addition to* limited syntactic frames (such that *gone* is only used in wh- question form and associated with the meaning of *disappearance*). Only when children are exposed with enough form-meaning mappings (and not raw frequencies of each tense form of GO) did they acquire the flexibility of using different tenses as a property of the base verb.

The evidence against a pure frequency account may have an important bearing on the present study, as the function of the pre-nominal attributive in Mandarin is largely inherently semantic. This means that raw input frequencies of the attributive may not be enough for learners to generalize the constructions on a syntactic level, as learners may need exposure to form-meaning mappings of the entire attributive-head unit as a whole. In such a case, word frequency (of the attributive alone) may not play a large role in the acquisition of L2 Mandarin attributive-word order. Thus, the issue of word frequency as a predictor of L2 attributive-head word order is an unsolved question which this study aims to investigate.

In summary, our current study sets out to answer two questions: 1. Do L1-Thai and L1-English learners of Mandarin (whose L1 violates/follows the Mandarin attributive-head word order) exhibit differential error rates of Mandarin attributive-word constructions based only on

erroneous order? 2. Does word frequency of the target attributive play a role in predicting error rates (such that more frequent attributives will elicit fewer errors)?

Methods

Mandarin attributives were selected and categorized into pre-established frequency bands A to B in descending order of word frequency (Liu & Ma, 2010), resulting in a total of 70 attributives in each band. Example attributives for each Band are listed in Table 1 below.

Band A	**Band B**
安静 [quiet]	爱国 [patriotic]
安全 [safe]	便利 [convenient]
白色 [white]	残酷 [cruel]
北边 [North]	诚实 [honest]
大部分 [most]	充足 [plentiful]

Table 1: Example attributives from each frequency band

Learner data was extracted from the Global Chinese Interlanguage Texts Corpus, which contains written, spoken, and video data by foreign learners of Chinese in 111 different countries and regions that total more than 115 million words. Sentences with the target attributives in pre-nominal form (in the case of correct usage) written by L1-Korean and L1-English (American) learners were analyzed. Two native Mandarin speakers independently reported the error rates based only on erroneous attributive-head word order. Accuracy was binary-coded (1 for correct, 0 for incorrect). Results yielded an 89% inter-rater reliability. Only target sentences for which the raters agreed on the error status were included in subsequent analysis. This yielded a total of 2042 target sentences.

Results and Discussion

Figure 1 shows the overall group results. General observations reveal comparable error rates on Mandarin attributive-head word order for L1-English and L1-Thai learners on both high-frequency and low-frequency attributives.

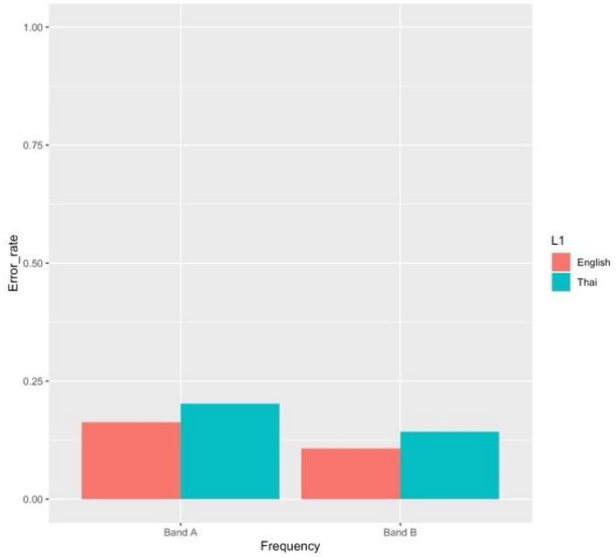

Figure 1: Proportion of overall errors L1-English and L1-Thai learners

A 2 (L1: Thai vs English) x 2 (Frequency: High vs Low) independent-measures ANOVA was performed on learner accuracy which confirmed the observations. Results showed no main effect of L1 [$F(1,2038) = 1.78$, $p = 0.18$], suggesting that the error rates did not differ between L1-English and L1-Thai learners averaged over both frequency bands of attributives. Results also showed no main effect of Frequency [$F(1,2038) = 0.08$, $p = 0.78$], suggesting that the error rates also did not differ between high-frequency and low-frequency attributives averaged over both learner groups. Finally, there is no L1xFrequency interaction [$F(1,2038) = 0.45$, $p = 0.5$], suggesting that the lack of group effect was not because of differential modulation of either factor.

Overall, this shows that perhaps contrary to the results reported in the literature, the difficulty in acquiring word order for an L2 attributive-head construction may be a universal phenomenon rather than an L1-specific phenomenon. At the same time, familiarity with attributives, as indexed by word frequency, does not seem to predict error rates of word order, showing that attributive word frequency *per se* may not be enough for learners to generalize the use of the construction to all lexical contexts (a possible alternative explanation, however, would be that the construction has been abstracted by both groups of learners and are not associated with high- or low-frequency attributives).

Conclusion

The present study aimed to extend existing research in two directions, first by taking a comparative approach to test the L1-specificity of the acquisition difficulty of Mandarin attributive-head word order reported in the literature; second by testing whether frequency effects reported for the acquisition of other syntactic structures extends to the acquisition of L2 attributive-head word order. The current findings provide initial evidence for universality in the difficulty of Mandarin [Attributive-Head] word order, instead of L1-specific negative transfer. However, it is conceded that the scope of comparison in the current study is still limited – i.e. the lack of an effect specifically between L1-Thai and L1-English learners may not be easily generalizable to other languages, because results may be confounded by factors like the difference in overall linguistic similarity between Thai-Mandarin vs Thai-English. Further research is needed with the analysis of a more representative demographic selection to ascertain the possible universality proposed by the current study.

References

Bates, E., MacWhinney, B., Caselli, C., Devesconi, A., Natale, F., & Venza, V. (1984). A cross-linguistic study of the development of sentence interpretation strategies. *Child Development, 55*, 341–354.

Crain, S., Nakayama, M., 1987. Structure dependence in children's language. *Language 62*, 522–543.

Kitikanan, P., & Dandamrongrak, S. (2018). English adjective order ability by L2 Thai learners. In *The 3rd International Conference of Multidisciplinary Approaches on UN Sustainable Development Goals UNSDGs 2018, Bangkok, Thailand* (p. 116).

Lieven, E. (2010). Input and first language acquisition: Evaluating the role of frequency. *Lingua, 120*(11), 2546-2556.

Liu, Y., & Ma, J. (2010). The graded Chinese syllables, characters and words for the application of teaching Chinese to the speakers of other languages. *Chinese Teaching in the World [Shijie Hanyu Jiaoxue], 1*, 82-92.

Reid, L. A., & Savetamalya, S. (1997). An explanation for inconsistent word order typologies in some Southeast Asian languages.

Tomasello, M. (1992). *First verbs: A case study of early grammatical development.* New York: Cambridge University Press.

Wilson, S. (2003). Lexically specific constructions in the acquisition of inflection in English. *Journal of Child Language, 30*, 1–41.

白晶. (2014). *中高级阶段泰国学习者多项定语的习得偏误及语序教学研究* (Doctoral dissertation, 广西大学硕士学位论文.