

## **How English L2 Learners in China Perceive and Interpret Novel English Compounds**

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### **Bio Data:**

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### **Abstract**

This study aims to investigate how English learners in China interpret novel English noun-noun compounds. Relevant research literature is for the most part limited to L1 children's interpretations of noun-noun compounds. Therefore the current study extends the research area into the L2 domain

with a view to comparing interpretations of L2 learners with those of L1 children in the study of Krott, Gagné and Nicoladis (2008). Fifty-two students from two universities in Shanghai, China participated in the research. They were given an English compound test consisting of 30 novel noun-noun compounds. The results indicated that, generally speaking, the participants displayed an overall competence in understanding and interpreting novel English compounds. The differences in performance success between the intermediate and advanced groups were not found to be statistically significant. Possible factors affecting participants' interpretations and vocabulary teaching implications are discussed at the end of the study.

**Keywords:** noun-noun compounds, Chinese learners, vocabulary teaching, L1 transfer

### **Introduction**

The acquisition of vocabulary has assumed an important, not to say crucial, role in second language learning theory over the past decade (Lewis, 1993). Within the area of vocabulary acquisition, one type of vocabulary merits special focus – noun-noun compounds. On the surface, these are simple constructions composed of two parallel nouns. However, they are not semantically parallel since there is always one type of (semantic) relation connecting the two constituents. Understanding a noun-noun compound thus involves knowing the two nouns (known as the modifier and the head) and selecting an appropriate relation type. Take “paper salad” as an example: in this compound, “paper” is the modifier and “salad” is the head. One likely relation between these two constituents might be “made of”, meaning “salad which is made of paper”. Previous research in this area has investigated how English native-speaking children interpret English noun-noun compounds.

As a compounding language, Mandarin Chinese has a much more complex system of constructing noun-noun compounds. Unlike English, it is unnecessary to analyse a Chinese noun-noun compound by segmenting the two characters, because Mandarin emphasizes meaning more than form.

Therefore, if people understand the meanings of the separate characters, they will naturally obtain the meaning of the compound. There are vast differences between the natures of English and Mandarin which are very likely to cause different understandings of English noun-noun compounds by Chinese people compared to those of English native speakers. A clearer understanding of how Chinese learners interpret English noun-noun compounds, together with a comparison of results obtained from Chinese participants to those gained from previous research conducted on L1 children will hopefully be of use to learners and teachers alike.

The current research is a descriptive study in which quantitative methods are employed. It is an extension of the research conducted by Krott et al (2008). Krott et al investigated L1 children and adults' interpretations of novel English noun-noun compounds. The findings suggest that there are general similarities but some specific differences in the strategies used by children and adults when interpreting novel compounds.

Little research has so far been conducted concerning English L2 learners in the compounding area, especially involving learners whose native language is also a compounding language. It will thus be innovative as well as meaningful to extend the study of Krott et al (2008) into the Chinese EFL domain to investigate how L2 learners in China understand and interpret English novel compounds and compare their interpretations with those of L1 children.

### **General Discussion on L2 Vocabulary Acquisition**

N. Ellis (1997) argued that learning a new word involves more than understanding a novel sound pattern and recognizing and writing its orthographic pattern. It also requires learning about its syntactic properties, its place in lexical structures, its semantic and referential properties etc.

However, these different types of vocabulary acquisition are all underpinned by two distinct types of learning mechanism: learning a word's form and learning its meaning (N. Ellis, 1994). Unlike L1 children who acquire their native language in a more *natural* and *implicit* way, L2 adults have already developed rich conceptual and semantic systems linked to their L1. For them, learning a new word is a process of mapping: either "mapping the word form onto pre-existing conceptual meanings or onto L1 translation equivalents" (N. Ellis, 1997, p.134). During this mapping process, various references and collocations of that new word are likely to be neglected. Since the translation equivalence is often made explicitly at the early stage of learning, it is very easy for the learner to immediately build up an association with an L1 word. Thus, many of the equivalences set up at that time have to be modified during later learning processes (Ringbom, 1986).

L2 vocabulary development is also influenced by the organization of the mental lexicon. It has been argued that human memory is very flexible and can "process" a large quantity of data, provided that it is systematically organized (Takač, 2008). To gather data on the organization and functioning of the mental lexicon, researchers have been studying various speaker behaviors such as tip-of-the-tongue phenomena and people suffering from aphasia (Aitchison, 1990). Recently, the dynamic characteristic of the mental lexicon has become more and more prominent in second language learning research. The dynamic characteristics in the mental lexicon can be reflected in the concept of *spreading activation* (Hulstijn, 2000), in which two lexical items which are stored without any interconnection can be linked via some formal or semantic features. Noun-noun compounds are good examples of spreading activation. During the process of spreading activation information on existing lexical items is expanded and completed. For example, the compound *banana boat* was a combination of two previously independent

nouns but can be explained as the boat for shipping bananas or a popular snack made of bananas and resembling a boat. It therefore follows that research into noun-noun compounds is helpful in providing us with further insights into the mental lexicon. So far, studies in noun-noun compounds have been limited to predominately native speakers of English. The current study thus extends the scope of previous research by looking at the L2 domain, in the hope that the research findings will contribute to further understanding of the L2 mental lexicon.

The fact that the native language has a considerable effect on the way a second language is learnt and used has been confirmed more and more strongly by research (Kellerman, 1984; Perdue, 1993). Errors in second language learning such as *interlingual* confusion are believed to be caused by interference and transfer from the native language (Swan, 1997, p.161). Therefore in terms of second language vocabulary acquisition, a key problem is to identify what sort of effect a learner's native language will have on their acquisition of a second language. Will the native language help, hinder or exercise no effect?

The influence of the native language is not just limited to language itself but also can spread to the broader cultural sphere. If the native and target languages do not have much in common in the cultural domain, there may be little overlap between the concepts they express. This can be far more frustrating for learners than learning a related foreign language.

In second language vocabulary acquisition, the L1 can either facilitate or create obstacles during the process of recalling and using previously learnt words. This also applies to the construction of a complex lexical item that has not been previously used as a unit (Takač, 2008). Therefore, this current study is also exploring, though not directly investigating, if the Chinese learners' L1 is exerting any influence on their understanding of English

compounds. First of all, it is necessary to know what English noun-noun compounds are and what involves an understanding of a noun-noun compound.

### **An Overview on Research in Compounding Area**

Research into the area of compounds has been developing steadily over a long period as researchers explore various theories. In the L1 domain, some studies investigated the strategies used by children when understanding and producing novel compounds. Murphy and Nicoladis (2006) raised and tested the hypothesis that the frequency of different complex lexical forms to which children were exposed influences their development in terms of interpreting those forms. In addition, researchers were interested in the native speakers' inference process in terms of novel compounds, i.e. what knowledge they are using when interpreting these compounds.

With regard to the L2 domain, researchers applied compounding to the investigation of underlying representation of language in L2 inflectional morphology. Results from the research of Murphy (2000) showed a dissociation between regular and irregular morphology as manifested in the compounding task in the study, which indicated that the level-ordering model (Kiparsky, 1983), which described ordering morphological processes at different levels, might not be relevant to second language morphological acquisition. However, the dual-mechanism model (Pinker and Prince, 1988, 1992), which believed that there were two distinct systems for language learning – one for processing regulars and one for irregulars did not adequately explain the dissociation phenomenon in this study either.

In terms of the process of L1 children acquiring noun-noun compounds, a usage-based theory of language acquisition has been evidenced by research such as that of Krott and Nicoladis (2005). This theory posited that children

initially acquire and use a compound as a whole unit without knowledge of the underlying linguistic structure. With the acquisition of more and more words, children tended to make conservative generalizations about the constructions of the particular words they heard and used (Tomasallo, 1992, 2000). Furthermore, “the higher the number of constructions in which those particular words are used, the more likely children are to generalize the use of those words in similar constructions” (Krott & Nicoladis, 2007, p.205). Consequently, it could be argued that if children were influenced by the family<sup>1</sup> size when interpreting noun-noun compounds, it was likely that they were using analogies with other compounds in their vocabularies to interpret the one before them (Krott & Nicoladis, 2007). In other words, they generated the rules of the linguistic features of compounding by deriving meanings from existing and familiar compounds.

In addition, researchers are interested in factors that play a role in children’s acquisition of the general principles of compounding. These factors can be learned through comparing compound acquisition across languages and language families (Krott & Nicoladis, 2007). Cross-linguistic studies have shown that productivity and frequency of compounds are crucial to children’s acquisition of compounds, and in languages in which compounding is highly productive, such as English, Chinese and Dutch, children begin to coin novel noun-noun compounds at a very early age (Becker, 1994; Clark, 1993, 2003). The current research therefore aims to investigate how Chinese learners of English, whose first and second languages are both compounding languages, interpret novel English noun-noun compounds in order to view whether or not L2 learners acquire and

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<sup>1</sup> A family refers to the set of compounds that share the same constituent. e.g. The modifier family for “chocolate” includes compounds sharing the form “chocolate X” such as “chocolate cake”, “chocolate milk” and “chocolate muffin” and the head family for “cake” consists of compounds of the form “X cake” such as “cheese cake” and “fruit cake”.

understand the compounds in the same way as L1 children do, and if not, to what extent they differ.

### **Introducing the Original Paper Krott et al (2008)**

The Krott et al (2008) aimed to investigate which factors affect children's selection of thematic relations when interpreting noun-noun compounds. The researchers started by introducing compounds and explaining what makes the understanding of novel compounds challenging. Descriptions and illustrations of the semantic structure of English noun-noun compounds, the definitions of the "modifier" and the "head" and possible thematic relations between these two roles were provided. It was argued that interpreting novel compounds relies largely on real-world knowledge. The researchers argued that real-world knowledge includes how constituents within a compound have been used in other compounds. This seems to be particularly relevant to children's understanding of compounds.

A usage-based framework assumes that children start to learn words in specific strings before generalizing to an abstract pattern. It suggests that children learn compound words initially as individual words, with no knowledge of their internal structure. Further evidence also shows that parsing compounds as chunks lasts until early school years, and probably even adulthood.

However, results from other studies indicate that children are able to understand the sub-categorization function of compounds in their early years. They can even create novel compounds on their own.

Researchers seem to be more convinced by the usage-based account in which children start by having no knowledge of the internal structures but gradually build up patterns related to modifier or head families. It is believed



that at some stage children are able to use the modifier family of one word to predict the possible relations in other compounds containing this word.

In this study, 27 L1 children aged 4;9 to 5;8 took part in the experiment. In addition, 36 adults who were all native speakers of English aged 17 to 26 were recruited as participants. Thirty novel noun-noun compounds were constructed for the children. Adult participants were asked to write down interpretations for these 30 compounds and the relations which dominated their responses were selected as the most likely interpretations.

The results from Krott et al (2008) showed that 39.7% of all responses from children and 70% from adults were the dominant interpretation. In addition, in 18.5% of the responses, children reversed the roles of modifiers and heads in their explanations.

In terms of effects of modifier and head families, the research findings indicated that children's interpretations were affected primarily by the relational bias in head families. Supportive head families were likely to result in dominant interpretations while supportive modifier families seemed not to have salient effect on their responses. On the contrary, adults based their interpretations primarily on their knowledge of modifiers in familiar combinations.

There are two salient figures in the findings of this research: "success rate with dominant relations" and "usage of non-dominant relation". The former one measured the extent to which they were successful with one type of relations. "Successful" in this context meant choosing the relation type which was chosen by L1 adults as the dominant relation in Krott et al (2008). The latter referred to cases in which their choices of relation types were inconsistent with dominant ones.

Through comparing "success rate with dominant relations" and distribution of the most frequent relations of compounds in the CHILDES database, it

was found that that children's success in responding with dominant relations was not affected by the overall frequency of those relations in the database. In other words, finding a relation more often in their vocabulary did not necessarily mean they would understand it better, thus did not guarantee a higher success rate when interpreting compounds with this relation.

With regard to relation preference for children and adults, taking both *success rate with dominant relation* and *usage if non-dominant relation* together into consideration, the results indicated that children had a higher success rate for relation HAS than for the FOR and MADE OF relations. Adults seemed to have similar success rates for HAS, MADE OF and FOR. Furthermore, children overused the relation HAS but underused FOR and MADE OF.

This research concluded with a suggestion that a usage-based framework was adequate for describing children's development in interpreting novel compounds. However, the fact that five-year-olds still made mistakes when interpreting compounds challenged the previous assumption that two- and three-year-olds had developed a general noun-noun schema: this further demonstrated that children's general knowledge about compounds was developed on an item-by-item basis and at a fairly slow pace. There were also a number of possible variables that need to be addressed in future research.

The Krott et al (2008) study extended the approach of usage-based theories to investigating children's understanding of novel English compounds and demonstrates that a usage-based framework is applicable for this investigation. It deepened the research in compounding area with a combination of using L1 children and novel English compounds, which was an innovation in this research area. In addition, the methodology of this research and the results generated from it served as a major contribution for

future replication and extension.

This Krott et al (2008) research prompted me, the author, to design a similar study of L2 speakers, since previous research into this area has only focused on L1 learners, especially children. It would therefore seem potentially beneficial to extend and develop these research findings by investigating how L2 learners whose native language is also a compounding language approach novel compounds. The key differences in the ways in which compounds are constructed in Chinese and English can lead to errors in comprehension when Mandarin L1 speakers are presented with compounds in English. Thus, an extension of Krott et al (2008) is conducted with English L2 speakers in order to investigate how they interpret English novel compounds and to what extent their interpretations differ from those of L1 children in Krott et al (2008).

One focus is gaining a general and clear idea of the how L2 speakers interpret novel English compounds by asking them to write down their understandings towards the compound items selected from Krott et al (2008). It is hoped that through reading their answers we would know whether or not they understand the basic principle of the English compounds' structure and whether or not they can generate an appropriate pattern when interpreting these compounds. Speculations on the interpretations of current participants will be given on the possible factors that could have been affecting their answers. The other focus is on comparison – between L1 children in the study of Krott et al (2008) and L2 adults in the current research. The findings and evidence will be searched and further explained to support the usage-based approach to the acquisition of compounding, as that in Krott et al (2008).

Vocabulary acquisition is regarded as one of the most crucial processes in learning a second language. English L2 learners are often criticized for using

unhelpful strategies when learning vocabulary. Therefore, it is hoped that this research will have implications for vocabulary learning and teaching, particularly with regard to the acquisition of compounds by English learners in China.

### **Research Questions**

This is an exploratory study in which descriptive statistics are presented to demonstrate how they interpret these compounds. Two groups (intermediate and advanced groups) of participants were asked to complete a language background questionnaire and an English compound test. There are two research questions:

- 1) How do Chinese learners of English interpret novel English compounds?
- 2) To what extent are these interpretations different from the way in which native-speaking children interpret novel English noun-noun compounds?

It is hoped that the answers to these questions could provide implications to L2 vocabulary teaching in classroom.

### **Methodology**

The sample consisted of 27 first year undergraduates majoring in science and 25 first year graduate students majoring in English Language and Literature from two different universities in Shanghai, China. They were cast into two different groups according to their previous English proficiency tests results.

As no research has been carried out on how Chinese learners of English interpret compounds like this, a pilot study was conducted beforehand with three Chinese graduate students studying at Oxford University. On average, they achieved 60% of the total possible mark. A feedback session was conducted afterwards and some amendments were made based on their reports.

The research was first conducted with the intermediate group. The time limit for completing the test was 30 minutes. The same procedures were repeated with the advanced group a week later during a class session. Both data collection processes ensured participant anonymity.

### **Data Analyses**

The analyses of the English compound test started with firstly coding all the answers that participants wrote on their test paper. Each answer for each compound included two parts: the interpretation and the relation. The interpretation referred to their understandings of the meaning of the compound and the relation referred to their understandings of the specific relation type between the two words in this compound. Therefore, the analyses of the English compound test fell into two sections: analyses of their interpretations as well as their choices of relations. Both interpretations and relations were coded before further analyses were conducted. In the process of coding, due to the limited English proficiency levels of the participants, for one compound, there could be various expressions containing the same meaning. Therefore, the researcher figured out the meaning underlying their expressions and categorised them.

In terms of the analyses of the interpretations, the frequencies of responses which were dominant interpretations were calculated. Dominant interpretations were those consistent with the interpretations that L1 adults decoded in the original paper. Calculations were conducted with 52 participants altogether first, and two groups respectively. In addition, in order to view whether or not there were significant differences between performances of two groups, each interpretation of each participant was coded into either consistent or inconsistent with the dominant one and a chi-square test was administered on the sum of these codes.

With regard to the analyses of their choices of relations, firstly, the average frequency of each type of relations was calculated, followed by calculations of two figures “success rate with dominant relations” and “usage if non-dominant relations”. “Success rate” measured to what extent they were successful with one type of relation. Comparison was made on these two figures between L2 adults and L1 children.

## **Results**

The following table shows the interpretations that were made by most of the participants among altogether 52 of them, i.e. among all the different interpretations for one particular compound, this interpretation in the table was the most popular one. (Please refer to Table 1 at the end of the text.)

Among the 30 items collected from all the 52 participants, 21 of the highest-frequency-answers are consistent with the dominant interpretations which referred to interpretations that most L1 adults provided in Krott et al (2008), whereas within the remaining 9, the majority of the participants produced interpretations that differ from the dominant ones. Expressed as a percentage of all responses, 59.87% are dominant interpretations.

Table 2 shows the average frequency of the choice of each type of relation. Only the most frequently chosen relations, which refer to those relations that appear in the answers of more than one item, are listed here. (Please refer to Table 2 at the end of the text.)

The range of the average relation frequency varies from 2.5% to 61.5%. Among the 18 types of relations in the table, the relation “during” enjoys the highest frequency (61.5%), followed by “use” and “part” (both 59.6%), whereas the relations “from” (2.5%) and “of” (7.7%) are among the least frequent ones.

Considering the participants from the two groups of L2 learners as a whole,

it can be seen that L2 adults display an overall competence in understanding and interpreting novel English compounds. The data show that, generally speaking, they are able to distinguish the “modifier” from the “head”. This is demonstrated by their use of the pattern “B is ...A” for an A + B noun-noun compound, indicating that they have developed a sensitivity to the roles of modifiers and heads.

Their responses, which are inconsistent with the dominant interpretations in the original paper (Krott et al, 2008), can be divided into two patterns. On the one hand, there were a small number of cases in which the participants had difficulty in identifying which noun was the “modifier” or the “head” and in interpreting the compound in a way such as “A is ...B”. On the other hand, they occasionally used the word’s verb form (provided that it has a verb form) or mistook the noun for a verb in their interpretation of the compound.

Of all responses in the original research, 39.7% were dominant interpretations made by L1 children while in the current study, 52 L2 adults achieved 59.87% on the same scale. Overall, L2 adults thus performed better than L1 children.

In addition, the comparison between L2 adults and L1 children is statistically focused on their relation preference. The results for L1 children are taken from the Krott et al (2008) with the view of extending this compounding research area into the L2 adult domain. The following table provides a comparison of the “success rate with dominant relations” and “usage if non-dominant relation” between L2 adults (all the participants from the current study) and L1 children. In this context, “successful” refers to participants being able to provide a relation type which was consistent with the answer that was decoded as dominant relation in the original paper. If they chose a relation type which was not the dominant one for that

compound, this choice would be regarded as “usage if non-dominant relation”.

From Table 3, (Please refer to Table 3 at the end of the text.) it can be seen that L2 adults are quite successful with the relations “for” and “located” while less successful with “has” and “be”. On the contrary, L1 children appear to be successful with the relations “has” and “for” but less successful with “made of”.

In addition, the data show that L2 adults tend to use the relations “made of” and “during” more often than L1 children when producing an unexpected response, whereas they tend to use “has” and “located” less frequently than L2 adults. It should be noted that these comparisons, however, are descriptive only as statistical comparisons were not possible since the data from the L1 children were not part of the present study.

## **Discussion**

### ***Comparison of L2 adults and L1 children***

The data from the Results showed that L2 adults outperformed L1 children in interpreting novel English compounds. In other words, they interpreted the compounds more closely to the dominant interpretations than the L1 children. However, although L1 children understood that modifier and head nouns play different roles; “they show weak signs of using knowledge about the modification that the modifier can create when they determine how a modifier and a head should be linked (Krott et al, 2008, p.30).” On the contrary, generally speaking, L2 adults demonstrated their abilities in producing an appropriate relation between a modifier and a head.

In Krott et al (2008), it was mentioned that in 18.5% of the responses L1 children reversed the roles of modifiers and heads in their explanations, suggesting that “even five-year-olds still have some problems to distinguish



between heads and modifiers when exposed to novel compounds". (Krott et al, 2008, p. 21) This phenomenon existed for L2 adults too but with a much lower frequency: 2.3%. Although there is no evidence to determine whether or not this is coincidence, it is more reasonable to conclude that the reasons behind this phenomenon differ between L1 children and L2 adult learners. One possible explanation could be that the cognitive ability of a five-year-old child is not sufficiently developed to distinguish modifiers and heads correctly every time. On the other hand, L1 transfer might explain the reversing behaviour of L2 learners, since obviously the cognitive ability of an intermediate L2 learner is already sufficiently developed to enable this structure to be understood if explained directly and clearly. However, if they have never previously been requested to complete a specialized compound test before or verbalize their interpretations in such a grammatically precise way, they will have few guidelines to govern their inference processes. More details on L1 transfer are provided in the next section.

## **Plausible Reasons for Participants' Interpretations**

### ***L1 transfer***

It was generally known that in terms of vocabulary acquisition, the native language has a considerable effect on how a second language is learnt and used (Kellerman, 1984; Perdue, 1993). It is generally believed that if second language learners are more aware of the similarities and differences between their L1 and L2, it is more likely for them to find effective vocabulary learning strategies. Nevertheless, for those learners whose L1 is closely related to the target language, initially mapping a new word to a counterpart in the mother tongue does not guarantee full understanding of that word, since various collocations and references are missing during the process of mapping (Ringbom, 1986). On the other hand, as for those in whose L1

barely any cognates can be found in relation to L2, it is much more difficult for them to build an association with not only the new word but also the cultural concepts (Swan, 1997).

In the current study, the data suggests that participants' L1 exerts three significant effects on their perception of novel compounds: 1) participants reverse the roles of modifiers and heads 2) participants try to identify a deeper metaphoric meaning beneath the surface of the compound 3) participants perceive two words as coordinate/parallel relations when having difficulty in obtaining the meaning.

Logically, participants from the intermediate group should already be equipped with some strategies for accessing the meaning of English compounds, (i.e.) they should be familiar with the basic concepts and positions of “modifier” and “head”. However, participants' interpretations indicate that they sometimes reverse the roles of “modifier” and “head” especially in compounds composed of more challenging lexical items. Here are a few examples of this tendency to misinterpret the compounds:

- ✧ paper salad – a mixture of papers / paper for salad / paper which looks like salad
- ✧ windmill – wind from the mill / wind that works for mill
- ✧ honeybee – honey made by bee
- ✧ bubble gum – bubble made by gum / bubble of gum
- ✧ light bulb – a light with a bulb
- ✧ cardboard box – cardboard in box
- ✧ rabbit-hole – rabbits staying in a hole

Some responses indicated a general concordance with the dominant interpretation in a general sense, but with the “modifier” being headed. For example:

- ✧ book basket – book stored in basket
- ✧ daylight – day has light
- ✧ cheese burger – cheese in the burger

In these examples, the interpretations provided do not affect or contradict the meanings of these compounds: the core meaning was understood but there was a failure to identify positions of the “modifier” and the “head” with accuracy.

This phenomenon suggests that compounds in which the two constituents are high-frequency words such as lemon juice, picnic table, banana boat, were relatively easy for the participants to parse. Conversely, with respect to compounds containing low frequency words (e.g. bulb, cardboard, mill), participants negotiated an interpretation which was the combination of the meanings of the two constituents regardless of the relation between them.

A certain number of Chinese noun-noun compounds consist of two morphemes/words with coordinate relations. This is a result of the formation of certain ancient Chinese words in which a synonym or an antonym was added to an existing one-syllable-morpheme. Hence, parsing an English noun-noun compound by breaking it down into two parallel separate words seems to be the easiest solution when participants are faced with completely unfamiliar compounds. The following are examples of this tendency:

- ✧ fairy story – story which is fairy (It seems that the participant did not know the exact meaning of the word “fairy”.)
- ✧ light bulb – bulb which is light
- ✧ jellyfish – fish with the name of jelly

It can be seen from the examples that participants resorted to viewing the “modifier” and the “head” as the same thing with different names when they

had difficulties in understanding the meaning as a whole. If asked for the definition of each constituent, they might be able to give correct answers. However, when two constituents are put together, the direct and strong influence of Chinese has impelled them to regard them as coordinate parts.

### ***Confusion of grammatical function***

Although the researcher made it very clear at the beginning of the test that all the words in the test were noun-noun compounds, there were still a few cases in which the participants misinterpreted the grammatical function of the constituents of the compounds. The following examples illustrate this:

- ✧ April fool – fool people on April 1<sup>st</sup>
- ✧ snakebite – bitten by snake
- ✧ haircut – cut the hair

In these examples, the responses indicate that the “head” is interpreted as a verb. In fact, the words “fool”, “bite” and “cut” can be verbs or nouns, but in this test it was made clear that they were nouns: the answers generally take the form of using the first noun to modify the second<sup>2</sup>. However, the above answers reveal that the participants have more or less understood the meaning of the compound. However, in the following examples, incorrect interpretations can be noted:

- ✧ baby bear – give birth to new life
- ✧ apple peel – to peel the apple

In the first example, it is obvious that the participant confused the noun

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<sup>2</sup> i.e. a fool on April 1<sup>st</sup>; a bite caused by snake; a cut done to the hair

“bear” and the verb “bear”. Furthermore, the order of the constituents in the compound seemed to be reversed as well. It is likely that he / she interpreted it as “bear (v.) a baby”. Similarly, in the second example, the noun “peel” which means the protective outer layer of fruits was mistakenly understood as the verb “peel” meaning the action of “removing the outer layer”. In other words, a noun-noun compound was interpreted as a “verb+noun” phrase.

### ***Lack of environmental and cultural exposure***

Knowing a word does not just mean knowing its semantic meaning: the learner needs to be familiar with the pronunciation, spelling, collocations etc. Moreover, language is inextricably linked to the culture and society of the target country. The assembly of simple letters or characters not only maps with the superficial meaning of the word itself but also with the different types of culture of the country where this target language is spoken (Swan, 1997). Sometimes the word has a specific meaning in a certain geographical area: for example, if an English learner in China who has never been to the UK or other English-speaking countries is asked what “egg cup” means, it is very unlikely that the learner will be able to guess the meaning as this compound is not generally taught to English learners in China. On the contrary, a Chinese child who has been living in the UK is far more likely to have encountered this compound. In China, egg cups are not familiar items. Unfamiliarity with the environment, culture and lifestyle in English-speaking countries resulted in participants misinterpreting some compounds. Here are some further examples:

- ✧ cheese burger – burger made of cheese
- ✧ fruit cake – cake made from / of fruit

In Mandarin, the counterparts of “cheese burger” and “fruit cake” are both borrowed words from English as they are not original Chinese food items. Without experiencing these things that belong to the culture of the target language, it is unlikely to provide accurate interpretations for them.

### ***Misunderstandings caused by limited English proficiency levels***

These misunderstandings have different possible causes: some are due to unfamiliarity with the vocabulary while others might be due to lack of exposure to the language. Let us consider the following responses:

- ✧ side ache – ache accompanied by a syndrome
- ✧ apple peel – tool to peel apple
- ✧ haircut – tool used to cut the hair

It is very likely that in the first example, the participant misunderstood the compound “side ache” by mentally comparing it to “side effect”. Therefore, he / she wrote down “ache accompanied by a syndrome” which is similar to the definition of “side effect”. However it is not possible that he / she did not know the two words “side” and “ache” – “ache” was even referred to in the answer. One plausible explanation could be that the two different compounds (“side ache” and “side effect”) were stored in the same place in the participant’s mental lexicon. Looking at “side ache” triggered the recall of “side effect”. Or the meaning “ache accompanied by a syndrome” was matched incorrectly with the term “side ache” in his / her mind.

In the second example, the participant simply mistook “peel” for “peeler”. The third example is less easy to explain. Both constituents are very basic lexical items – maybe the participant is familiar with “to have one’s hair cut”, but not with haircut as a compound.

### ***Limitations and Suggestions for Future Research***

One limitation in the current study is that there is no clear and definite “dominant interpretation” for L2 learners. The “dominant interpretation” gained from Krott et al (2008) was relevant to only L1 children but applied to L2 adults as well. However, the English input that the L2 adults in the current study are exposed to is qualitatively different from the input an L1 child is exposed to. Therefore, what constitutes a “dominant interpretation” for an L1 child may not be the dominant interpretation for L2 adults.

### ***Insights Provided for Vocabulary Learning and Teaching***

Some of the answers participants provided (e.g. failing to explain “pillow-fight” and mistaking “side ache” for “side effect”) show that to some extent they lack authentic L2 input of English noun-noun compounds. Especially for those intermediate learners whose major course is not English, the opportunity to encounter new words is only limited to text books. However there are texts rewritten or modified by Chinese people from original copies, and if they are extracted from the original books or articles, they are out of date already. It is thus suggested that learners should find more authentic and updated learning materials for themselves such as listening to English news on the radio, reading newspapers and magazines online, watching recent English films. Only by doing so can they have a good chance of being exposed to more noun-noun compounds and other new words in fashion. Teachers could also integrate some new words into the course or assign students articles with authentic English as reading homework and check their understandings of the unknown words afterwards.

Learning English should not be just learning the language itself but extended to learning the history, culture and social customs of English-speaking countries as well. Some interpretations against the dominant

relations are caused due to unfamiliarity with the language environment and cultural atmosphere of the target countries. Most of the students in China learn English in class and receive no further language instruction elsewhere. They learn the vocabulary, the grammar and ways to communicate in order to better serve in their examinations. Since no content concerning culture and social customs will appear on test papers, students feel no need to learn these “extras”. Even though the learning process in class can guarantee them expressing ideas in English without difficulties, it cannot guarantee that they could fully understand input from native speakers because it takes a much bigger receptive than productive vocabulary to help one engaged in an interaction in L2 (Nation, 2001). It is also the reason why Chinese students on average are poor at understanding English idioms. This cultural gap can be filled up by including cultural courses in the curriculum or adding cultural elements in class.

With respect to the narrow approach of learning English noun-noun compounds, it is argued that basic rules of construction should be explained clearly to the students once they have their first exposure of compounds of this type. It is better for teachers to introduce the noun-noun compounds in the appropriate contexts. For instance, teachers should raise the awareness of the students to the characteristics of this type of word formation, rather than ignore them or treat them just as common nouns. Teachers could present a certain amount of examples of noun-noun compounds with different relationship types embedded so that the students would understand the underlying patterns of noun-noun compounds better. In addition, comparisons with Chinese compounds should be made clear to elicit the students to realise the differences and similarities between English and Chinese compounds. Otherwise, it is very likely that students take English compounds for granted and understand them in the way they understand their



first language. The teaching and learning of noun-noun compounds are often neglected in the English language teaching in China. There are plenty of other aspects within this context that often result because of a lack of attention by teachers. Many invisible misconceptions have been formed by the students, which if not corrected in time and once settled in their minds, could be carried along with them for a long time in the future.

### **Conclusion**

This current study helps to bridge a gap in research into how L2 learners interpret English noun-noun compounds. It extended this research area by collecting data from English learners in China so as to enable a meaningful comparison between learners whose native languages are both compounding languages.

The findings of this study have two main implications: one finding concerns the interpretations of novel English compounds by English learners in China. The results demonstrate a general ability to grasp the underlying pattern and that the learners are capable of defining the meaning of compounds using a word or a phrase to form a relation between the two constituents. From their answers in the compound test, it can be seen that they are aware of the roles of modifiers and heads and most of the time they are able to use the modifier to describe the head. However, they are unable to interpret the meanings of the compounds appropriately every time. This could be attributed to their limited levels of English or the influence of their native language. The other implication is related to the comparison. Comparing the results of the L1 children and L2 adults shows that these groups differ in relation preference but share a common trend in terms of their performances – a number of participants in both groups reversed the

roles of modifiers and heads when interpreting some compounds.

To sum up, this study is only the first step in researching second language learners' interpretations of English noun-noun compounds. It focuses on how they interpret the compounds and to what extent their interpretations differ from those of L1 children. Future research could be conducted to further explore whether L2 learners' interpretations of English compounds are more affected by compounds with the same modifier or head. Findings could be compared with results of similar studies of L1 adults and children in order to determine what knowledge L2 learners are using when they interpret these compounds. This could lead to further developments in the field of teaching and learning compounds.

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