

Non-Native Grammars: L2 Representation of English Locational and Directional Prepositions

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Abstract

This paper reports a study on the acquisition of English locational and directional prepositions among L1 Malay and L1 Chinese speakers of L2 English. The framework adopted for this study is the Failed Functional Features Hypothesis (Hawkins and Chan, 1997). This hypothesis claims that post-childhood L2 learners experience syntactic deficits in the L2 if specific parameterized features present in the functional categories of the L2 are not specified in the L1. However, certain L1 features that correspond to L2 settings can enter L2 syntactic derivations. The study is interesting because the surface structure of English is unlike both Chinese and Malay and the underlying representation of English is like Malay but not Chinese.

103 L1 Malay speakers and 104 L1 Chinese speakers of L2 English from a local university participated in the study. Two tasks were administered to collect data for the study. They were a Grammaticality Judgment Test (GJT), and a Directionality Judgment Test (DJT). The former comprised 16 grammatical stimuli (4 with locational prepositions, 4 with directional prepositions and 8 with ambiguous prepositions) and 16 ungrammatical stimuli (4 with locational prepositions, 4 with directional prepositions and 8 with ambiguous prepositions) and 8 distractors. The DJT comprised 6 items with locational prepositions, 6 with directional prepositions and 8 with ambiguous prepositions.

The study investigates (a) whether adult L1 Malay and L1 Chinese speakers of L2 English can acquire the surface structure of locational (e.g. in, on, at), directional (into, onto, to), and ambiguous (behind, under, in front of) prepositions, (b) the extent to which L1 Malay and L1 Chinese speakers of L2 English are able to recognize the directional reading of the ambiguous English prepositions that have the same physical manifestation (surface form) as the locational reading, and (c) whether L1 Malay and L1 Chinese speakers of L2 English have a different underlying representation from that of native speakers' in terms of the prepositional readings (locational and directional).

The results suggest that the majority of the L1 Malay and Chinese L2 learners were able to recognize and judge appropriately the surface structure of the grammatical stimuli with English locational and directional prepositions from the ungrammatical ones. In addition, the majority of the two groups of learners were also able to recognize and judge the locational reading with English locational prepositions. However, they become less determinate in their judgments of directional reading with English directional prepositions and the majority of them were unable to recognize and judge the directional reading with ambiguous prepositions. An explanation will be provided and implications drawn for the results obtained.

Keywords: Prepositions, Non-Native Grammars, Second Language Acquisition, Locational, Directional, Ambiguous

Introduction and Theoretical Background

This working paper reports part of a study that investigates the acquisition of English locational and directional prepositions among L1 (first language) Malay and L1 Chinese speakers of L2 (second language) English. The framework adopted for the study is the Failed Functional Features Hypothesis proposed by Hawkins and Chan (1997). This hypothesis claims that post-childhood L2 learners experience syntactic deficits in the L2 if specific parameterized features present in the functional categories of the L2 are not specified in the L1. However, selected L1 features that correspond to L2 settings can enter L2 syntactic derivations.

In other words, parameterized features that are associated with functional categories which are not instantiated in L2 learners' L1 will not be accessible after a critical period¹. This is said to be due to the disappearance of a layer, which provides options for parameter setting in a part of the lexicon known as the Universal Grammar (UG) lexicon. This part of the lexicon is where functional features and the layer that provides options for parameter setting are found (Hawkins and Chan 1997:188, following Smith and Tsimpli 1995). Then, beyond this critical period, which is said to be at some point during childhood (Hawkins and Chan, 1997: 189), the virtual options in the initial-state form are said to disappear, and what is left are the language particular specifications associated with language particular morphophonological forms in the UG lexicon. Therefore, by hypothesis, L2 learners who have exceeded the age of seven or adults will have no access to the full range of virtual options made available by functional categories to language learners within the critical period except for those that are instantiated in the L2 learners' L1 (Hawkins and Chan, 1997:199).

As a result, the functional categories established by learners after the critical period will tend to diverge from those of native speakers due to the differences between L2 learners' L1 parameter settings and the target L2 parameter settings. Thus L2 learners' underlying competence of the target L2 grammar in relation to the parameterized functional features would be different from those of native speakers'. Cross linguistic comparisons allow us to test for potential realizations of different parameter settings.

According to Chomsky (e.g. 1999, 2001), functional features can be classified into universal features (features that are selected by all languages) and parameterized

¹ This notion of a critical period was proposed by Smith and Tsimpli (1995). They claim that the cluster of unspecified parametric virtual options that are associated with the initial state of functional categories in the UG lexicon is subject to this critical period. When the options are given specific values and are associated with particular phonetic content, they are said to be consigned to the UG lexicon as lexical entries.

features (features that are selected by some languages but not others). In this study, it is assumed that locational prepositions have the universal feature whereas directional prepositions have the parameterized feature. This is because locational prepositions are selected by all languages while directional prepositions are only selected by languages that have the directional feature. Languages such as English and Malay select both directional and locational features. However, languages like Chinese and Japanese have only a locational feature but no directional feature.

Based on these proposals, this study presupposes that L1 Malaysian adult Chinese and Malay speakers will have no difficulty in acquiring English locational prepositions because this feature is instantiated in the learners' first languages. On the other hand, Malaysian adult L1 Chinese speakers whose L1 does not have directional prepositions due to the lack of the parameterized functional feature may develop a different grammatical knowledge about English directional prepositions and ambiguous prepositions (with features for [loc] and [dir]) from that of native speakers'. It is postulated that such an outcome is due to the Chinese speakers' failure to reset the parametric options that have been fixed in their L1, that is Chinese. Consequently, Malaysian adult L1 Chinese speakers would tend to have persistent difficulty in the acquisition of English directional prepositions due to the absence of the parameterized directional functional feature in their L1.

Similarly, it is hypothesized that adult L1 Malay speakers who acquire English as an L2 should have no difficulty recognizing the locational reading of the English locational prepositions. At the same time, due to the presence of the parameterized directional functional feature in the Malay language, they should also be able to recognise and judge appropriately the use of directional prepositions and ambiguous prepositions with directional reading in the test stimuli.

Linguistic Assumptions

The structures of the prepositional phrase (PP) in the three languages are discussed in this section. Before proceeding with the analysis of specific PPs in these languages, it is useful to note that according to Talmy (1985, in Thomas 2001: 88), languages can be divided into two groups in relation to directional interpretation. According to Talmy, they are the verb-framed languages and the satellite-framed languages. Verb-framing and satellite-framing are typological descriptions of how verb phrases in different languages describe the *manner* of motion and the *direction* of motion. Manner of motion refers to a type of distinct motion described by a particular verb, for example *running*, *tumbling*, *sliding*, *walking* and *crawling*. Path of motion refers to the direction of the movement, for example, movement into, out of and across. Verbs cannot encode BOTH manner and path. This seems to be some kind of universal restriction. English circumvents this constraint by encoding path in satellite phrases and manner in verbs. Romance circumvents it by encoding path in the verb and manner in satellite phrases (like participles) so you get the contrast:

- (1) The bottle floated into the cave. (English)
- (2) The bottle entered the cave floating. (Romance)

Thus, in verb-framed languages, it is said that a verb controls a directional interpretation whereas in satellite-framed languages, it is the preposition that expresses the directional movement. Chinese is perceived as one of the verb-framed languages because its directional interpretation is controlled by a verb. Conversely, English and Malay are two of the satellite-framed languages as the directional interpretation in both of the languages is expressed by a preposition.

English

The English PP comprises a preposition, followed by a noun phrase (P NP). The surface structure or realizations for locational prepositions are *in*, *on*, *at*. There is an underlying locational feature [loc] in these prepositions. The surface structure for directional prepositions are *into*, *onto* and *to*. These prepositions have the [dir] feature. In addition to these two groups of prepositions, there is a third group. These are the ambiguous prepositions.

The surface structure for ambiguous prepositions include the prepositions *under*, *behind* and *in front of*. Underlyingly, when the locational reading is to be expressed, the locational feature [loc] is checked and the locational reading of the preposition is realized. When the directional reading is to be expressed, the directional feature [dir] is checked and the directional reading is realized. However, no matter which feature is checked, the surface structure is invariant. For example, in the sentence *John swam under the bridge*, both the locational (i.e. directly beneath the bridge) and directional readings (i.e. swimming from one end to other end beneath the bridge) are possible here.

Chinese

According to Li (1990: 4), the Chinese basic word order is SVO and it is prepositional. In a PP, the preposition precedes its NP (P NP). However, there are times when words such as *shang* 'on', *xia* 'under', and *li* 'in' are found in a sentence and they are analyzed as the localizers that convey nominal expressions and not prepositions. They normally follow a Noun (Noun + Localizer) in a Noun Phrase (NP). There is evidence that the distribution of Chinese NP + Localizer expressions are actually the same as NPs (Li, 1990: 4).

The Chinese PP thus comprises a preposition followed by a noun phrase and a localizer (P NP + Localizer). The surface structure of the locational preposition is *zai* (equivalent to *at*). There is an underlying locational feature [loc]. The following is an example of a Chinese PP.

- (3) *Ta zai* *ban gong shi* *li*
 He at [loc] office in (localizer)
 “He is in the office.”

However, the directional reading in Chinese is not expressed by a P but is controlled by a verb (Li 1990: 59). As such there is no underlying [dir] feature in Chinese. The directional reading is expressed through a verb. The V that expresses directional reading is actually a compound V-V (co-verb), for example, *zhou-jing* ‘walk-enter’.

- (4) *Ta zhou-jing* *ban gong shi* *li*
 He walk-enter office in (localizer)
 “He enters/entered the office”

Malay

The Malay PP consists of a preposition followed by a localizer and a noun phrase (P Localizer+NP) (Nik Safiah Karim et al. 1993: 252-253). The surface structure for the locational preposition is *di* which has an underlying locational feature [loc]. The following is an example of a PP with a locational preposition.

- (5) *Di* *dalam* *bilik*
 at [loc] localizer + room
 “in the room”

The surface structure for the directional preposition is *ke* (Nik Safiah Karim et al. 1993: 253-254). This would have an underlying [dir] functional feature.

- (6) *Ke* *dalam* *bilik*
 to [dir] localizer + room
 “into the room”

Comparison

As stated earlier, languages are divided into verb-framed and satellite-framed languages in relation to directional interpretation. A verb-framed language does not have a directional functional feature because the directional interpretation is controlled by a verb. Therefore, due to the lack of the parameterized functional feature [dir] in the Chinese language, it can be categorized as a verb-framed language. Another language that can be subsumed under this group is Japanese. According to Inagaki (2002: 3-27), the directional interpretation in Japanese is expressed through directed motion verbs like *go* which appears with a phrase expressing a goal. This means that the controller of the directional interpretation is a directed motion verb in this language.

The following is an example of a directional expression in Chinese:

- (7) *John pao jing le wu zhi li*
John run-enter ASP² house inside
“John went into/entered the house running.”

Sentence (7) above illustrates that in the Chinese language, the directional interpretation is controlled by the verb and in this case, the verb *pao jing* ‘enter running’ serves as the directed motion verb to show directionality with the NP + Localizer phrase *wu zhi+ li* (inside the house).

The surface structure of Malay is similar to that of the Chinese language but English is neither similar to Malay nor Chinese. This information is summarized below:

Malay = Chinese (or at least similar)

English ≠ Malay and Chinese

Example:

- (8) English: *under the bed* (P+Localizer NP)
Chinese: *zai chuang xia*
at bed under (P NP+Localizer)
Malay: *di bawah katil*
at under bed (P Localizer+NP)

The underlying representation of English is like that of Malay but it is not like Chinese. The information is summarized as follows:

English = Malay

English ≠ Chinese

Example:

- (9) English: *AT* [Loc] and *TO* [Dir]
Malay: *DI* [Loc] and *KE* [Dir]
Chinese: *ZAI* (AT) [Loc]

Our discussion so far can thus be summarised in the table below.

² ASP = Aspectual morpheme

Table 1: A comparison of English, Malay and Chinese Locational and Directional Expressions

Language	Type of language	Locational expression	Directional expression
English	satellite-framed	V [P NP] <i>sat on the table</i>	V [P NP] <i>ran into the room</i>
Malay	satellite-framed	V [(P) localizer NP] <i>duduk di atas meja</i>	V [P localizer NP] <i>lari ke dalam bilik</i>
Chinese	verb-framed	V [(V-loc) NP localizer] <i>zuo zai zhuozi shangmian</i>	V-V [NP localizer] <i>pao-jing fangzi limian</i>

The Study

Research Questions

The study attempted to address the following questions: (a) whether adult L1 Malay and L1 Chinese speakers of L2 English can acquire the surface structure of locational prepositions (*at, in, on*), directional prepositions (*to, into, onto*) and ambiguous prepositions (*under, behind, in front of*), (b) the extent to which L1 Malay and L1 Chinese speakers of L2 English are able to recognize the directional reading of the ambiguous English prepositions that have the same physical manifestation (surface form) as the locational reading, and (c) whether L1 Malay and L1 Chinese speakers of L2 English have a different underlying representation from that of native speakers' (English) in terms of the prepositional readings (locational and directional).

Respondents

Altogether 103 L1 Malay and 104 L1 Chinese speakers of L2 English from two faculties in a Malaysian university participated in the study. The average age of these L2 learners was 22 years. All of them have had at least 13 years of tutored exposure to English as an L2. The Chinese speakers are selected based on their first exposure to the Malay language. These speakers were exposed to Malay at the age of seven in vernacular Chinese schools and even then, it was only 150 minutes per week. Thus the argument that the Chinese speakers might be influenced by the Malay language in their judgement of the English prepositional structures is not valid here.

Instrument

There were four components in the instrument. The first component comprised items which elicited information on the respondents' background, including the languages they speak. The next component was a standardised proficiency test, the written multiple choice grammar section of the Oxford Placement Test (Allan, 1992) which tests a range of syntactic properties. Originally, this component was administered to select those adult respondents who were in the upper intermediate (70 – 79%) or advanced level of proficiency (above 80%). We intended to select these learners because the FFFH tries to account for persistent optionality at higher levels of proficiency. However, we found that majority of the adult learners did not obtain scores within these ranges. In fact, about 50% of them were in the intermediate range (below 70%). This is the general picture of both the groups, L1 Chinese and L1 Malay speaker of L2 English.³

These two components were administered a few days before the main components of the instrument, that is the grammaticality judgment test (GJT) and the directionality judgment test (DJT).

Grammaticality Judgement Test (GJT)

Before conducting the study proper, the researcher conducted a pilot study using the Demographic Profile of Respondent, the Grammaticality Judgment Task and the Directionality Judgment Task which were meant to be used for the actual study. The pilot study was carried out with 5 English native speakers. The 5 English natives were expatriates working in Malaysia and their ages were between 28 and 40 years. There 24 items for the GJT and 20 items for the DJT. In the GJT, the number of items for each section was three (four in the actual study). The DJT used in the actual study was the same as that used in the pilot. However, pictures were included in the actual study with the L2 learners.

The results for the pilot study showed that 4 out of the 5 English native speakers judged all the grammatical sentences as grammatical and the ungrammatical sentences as ungrammatical for the Grammaticality Judgment Task. These 4 also judged the locational expressions as locational, and the directional expressions as directional. Both readings, that is locational and directional, were possible for the ambiguous sentences for these 4 English natives. They also judged the ambiguous sentences as both locational and directional expressions were possible for the Directionality Judgment Task. The remaining native speaker judged all of the grammatical items in the GJT as

³ It was found that the proficiency level of the respondents had no effect on their judgments of the stimuli in the two main components of the instrument.

grammatical and judged about 30% of the ungrammatical items as grammatical. For the DJT, this native speaker judged all the directional expressions as directional, and for locational items with *on* and *in*, these were judged as directional as well. For the ambiguous items, his judgements were very definite – either locational only or directional only. The pilot study results indicate that generally English natives are definite in their judgements of the use locational, directional and ambiguous prepositions in utterances.

These results support those that were obtained in a study by Inagaki (2002) (see Appendix I for results). In the study, the control group of 5 English speakers and Japanese respondents were asked to judge items with ambiguous prepositions as either ‘locational only’, ‘directional only’, and ‘either locational and directional’. The mean responses for the items on ambiguous prepositions in English were calculated. The Japanese speakers chose ‘locational only’ in most cases (70.24%), whereas English speakers chose ‘either locational or directional’ in most cases (66.97%). This was confirmed by t-tests, which showed that Japanese speakers chose ‘locational only’ significantly more often than English speakers ($t(56) = 12.60, p = 0.001$) and that English speakers chose ‘either locational or directional’ significantly more often than Japanese speakers ($t(56) = 8.38, p = 0.001$).

In this study, there were altogether 40 items for this test, out of which 20 were grammatical stimuli and 20 ungrammatical stimuli. The items included were:

a. Grammatical stimuli:

- 4 with locational prepositions
- 4 with directional prepositions
- 8 with ambiguous prepositions (4 with manner motion verbs and 4 with directed motion verbs)
- 4 distractors

b. Ungrammatical stimuli: (See Appendix 2 for sample sentences).

- 4 with locational prepositions
- 4 with directional prepositions
- 8 with ambiguous prepositions (4 with manner motion verbs and 4 with directed motion verbs)
- 4 distractors

The test sentences were presented bi-modally, that is simultaneously read and heard. The delivery was paced with a nine-second interval between consecutive test items. Taping the items helps the respondents to understand the items better in terms of intonation, stress and rhythm. In addition, the taping of the items controlled for time for each item. Moreover there is evidence to suggest that respondents’ sensitivity to principles of UG found in the syntax of target sentences on a GJT in ‘both the aural and visual modality is more compelling than just in the visual one’ (Murphy, 1997: 58). As far as possible, the items were also controlled for length and vocabulary difficulty. The

bimodal and paced GJT thus made it more reliable than one that relies only on a single mode and which is not paced.

The respondents were instructed to follow the pace of the tape while doing the test. When they were sure that a sentence was definitely acceptable in English, they wrote the number '1' in the box provided beside each item. If they were sure that the item was definitely an unacceptable English construction, then they wrote the number '4' in the box. If they were in doubt, that is if they felt or thought that the item was probably acceptable, they would write the number '2' and if the item was probably unacceptable, the number '3' was used. The duration of the test was thirty minutes. The following are examples of the practice items with the scale:

Acceptable	1
Probably Acceptable	2
Probably Unacceptable	3
Unacceptable	4
1. John is resting under the tree.	[]
2. I to this matter very not happy.	[]
3. Cheryl is very beautiful.	[]

The respondents' judgments were scored on a scale of 1 for a definitely correct and probably correct for the grammatical stimuli whereas 0 was used for a definitely incorrect and probably incorrect judgment. Rejection (probably unacceptable and unacceptable) of an ungrammatical stimulus was given a score of 1 and acceptance (probably acceptable and acceptable) of the same was given a score of 0. The frequency of correct judgements of acceptability for each set of related items was calculated.

Directionality Judgement Test (DJT)

This test was adapted from Inagaki (2002). There were altogether 20 items for this test. They were:

- a. 6 items with locational prepositions
- b. 6 with directional prepositions and
- c. 8 with ambiguous prepositions (with manner of motion verbs)

These test sentences were also presented bi-modally. The delivery was paced with a twelve-second interval between consecutive items. The longer interval was necessary as the items were accompanied by pictures. The items were also controlled for length and vocabulary difficulty. The respondents were shown two pictures, one with locational reading and another indicating directional reading. The pictures were projected onto a big screen. While listening to the item being played on a tape, they had to decide whether the preposition in the stimulus had a locational reading only (A Picture 1 only), a directional reading only (B Picture 2 only) or whether it could have both the locational and directional readings (C Either Picture 1 or Picture 2). (Please refer to Appendix 2 for sample stimuli.)

Then, they wrote either the letter A, B or C in the box provided beside each item. The following are examples of the practice items with the scale:

The following are examples and the scale.

Examples

A Picture 1 Only

B Picture 2 Only

C Either Picture 1 or Picture 2

1. Paul walked behind the wall. []
2. The butterfly flew into the house. []

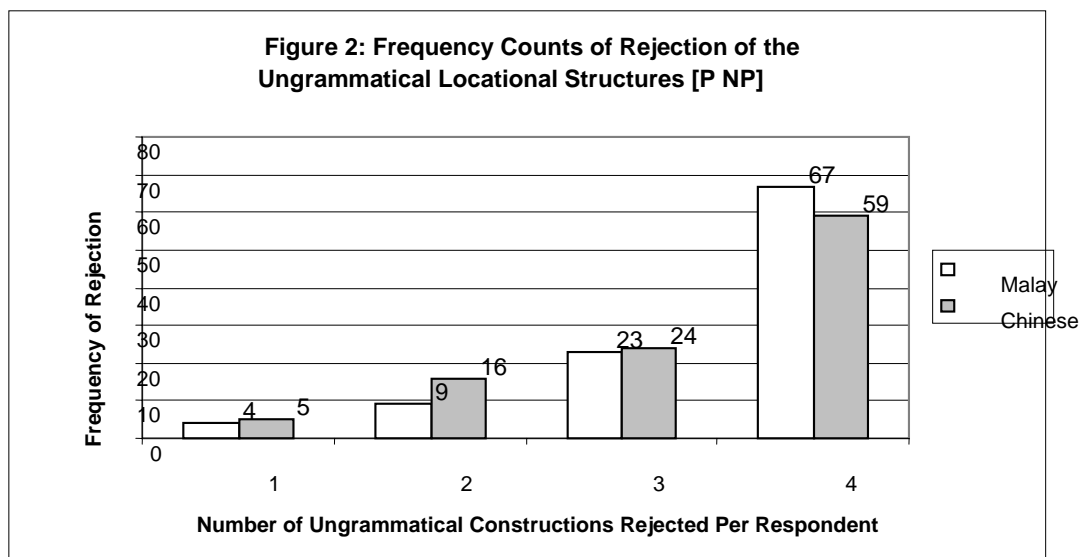
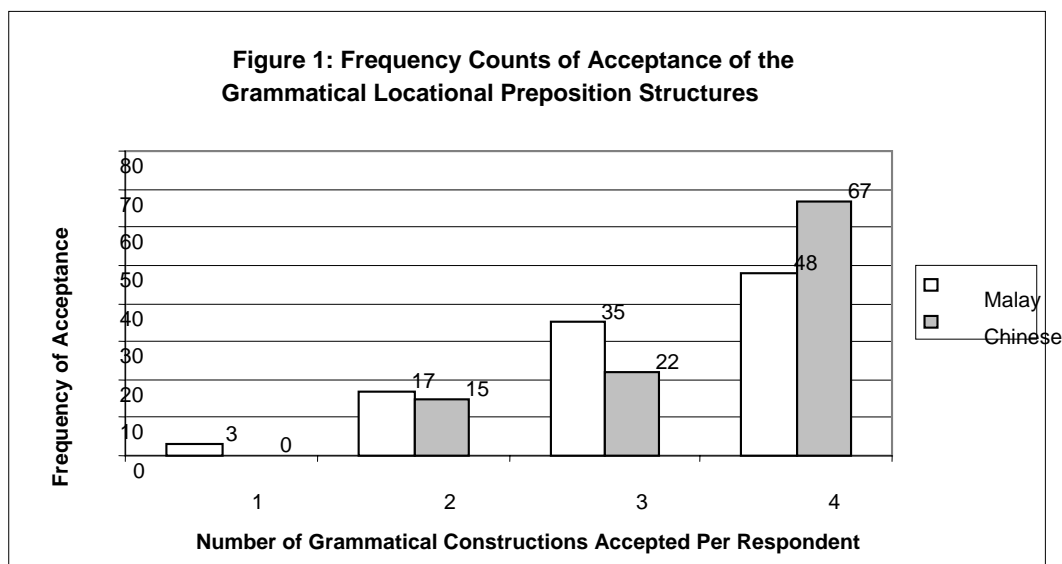
Results

The Grammaticality Judgement Test

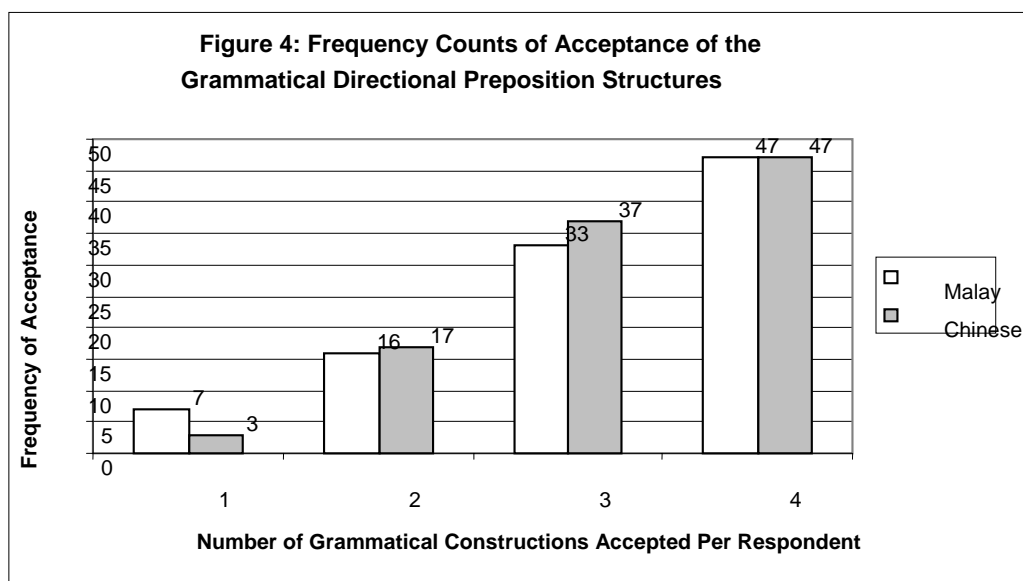
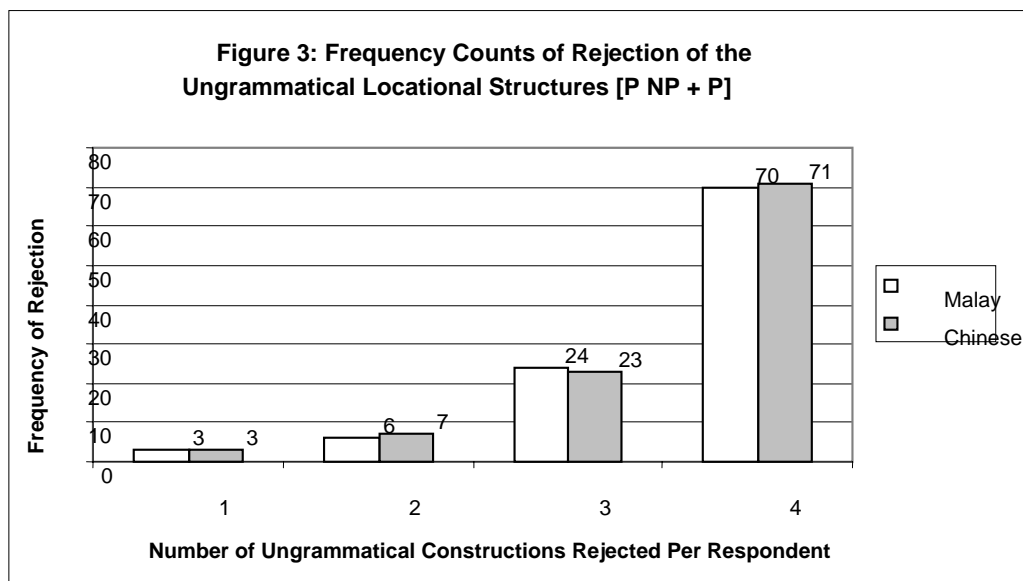
The data in figure 1 shows that 67 out of the 104 L1 Chinese speakers and 48 out of the 103 L1 Malay speakers were able to judge all four grammatical locational stimuli correctly⁴. Twenty-two Chinese speakers and 35 Malay speakers were able to judge three out of four grammatical locational stimuli appropriately. In figure 2, it can be seen that over half of the Chinese (59) and approximately two thirds of the Malay (67) were able to reject all the ungrammatical P NP locational stimuli. Similarly, most of them

⁴ All the results are also summarized in tables in Appendix 3.

also rejected the ungrammatical P NP+P constructions⁵ (71 Chinese and 70 Malays) (figure 3). Overall, the results suggest that the majority of the L1 Chinese and L1 Malay learners of L2 English were able to recognize and judge the grammatical and ungrammatical constructions with English locational prepositions appropriately. In other words they were able to acquire the surface structure of these prepositions (*at, in, on*).



⁵ E.g. *On the table up*.

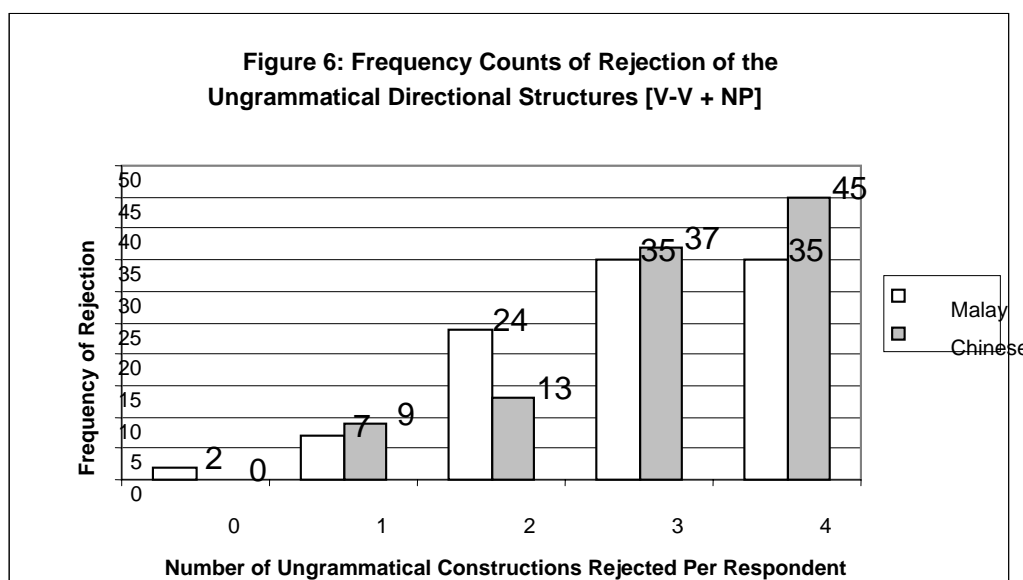
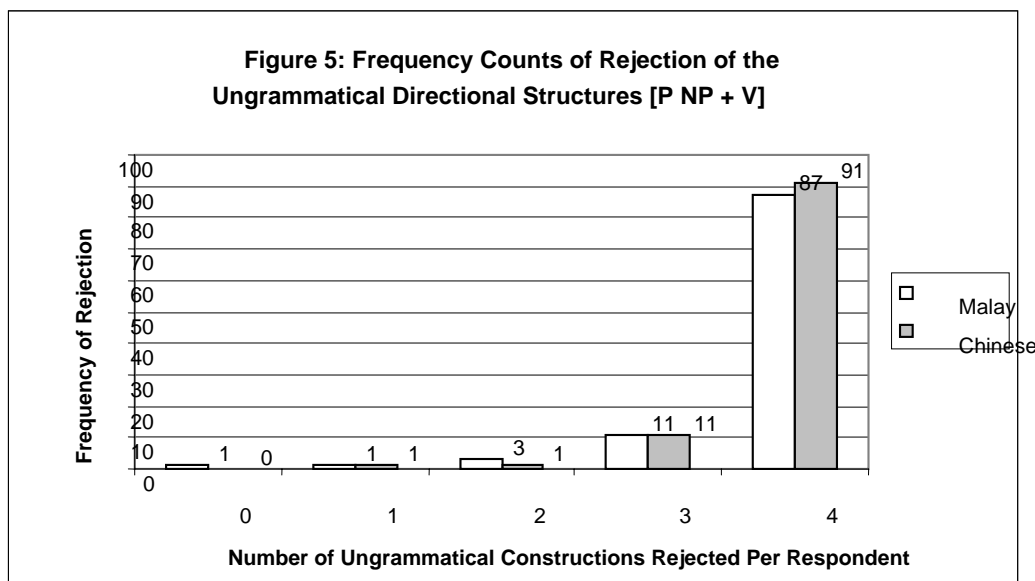


In addition, the majority of the L1 Chinese and L1 Malay speakers were also able to recognize and judge the grammatical constructions of the English directional prepositions appropriately (figure 4). In total 47 Chinese and 47 Malay speakers judged four out of four grammatical directional stimuli appropriately. In addition, 37 Chinese and 33 Malay speakers were able to judge three out of the four stimuli correctly. This pattern indicates that they have acquired the surface structure of directional prepositions (*into*, *onto*, *in front of*).

With regard to the ungrammatical (P NP+V) directional stimuli⁶, 91 Chinese and 87 Malay speakers were able to judge them as ungrammatical (figure 5). In the ungrammatical V-V+NP stimuli 35 Chinese and 45 Malay speakers judged four out of four items appropriately and 35 Chinese and 37 Malay speakers were able to judge three out of four of the items correctly (figure 6). Figure 6 shows that both Malay and Chinese respondents were able to reject ungrammatical directional PP constructions of the [V-V + NP] type. This finding for the Malay respondents is not surprising since their L1 lacks these constructions. What is worth noting is that the Chinese respondents were generally able to reject the ungrammatical [V-V + NP] English constructions even though their L1 makes frequent use of the [V-V + NP] pattern. This could be due to the fact that the Chinese respondents already have the [V-V + NP] pattern to express directionality in the L1. This similarity to the V + NP structure (e.g. *enter the room*) in fact, aids the respondents in recognising that the ungrammatical [V-V + NP] pattern as ungrammatical. It could also be the exposure that these Chinese respondents have had in recognising that the Chinese [V-V + NP] is equivalent to the English [V + NP]. Knowledge of the difference between English auxiliary verbs and lexical main verbs (lexical versus functional knowledge) probably helps respondents in recognising that the V-V category is absent in the target language.

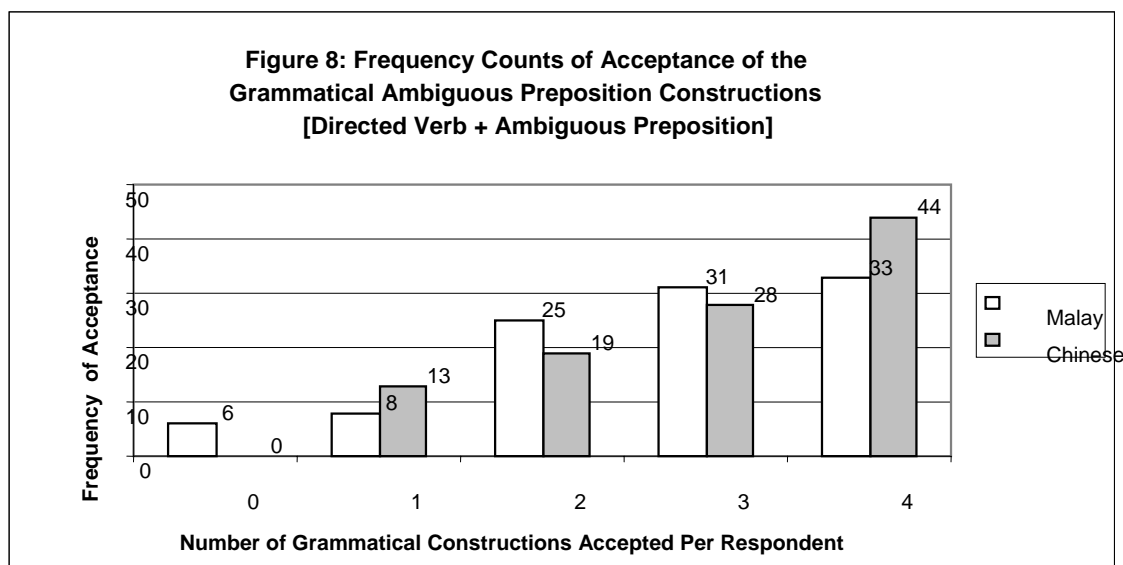
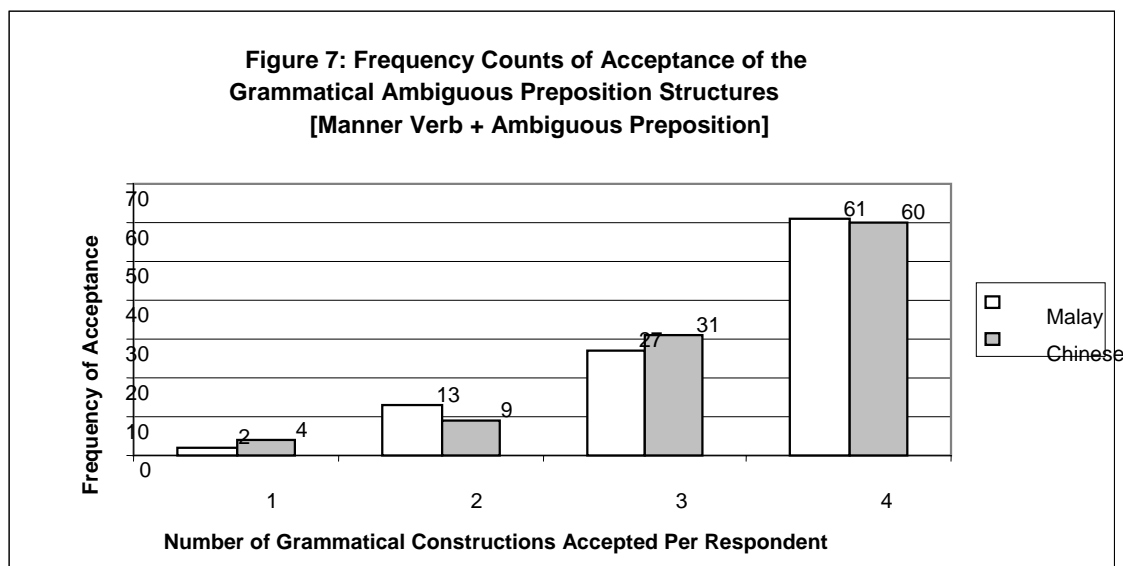
In other words, the results indicate that the learners were able to reject the ungrammatical directional constructions which were equivalent to their L1 constructions.

⁶ Example: *In the room go.*



The results in figures 7 and 8 indicate that both the L1 Malay and L1 Chinese learners of L2 English were more determinate in their recognition and judgement of ambiguous prepositions with manner motion verbs than with directed motion verbs. In the former set of stimuli, 60 Chinese and 61 Malay speakers judged all four items correctly while in the latter set, only 44 Chinese and 33 Malay speakers accepted all four grammatical items and 28 Chinese and 31 Malay accepted three out of four grammatical items. Although it might be assumed that the Malay respondents have acquired the underlying directional feature of English prepositions due to the presence of the same feature in Malay, the same cannot be said of the Chinese speakers under the assumption that any

functional feature not instantiated in the L1 will not be available to the L2 learner after the onset of the critical period (according to the Failed Functional Features Hypothesis).



One sample t-tests were performed on the Chinese and Malay GJT data. In the case of the Chinese data, the expected mean range is between 3 and 4 (difference of 1), and the means for 7 out of 8 items are below the value of 1 and the negative means are less than the expected value. The other one item is slightly more than 1 (1.01). Therefore, the results showed that the Chinese respondents have acquired the surface structure of the 8 constructions.

In the case of the Malay GJT data, the expected mean range is between 3 and 4 (difference of 1). The means for 6 out of 8 items are below 1 and the negative means are less than the expected value, while the values for the other two items are slightly less than negative 1 (-1.25, -1.09). Therefore, the results showed that the Malay respondents have acquired the surface structure of the 8 constructions.

These data indicate that the Chinese performed slightly better than the Malays for the surface structure. In this, the surface structure of the Malay is different from that of English and Chinese.

In order to confirm the results from the GJT, we now look at the results obtained from the DJT. In this respect, statistical analyses show that the proficiency levels of respondents did not affect their performance in the DJT. Pearson correlations between the respondents' proficiency level (based on the OPT results) and their judgements on the DJT were very small. The following is a summary of the results:

Malay respondents (Pearson Correlations):

a) OPT and DJT Locational items

Result: Relationship is very small (.419) below the value of 0.49.⁷

b) OPT and DJT Directional items

Result: Relationship is very small (.393) below the value of 0.49.

OPT and DJT Ambiguous items

Result: Relationship is very small (.389) below the value of 0.49.

Chinese respondents (Pearson Correlations):

a) OPT and DJT Locational items

Result: Relationship is very small (.216) below the value of 0.29.

OPT and DJT Directional items

Result: Relationship is very small (.087) below the value of 0.29.

OPT and DJT Ambiguous items

Result: Relationship is very small (.123) below the value of 0.29.

Paired sample t-tests were carried out with the DJT data collected from the Chinese and Malay respondents. (See details in Appendix 3):

⁷ According to Guilford's rule of thumb, any r value between 0 and 0.29 constitutes little or negligible relationship (0.3 and 0.49, low relationship, 0.5 and 0.69, moderate or marked relationship) (Hinkle et al., 1981: 85).

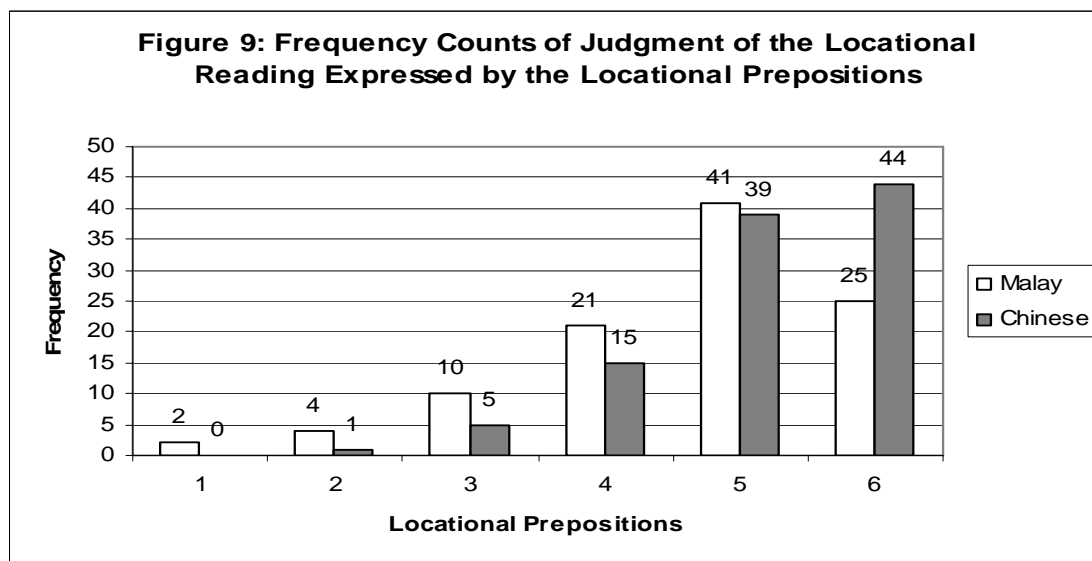
The results indicate that the respondents' judgements for the three types of structures, that is for each pair of items (Loc/Dir, Dir/Amb, Loc/Amb) are not equal. The p values for each pair is significant (less than the value of 0.05 and the t value in each case is greater than the degree of freedom 1.98 for $p=0.05$). The accuracy order in terms of their judgments is as follows: Locational > Directional > Ambiguous.

Similarly, the results for each pair of items (Loc/Dir, Dir/Amb, Loc/Amb) are significant as the p values in each case is less than the significant level of 0.05 ($p=0.000$). The t value in each case is greater than the t-value (degree of freedom 1.98 for $p=0.05$). These values also show that the Malay respondents' judgements for the three types of structure are not the same. The accuracy order in terms of their judgements is as follows: Locational > Directional > Ambiguous.

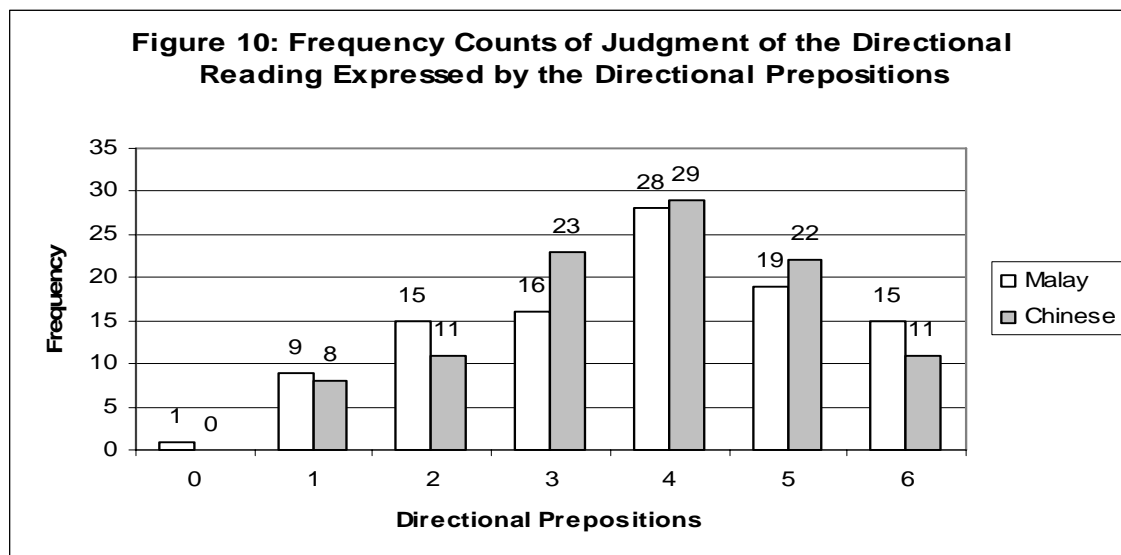
In the case of the underlying feature, the Malay respondents seemed to perform better than the Chinese respondents because the t-values (of differences) between two means for all the three pairs of items for the Chinese are larger than the same values for the Malay respondents. In this respect, the underlying representation of the Chinese respondents are unlike the English natives' but the Malay respondents' underlying representation is more like that of the English natives.

The Directionality Judgement Test

In the DJT, the Malay speakers seemed less determinate than the Chinese speakers in their judgement of locational prepositions although overall the results confirm those obtained from the GJT (figure 9). The results summarised in figure 9 show that 83 Chinese and 66 Malay speakers were able to judge at least five out of six of the stimuli appropriately.



The results obtained for the stimuli with directional prepositions show that both sets of learners performed similarly, that is they were definitely less determinate in their judgement (figure 10) on the directional stimuli than their judgement on the locational stimuli. Most of them managed to judge only between three and five of the six items appropriately, with most centring on four.

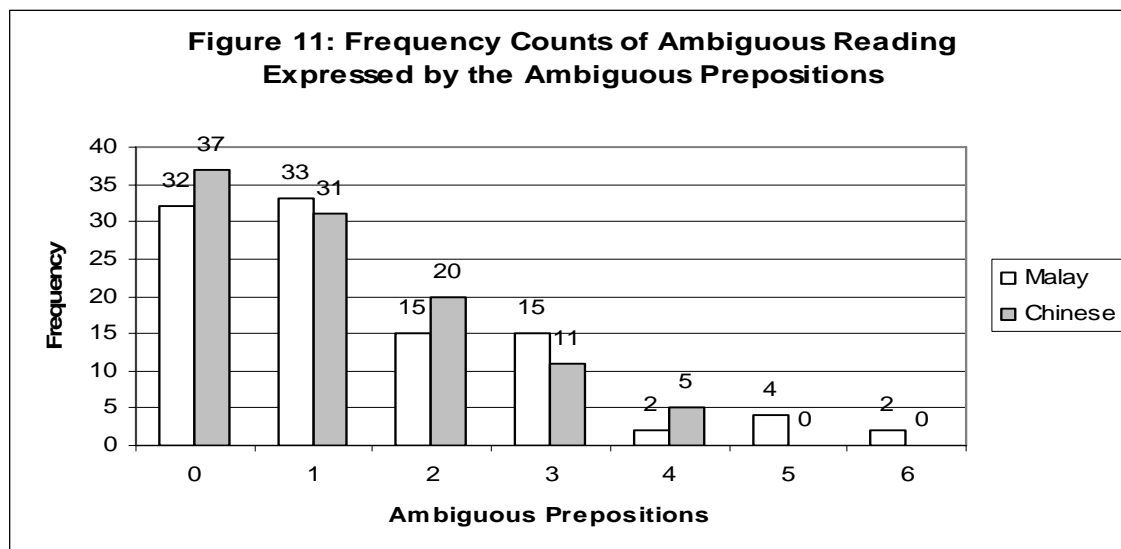


With regard to the ambiguous prepositions, the two groups of learners also displayed a similar pattern in their judgement (figure 11). The majority of them either did not judge them correctly at all (37 Chinese and 32 Malays) or managed to judge one item appropriately (31 Chinese and 33 Malays). The results also indicate that none of the respondents were able to judge all the eight items correctly. Only two Malay speakers judged six items correctly. A closer analysis of responses to individual items revealed that most of the adult L1 Chinese learners judged the ambiguous prepositions to be locational prepositions (*under, behind, in front of*) expressing locational reading only.

Respondents appear to have only a partial knowledge of the use of these ambiguous morphemes. Since the respondents were consistently judging the ambiguous prepositions as locational, it is almost certain they do not know that the directional reading is possible for the ambiguous prepositions. The control groups mentioned earlier did not perform likewise on this task, that is a locational interpretation tends to dominate over a directional interpretation with these ambiguous prepositions.

For the adult L1 Malay speakers, hypothetically they should be able to recognize the locational reading of the English locational prepositions, the directional reading of the English directional prepositions and the locational and directional readings of the English ambiguous prepositions due to the presence of the two features, that is locational and directional functional features in the Malay language. The findings here suggest the availability of similar patterns in Malay did not enhance L2 acquisition of English directional prepositions. This could partly be because Malay respondents are

accustomed to the use of localizers to reinforce directional readings. However, the results showed that the performance of the L1 Malay learners was rather similar to that displayed by the L1 Chinese learners. The results are discussed in the next section.



Discussion

From the results obtained from the GJT, it seems that both sets of speakers have acquired the surface structure of English locational and directional prepositions rather well although the results indicate the latter to a lesser extent. When it came to the ambiguous prepositions, they seemed to be a lot less intuitive with regard to the directional reading. Their judgements in the DJT also indicate that the respondents had very little difficulty with the locational reading of the ambiguous prepositions as predicted: [loc] is a universal feature (page 4).

The L1 Chinese speakers were able to acquire the locational prepositions because of the presence of a [loc] feature in their L1 inventory. However, they were less determinate in their use of directional prepositions because of the absence of [dir] feature in their L1 inventory. Their inability to access the underlying directional reading of English prepositions is confirmed when the learners were unable to recognize the directional reading of the ambiguous prepositions that have no overt manifestation of the [dir] feature. With the presence of a directed motion verb like *go* or *enter*, learners might be able to recognize the directional reading of the ambiguous prepositions (because in Chinese, the directional reading is controlled by co-verbs). However, the results on page 15 suggest that performed better on the ambiguous manner motion verbs. We suggest that in the GJT, the judgements were on the grammatical of

the whole construction and therefore, the type of verb in an item does not influence the learners' judgements. Although the results in figure 4 suggest that they performed better on ambiguous manner motion verbs than on directed motion verbs, the difference is small (0.68). In this respect, we cannot say much about it. The GJT data cannot reveal any difference as both sets are grammatical stimuli and respondents judged the syntactic structure rather than the semantics of them. Only the DJT data can tell us about the this difference if any. The learners seemed to have acquired the surface structure of the directional prepositions. However, this does not mean that they have acquired the underlying directional feature.

The L1 Malay speakers were able to acquire the locational preposition because of the presence of a [loc] feature in their L1 inventory. They were also able to acquire the directional prepositions due to the presence of a [dir] feature in their L1 inventory too. However, L1 Malay learners seemed less determinate in their ability to recognize the directional reading of the ambiguous prepositions due to differences in the surface structures of the two languages in expressing directionality - in Malay, the [dir] feature is always overtly manifested. In English, this is not always the case. The three directional prepositions in English are *to*, *into*, and *onto*. *To* is inherently directional while *into* and *onto* have overt reflexes to indicate direction. On the other hand, ambiguous forms like *behind* and *under* have no overt manifestation for directionality.

Thus the data indicate that in the acquisition of an L2, learners are not only influenced by the absence of particular parameterized functional features in their L1 which are present in the target L2 (see data for L1 Chinese speakers in figure 10) but also differences in the surface structures between the two languages (see examples 6 and 7, pages 13 & 14, and data for both L1 Chinese and Malay speakers in figures 4, 5, 6, 7, 8, 10 and 11).

In the former, the absence the [dir] feature in Chinese does seem to affect the acquisition of English directional and ambiguous prepositions by the L1 Chinese speakers. In the latter, the absence of ambiguous prepositions (surface forms) due to Malay having either/or feature for location and direction underlying prepositions could account for the non-native-like performance of the Malays. The results support the Failed Functional Features Hypothesis. At the same time, these results also tell us more in that there seems to be dissociation in the way the respondents have acquired the L2. On the one hand, it appears that the Chinese speakers were able to acquire the surface morphology but not the functional feature associated with the directional prepositions and on the other, the Malay speakers who have the directional functional feature in their inventory were not able to acquire the surface morphology of the ambiguous prepositions.

The tentative conclusion that we can draw concurs with Lardiere's claim (1998a, b) that the development of the two systems (morphophonological paradigms and their associated functional categories) are separate and an L2 learner is able to acquire the features associated with functional categories but not necessarily the surface morphology associated with them. We add that the reverse seems to be true too (see also Wong, 1999, 2002; Wong and Hawkins, 2000). In other words, the acquisition of

the morphophonological realisations of the functional module and the acquisition of the associated feature specifications of the functional module are independent and separate systems. The implication that can be drawn here is that not only properties associated with morphophonology but also abstract functional features may result in persistent difficulty in SLA.

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Appendix 1

Results from Inagaki's study (2001):

Mean responses of 'locational only', 'directional only', and 'either locational and directional' on items with ambiguous prepositions by Japanese and English speakers in percentages

	Locational	Directional	Locational/Directional
Japanese	70.24 (14.19)	8.09 (9.58)	21.67 (13.74)
English	18.54 (16.84)	14.49 (26.14)	66.97 (27.19)

Appendix 2

Examples of ungrammatical stimuli (GJT)

I Locational Only

(NP P) which is equivalent to Chinese (NP+Localizer) structure.

Item 17

*Chair under is clean.

(P NP P) which is equivalent to Chinese (P NP+Localizer) structure.

Item 21

*He cannot at home in work.

II Directional Only

(P NP V) which is equivalent to Chinese (P NP+V) structure.

Item 25

*We to school go.

(VP NP) which is equivalent to Chinese postverbal PP structure.

Item 29

*They come arrive my house.

DJT

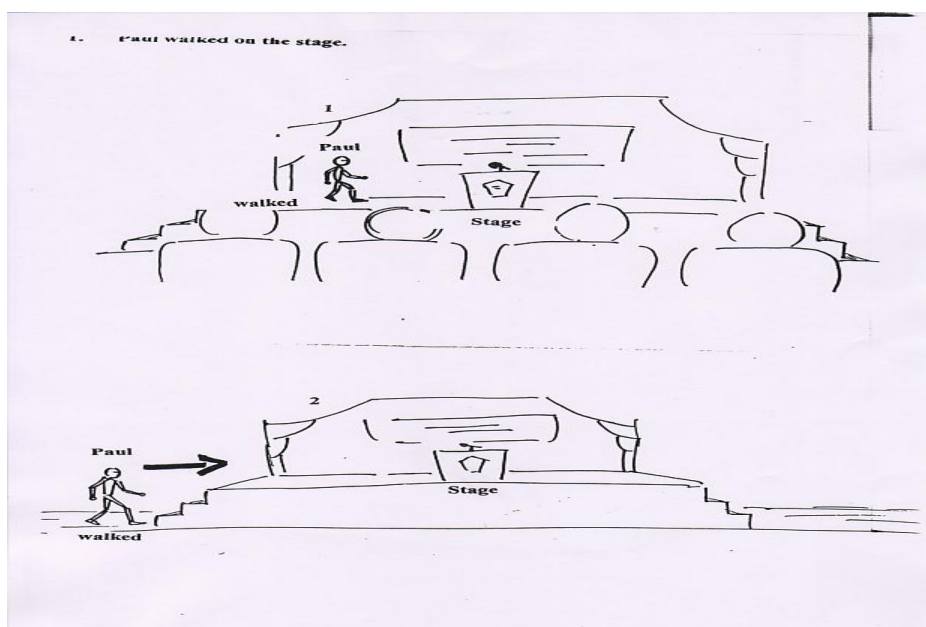
Locational Reading Stimuli

Paul walked on the stage.

A Picture 1 only

B Picture 2 only

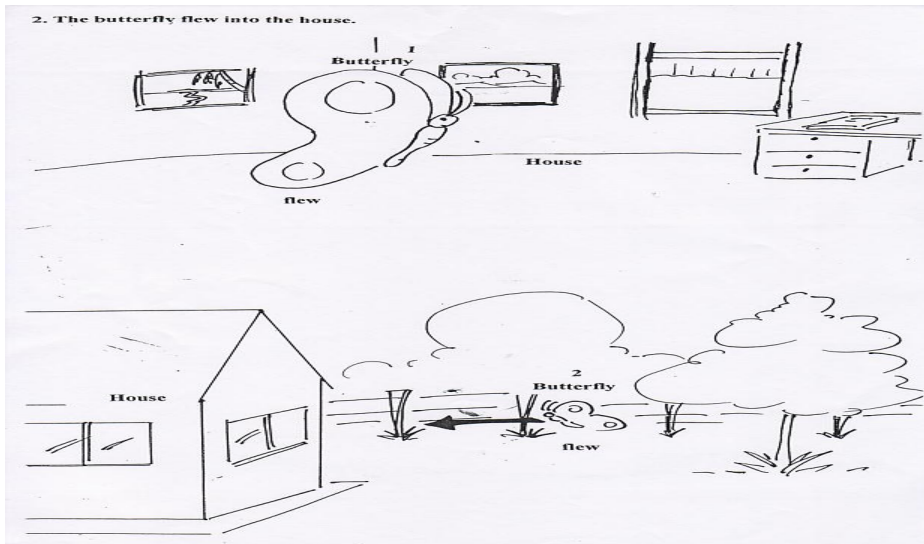
C Either Picture 1 or Picture 2



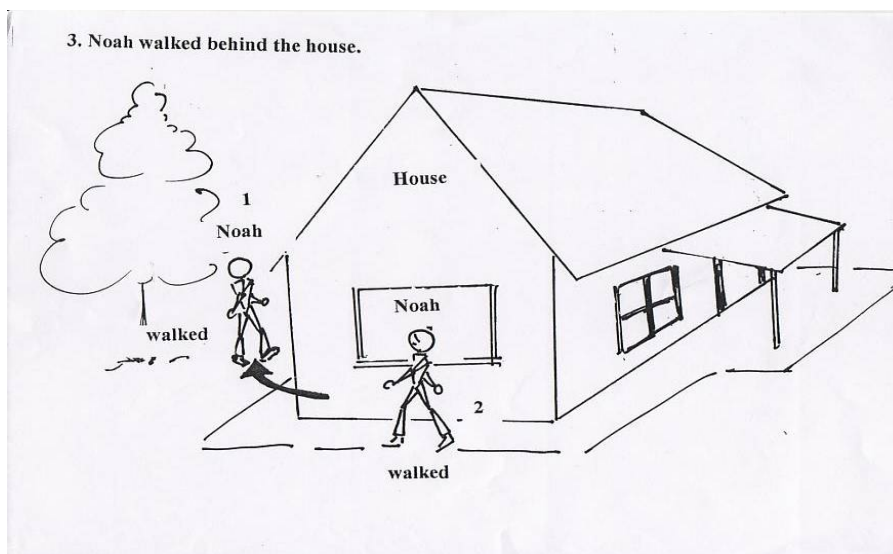
Directional Reading Stimuli

The butterfly flew into the house.

A Picture 1 only B Picture 2 only C Either Picture 1 or Picture 2



A Picture 1 only B Picture 2 only C Either Picture 1 or Picture 2



DJT Paired Sample T-Test (Chinese)

		Paired Differences Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference	t	df	Sig. (2-tailed)
					Lower Upper			
Pair 1	DJT Locational Only - DJT Directional Only	1.39	1.491	.146	1.10 1.68	9.539	103	.000
Pair 2	DJT Directional Only - DJT Ambiguous	2.57	2.066	.203	2.17 2.97	12.674	103	.000
Pair 3	DJT Locational Only - DJT Ambiguous	3.96	1.648	.162	3.64 4.28	24.510	103	.000

DJT Paired Sample T-Test (Malay)

		Paired Differences Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference	t	df	Sig. (2-tailed)
					Lower Upper			
Pair 1	Malay Locational Only - Malay Directional Only	.92	1.519	.150	.63 1.22	6.162	102	.000
Pair 2	Malay Directional Only - Malay Ambiguous	2.29	2.208	.218	1.86 2.72	10.532	102	.000
Pair 3	Malay Locational Only - Malay Ambiguous	3.21	2.122	.209	2.80 3.63	15.370	102	.000