The Acquisition of English Restrictive and Non-restrictive Relative Clauses by L1 Thai Learners[1]

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ABSTRACT

This study examined the acquisition of English restrictive and non-restrictive relative clauses (RRCs and NRRCs) by L1 Thai learners to test whether the Noun Phrase Accessibility Hierarchy (NPAH) (Keenan & Comrie, 1977) and the Perceptual Difficulty Hypothesis (PDH) (Kuno, 1974), both previously confined to RRC data, would be equally applicable to NRRCs. As the distinction between English RRCs and NRRCs does not rely on the factors upon which the two hypotheses are hinged, it was hypothesized that these hypotheses would be equally applicable to both RC types. However, because NRRCs are less common, the acquisition of NRRCs was hypothesized to diverge from that of RRCs. A sentence interpretation task and a grammaticality judgment task were administered to 40 intermediate and advanced L1 Thai undergraduate students and five native controls. The results showed that RRC and NRRC acquisition trajectories confirmed the NPAH, suggesting the NPAH could also be extended to NRRCs. The PDH, however, seemed to apply to the acquisition of RRCs but not NRRCs, possibly because NNRCs' prototype differs from RRCs'. The results also demonstrated that the learners experienced more difficulty in acquiring NRRCs than RRCs. This asymmetry was attributed to NRRCs' rarity and lesser degree of prototypicality, including transfer of training and the cognitive factor of overgeneralization (Selinker, 1972).

Key Words: *English Acquisition, English Restrictive and Non-restrictive Relative Clauses, Noun Phrase Accessibility Hierarchy, Perceptual Difficulty Hypothesis*

บทคัดย่อ

งานวิจัยนี้ศึกษาการรับคุณานุประโยคแบบเจาะจงและไม่เจาะจงโดยผู้เรียนที่มีภาษาไทยเป็นภาษาแม่เพื่อทดสอบว่าลำดับการเข้าถึงนามวลี (Noun Phrase Accessibility Hierarchy) (Keenan & Comrie, 1977) และสมมติฐานความยากต่อการรับรู้ (Perceptual Difficulty Hypothesis) (Kuno, 1974) อันเป็นสมมติฐานที่ใช้กับข้อมูลคุณานุประโยคแบบเจาะจงเท่านั้นมาโดยตลอด จะสามารถปรับใช้ได้กับคุณานุประโยคแบบไม่เจาะจงได้เช่นเดียวกันหรือไม่ เนื่องจากการจำแนกคุณานุประโยคแบบเจาะจงและไม่เจาะจงในภาษาอังกฤษไม่ได้อาศัยปัจจัยที่สมมติฐานเหล่านี้ใช้เป็นฐาน ผู้วิจัยจึงตั้งสมมติฐานว่าสมมติฐานทั้งสองนี้จะใช้ได้กับคุณานุประโยคทั้งสองประเภท อย่างไรก็ตาม เนื่องด้วยคุณานุประโยคแบบไม่เจาะจงพบได้น้อยกว่า ผู้วิจัยจึงตั้งสมมติฐานด้วยว่าการรับคุณานุประโยคแบบไม่เจาะจงจะแตกต่างจากการรับคุณานุประโยคแบบเจาะจง ผู้วิจัยได้ขอให้ผู้เข้าร่วมวิจัยที่เป็นนิสิตปริญญาตรีที่ความรู้ภาษาอังกฤษระดับกลางและสูงจำนวนรวม 40 คน และเจ้าของภาษา 5 คน ทำแบบทดสอบตีความประโยคและแบบทดสอบตัดสินความถูกต้องทางไวยากรณ์ ผลการวิจัยพบว่าเส้นทางการรับคุณานุ

ประโยคทั้งสองประเภทสอดรับกับลำดับการเข้าถึงนามวลีและบ่งชี้ว่าลำดับการเข้าถึงนามวลีสามารถนำไปปรับใช้กับคุณานุ ประโยคแบบไม่เจาะจงได้ ส่วนสมมติฐานความยากต่อการรับรู้สอดรับกับการรับคุณานุประโยคแบบเจาะจงเท่านั้น แต่ขัดแย้ง กับการรับคุณานุประโยคแบบไม่เจาะจง ทั้งนี้อาจเป็นเพราะคุณานุประโยคแบบไม่เจาะจงมีตัวต้นแบบ (prototype) ที่ต่างจาก คุณานุประโยคแบบเจาะจง อนึ่ง ผลการวิจัยพบว่าผู้เรียนประสบปัญหาในการรับคุณานุประโยคแบบไม่เจาะจงมากกว่าแบบ เจาะจง ความไม่สมมาตรนี้ มีสาเหตุหลักจากการที่คุณานุประโยคแบบไม่เจาะจงมีให้พบเห็นได้น้อยกว่าและความเป็นตัว ต้นแบบของคุณานุประโยคน้อยกว่าคุณานุประโยคแบบเจาะจง อีกทั้งยังมีการถ่ายโอนการจากเรียน และการสรุปเกิน (Selinker, 1972) อันเป็นปัจจัยเชิงปริชานเป็นสาเหตุร่วมด้วย

คำสำคัญ: *การรับภาษาอังกฤษ, คุณานุประโยคแบบเจาะจงและไม่เจาะจง, การเข้าถึงนามวลี,สมมติฐานความยากของการรับรู้*

INTRODUCTION

Relative clauses (RCs) is one of the most vibrantly investigated structures in the English language by researchers who work on second language acquisition (SLA) (e.g., Bardovi-Harlig, 1987; Gass, 1979; J. A. Hawkins, 1999; Izumi, 2003). What has mainly drawn many researchers' attention to RCs' structure is their variety across languages as well as their implications for SLA (Izumi, 2003, p. 286). A number of aspects that contribute to the structure's variety across languages and, thus, complexity have been identified, such as the position of the RC in relation to the head noun or the noun that is being modified, the marking of RC, and the relativization strategies involved (Schachter, 1974, pp. 207-209). Because of these aspects and their potential influence on L2 learners, RCs have been the subject of a considerable amount of research in the realm of SLA.

Related to RCs and SLA are a number of language universals that have been proposed on the acquirability of this structure both for L1 and L2 speakers. The two main theories that have been frequently discussed are the Noun Phrase Accessibiliy Hierarchy (NPAH) by Keenan and Comrie (1977). This is based on typological markedness and posits a universal hierarchy of RC acquisition (with subject RCs being the easiest to acquire and object of comparison RCs being the most difficult). The second theory is the Perceptual Difficulty Hypothesis (PDH) by Kuno (1974), which hypothesizes that center-embedded RCs are more perceptually difficult to process than right- or left- embedded RCs. A number of studies, such as Ioup and Kruse (1977), Gass (1979), and Izumi (2003), have been conducted to test both theories.

However, so far, either explicitly or tacitly, most research on acquisition of English relative clauses has been confined exclusively to restrictive relative clauses (RRCs). Although a few studies have also taken into account data on non-restrictive relative clauses (NRRCs) (e.g. Phoocharoensil (2009)), they have rarely been given the same status or studied as comprehensively as RRCs. This may be ascribed partly to the fact that this clause type is often dismissed as more uncommon than its counterpart. This perspective is endorsed by corpus findings in Biber et al. (1999), which suggested that NRRCs make up only 15% of all RCs in fiction and academic prose. Also, it would

most reliably seem that NRRCs have never been tested against all the aforementioned hypotheses, against which English RRCs have been tested in numerous works.

Nevertheless, the uncommonness of English NRRCs should not form grounds on which one can reject the importance of NRRCs as they have to be acquired by learners as well, and the failure to produce or recognize the distinction between RRCs and NRRCs can cause misunderstandings in communication.

Therefore, because of such gaps in the body of research, this study aimed to investigate NRRCs as an equal to RRCs and look into how the distinction between the two can be acquired and how NRRCs interact with the RC-related hypotheses compared to RRCs.

The paper is organized as follows. Section 2 discusses the similarities and differences between English and Thai RCs with respect to both RRCs and NRRCs. Section 3 gives an overview of the two well-known RC-related hypotheses included in the study. These two sections will serve as a background for the objectives and the hypotheses of the study in Section 4. The description of the methodology will be given in Section 5. The results of the task will be detailed in Section 6 and subsequently discussed in Section 7. The last section provides a conclusion to the study.

LITERATURE REVIEW

Relative clauses in English and Thai

In order to better understand the acquisition of English RCs, it is necessary to first review how RRCs differ from NRRCs and how English RCs differ from Thai RCs.

Restrictive and non-restrictive RCs

RCs can be classified on the basis of their semantic functions into restrictive RCs and non-restrictive RCs. RRCs are those that 'serve to limit the possible referents of the NPs in which they occur' (Wasow et al., 2011, p. 187). For example, in 'the books that he read,' the RRC restricts that the books can refer only to those that this person read, not just any book; that is, the RRC restricts the referent of the head noun the books only to a subset. This type of RCs is also called integrated, identifying, and defining relative clauses (Arts & McMahon, 2006, p. 210; Swan, 2005, p. 479).

On the other hand, NRRCs are those that "convey an independent assertion about the referent of its associated head" (Stowell, 2005, p. 608). For example, in 'the books, which were given to him,' the NRRC does not limit the possible referent of the books, but rather gives additional information about the book. NRRCs are often assumed to be less prototypical than RRCs, as reflected in Comrie (1989, p. 139), who stated that NRRCs are less central to the notion of

relative clause than RRCs. This type of RCs is also called appositive, supplementary, non-identifying, and non-defining RCs. (Arts & McMahon, 2006, p. 210; Stowell, 2005, p. 608; Swan, 2005, p. 479).

The distinction between RRCs and NRRCs can be expressed differently across languages although it seems only a handful actually encode such a distinction formally.

English RCs

In this section, a typological description of English RCs is given, along with the differences between English RRCs and NRRCs.

Description of English RCs

In terms of the position of RC in relation to the head noun, English RCs are postnominal or right-branching in nature. This entails that, in terms of the relationship between the RC and the matrix clause as well as the position of the head noun, they are also embedded within their matrix clauses and have external heads as shown in Table 3 (see 2.1.2). This is illustrated in (1) below.

(1)   The books [that you bought] are outdated.

It can be seen that the RC 'that you bought' is postnominal in that it follows the head 'The books' that it modifies. In addition, the RC together with the head forms a NP, which is characteristic of an embedded RC. In addition, the head noun 'The books' also appears outside the RC, making this RC external-headed.

As for relativization strategies, English is usually considered to use the gap strategy[2]. That is, no overt indication of the role of the head within the RC is present. Within this gap strategy, English makes use of five relative markers, namely 'that,' 'which,' 'who,' 'whom,' and 'whose.'

The choice of relative markers is mostly dictated by semantics. Generally, 'who' and 'whom' are restricted to human head nouns while 'which' covers inanimate entities. 'That,' however, is allowed to cover both, while 'whose' is used to signify possession.

In RRCs, 'that,' 'which,' 'who,' and 'whom' can be omitted if they function as an object in the RC, except in pied-piping structures (Stowell, 2005, p. 608). In addition, any omission in NRRCs results in ungrammaticality.

One further point worthy of mention relates to the topic of relativization strategies where pronoun retention is usually not allowed by English RCs. That is, resumptive pronouns result in ungrammaticality, as shown in (2) below.

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[2] Gaps refer to missing NPs within RCs that are coreferential with their head NPs.

(2)   *The books [that you bought *them*] are outdated.

In (2), 'them' is a resumptive pronoun, coreferential with the head noun 'The books,' and is not allowed.

English RRCs and NRRCs

English encodes the distinction between RRCs and NRRCs in a number of ways. First of all, prosody and intonation can be used to signal this distinction. More specifically, RRCs in English are not marked by any pause or intonation shift, while NRRCs are (Arts & McMahon, 2006, p. 211; Bache & Jakobsen, 1980, p. 244; Swan, 2005, pp. 495-496).

Second, commas are usually used to separate NRRCs from their heads while RRCs do not make use of any punctuation (Bache & Jakobsen, 1980, p. 244; Biber et al., 1999, p. 602; Swan, 2005, pp. 495-496), as shown in (3).

(3)   a. My brother who lives in Arizona is named Pat.   (RRC)
         b. My brother, who lives in Arizona, is named Pat.   (NRRC)

It can be seen that although their meanings differ greatly, the former implying that the speaker has more than one brother while the latter not, the only surface difference between (3a) and (3b) lies in the commas in the NRRC. That is, the only way to distinguish (3a) from (3b) in a written form is to resort to the commas.

Third, in terms of relative markers, NRRCs require overt *wh*-relative markers to be present. The use of 'that' is normally limited to RRCs and not allowed in NRRCs.

(4)   *My brother, that lives in Arizona, is named Pat.

For example, (4) is ungrammatical because of the relative marker 'that.' Its acceptable counterpart is (3b), in which 'who' is used. Also, as mentioned above, zero relativizers, or relative omissions, are not allowed for NRRCs (Bache & Jakobsen, 1980, p. 244; Swan, 2005, p. 496).

(5)   a. *I poured him a glass of wine, ø he drank at once.
         b. I poured him a glass of wine, which he drank at once.

For instance, (5a) is ungrammatical because of the zero relative. Its grammatical counterpart is presented in (5b), where 'which' is used instead.

Thai RCs

This section reviews characteristics of Thai RCs, with the first half dedicated to the typological description of Thai RCs and the second half dedicated to the distinction between Thai RRCs and NRRCs.

Description of Thai RCs

In terms of the position of RC in relation to the head noun, Thai RCs, like their English counterparts, are postnominal or right-branching (Yaowapat & Prasithrathsint, 2008; 11). Thus it can be inferred that, in terms of the relationship between the RC and the matrix clause as well as the position of the head noun, they are also embedded within their matrix clauses and are external. This is illustrated in (6) below.

(6)   khon   [thîi   khăw   chɔ̂ːp   ø]

         person   REL   3SG   like   GAP

         the person that he/she likes

In (6), it can be seen that the RC shown in brackets appears to the right of the head noun 'khon.' In addition, the RC together with the head forms a NP, which is characteristic of an embedded RC. In addition, the head noun 'khon' also appears outside the RC, making this RC external-headed, similar to English RCs.

In terms of relativization strategies, Yaowapat and Prasithrathsint (2008) state that Thai uses two strategies to form RCs, namely the gap strategy and, more controversially, the pronoun retention strategy. The gap strategy is the dominant strategy for relativization in Thai. That is, most RCs in Thai are formed using the gap strategy (p.12). For example, in (6), inside the RC in brackets, a gap is left where the missing element should be. It should be noted that 'thîi' is not case-marked and does not indicate the role of relativized element in the RC.

Another strategy used to form RCs in Thai is pronoun retention. Although resumptive pronouns are assumed not to exist in Thai RCs, their presence in RCs, although quite peripheral, is first acknowledged formally in Kullavanijaya (2006, pp. 41-44). However, it is in Yaowapat and Prasithrathsint (2008, pp. 14-16) that pronoun retention in Thai RCs is attested and described systematically. An example is given in (7).

(7)   khăw dâay hây   nɛɛwkhít [sîŋ   **man** pen   pràyòot sămràp thúk khon]

3SG PST give idea   [REL 3SG COP   benefit for   every people]

'He gave an idea which is beneficial for everyone.'

(Yaowapat & Prasithrathsint, 2008, p. 15)

In (7), the resumptive pronoun 'man,' which is coreferential with the head 'nɛɛwkhít,' is retained in the RC and does not result in ungrammaticality or unacceptability. However, pronoun retention seems to be restricted to RRCs (Kullavanijaya, 2006, p. 44). Yaowapat and Prasithrathsint (2008) noted further that pronoun retention seems to be common in spoken language while rare in written texts (p. 16).

Within these two strategies, Thai employs three main relativizers: 'thîi,' 'sîŋ,' and 'ʔan.' Examples of these relativizers in use are shown below in (8-10) respectively.

(8)   mɛɛ   [thîi yùu   chiaŋmày] sàʔbaay dii   máy

mother [REL stay Chiangmai fine   good Q

'Is (your) mother who lives in Chiangmai fine?'

(9)   khăw tɔ̂ŋkaan khon [sîŋ   mii   pràʔsòpkaan]

3SG want   person REL have experience

'He/She wants (to get) a person who has experience.'

(10)   nîi pen   raaŋwan   [ʔan yîŋyày   thîisùt   nay chiiwít]

this COP   prize/reward REL big/great superlatively in   life

'This is the prize which is the biggest in (my) life.'

(Yaowapat & Prasithrathsint, 2008, p. 11)

The first relativizer 'thîi,' as shown in (8), can modify both animate and inanimate NPs, whatever function they assume (Suktrakul, 1975, p. 110). The next relativizer 'sîŋ,' shown in (9), is more literary but also appears in everyday conversation as well (Iwasaki & Ingkapirom, 2005, p. 246; Suktrakul, 1975, p. 103). Last of all, 'ʔan,' shown in (10), is usually used to refer to non-human NPs and is found only in written language (Suktrakul, 1975, p. 103).

However, zero relativizers seem to be allowed in Thai RCs as well. In these instances, the RC is attached to the head noun without any overt relativizer (Yaowapat & Prasithrathsint, 2008, p. 16). An example is shown in (11).

(11)　　thîi　nîi　mii　ʔaacaan [ø sɔ̆ɔn　dii]　lăay　khon

place　this　have　teacher　[　teach　good] several CLF

'This place has several teachers who teach well/skillfully.'

(Yaowapat & Prasithrathsint, 2008, p. 17)

In (11), the RC 'sɔ̆ɔn dii,' which modifies the head 'ʔaacaan,' is not prefaced by any overt relativizer. The subject gap only appears as a zero relativizer.

Thai RRCs and NRRCs

There are two major accounts regarding how Thai expresses the distinction between RRCs and NRRCs. The first account was proposed by Suktrakul (1975, pp. 106-114). According the researcher, Thai RRCs are distinguished from NRRCs in that a noun classifier is added before a relativizer to add emphasis.

(12)　a.　　dèkphûujĭŋ khon [thîi maa　mɨawaanníi] pen　phîisăaw khɔ̆ɔŋ chăn

girl　　　　CLF [REL come yesterday　] COP sister　　of　　me

'The girl (the one) who came yesterday is my sister.'

b.　　mɛɛrîi [thîi maa　mɨawaanníi] pen　phîisăaw khɔ̆ɔŋ chăn

Mary [REL come yesterday　] COP sister　　of　　me

'Mary, who came yesterday, is my sister.'

(Suktrakul, 1975, p. 106)

It is argued that (12a) is an instance of a RRC because the classifier 'khon' is added to the RC for emphasis. On the other hand, (12b) is a NRRC due to the lack of such a classifier. However, the motivation behind such a stipulation is not clarified in the original work.

The second account came from Iwasaki and Ingkapirom (2005) who claim that restrictiveness is signaled by the use of thîi, whose primary function is "to identify the head noun, or to specify a referent by separating it from other similar referents" (p. 246). On the other hand, NRRCs are introduced by sîŋ, whose main function is "to add information" (p. 247). This analysis is endorsed by Kullavanijaya (2006), who stated that it can be said that Thai realizes the distinction between RRCs and NRRCs by the use of the two relative pronouns (pp.49-50). However, this account is undermined by Yaowapat (2005) who asserts that the two relativizers are mostly used interchangeably (p.124).

Given the fact that there seems to be no way these two analyses can be viewed as complementary, it can only be concluded that, currently, the way Thai expresses the distinction between RRCs and NRRCs remains inconclusive. However, these attempts seem to indicate that at least such a distinction exists in Thai.

Similarities and differences between English and Thai RCs

The similarities and differences between English and Thai RCs are summarized in Table 1 below.

Characteristics		English	Thai
Parameters	Position of head noun	External	External
	Linkage between RC and head noun	Embedded	Embedded
	Position of RC	Postnominal	Postnominal
	Relativization strategies	Gap	Gap, pronoun retention
Distinction between RRCs and NRRCs		Encoded (intonation, punctuation, use of overt *wh*-operators[3])	Inconclusive

Table 1: A summary of the similarities and differences between English and Thai RCs.

It can be seen that both English and Thai RCs are very similar in a number of ways. That is, both languages feature external, embedded, and postnominal RCs. The differences seem to lie in the strategies involved, with Thai RCs allowing pronoun retention while English RCs do not, and how the distinction between RRCs and NRRCs are encoded.

RC-related hypotheses

There are two major hypotheses relevant to RCs acquisition: the Noun Phrase Accessibility Hierarchy (NPAH) and the Perceptual Difficulty Hypothesis (PDH). These hypotheses were formulated on different grounds and make different predictions concerning the difficulty order of different types of RCs.

Noun Phrase Accessibility Hierarchy (NPAH)

In analyzing the syntactic forms of RCs across 50 languages in an attempt to arrive at the universal properties of RCs, Keenan and Comrie (1977) discovered that RCs can be categorized into six main types as shown in Table 2 based on the grammatical function of the relativized NP.

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[3] *Wh*-operators refer to *wh*-expressions, which have a [+wh] feature and appear in the specifier of a complementizer phrase (CP) (R. Hawkins & Chan, 1997, p. 189).

Symbols	Meanings	Examples
SU	Subject	The cake that was on the table…
DO	Direct object	The cake that I ate…
IO	Indirect object	The cake that I baked for you…
OPREP	Object of preposition	The cake that I put your name on…
GEN	Genitive	The cake whose lowest layer was chocolate…
OCOMP	Object of comparison	The cake that the pie was cheaper than…

Table 2: Explanations and examples for each symbol

However, the distribution of these six types is unequal, with some exhibiting more markedness than others. That is, some RC types can be found in most languages while the others are not so numerous. For example, while Catalan can relativize four types of RCs (subject, direct object, indirect objects, and object of preposition), English allows all six types (Keenan & Comrie, 1977, pp. 74-80).

Keenan and Comrie (1979) also discovered that there seems to be a pattern to the limitations on the grammatical functions that can be relativized in different languages. In other words, languages vary in terms of NP positions that can undergo relativization in a systematic way. That is, whether certain grammatical functions can be relativized is far from completely haphazard, but rather depends on whether other grammatical functions can be relativized. These dependencies are claimed to be universal and lead Keenan and Comrie to postulate the Noun Phrase Accessibility Hierarchy, shown below in (13).

(13) SU > DO > IO > OPREP > GEN > OCOMP

The accessibility to relativization decreases from left (less marked) to right (more marked), or from higher to lower positions. That is, subject RCs are more accessible to relativization than RCs with a direct object as a gap and so on.

Keenan and Comrie (1977) proposed that this hierarchy can predict the relative degree of difficulty with which each NP type is accessible to relativization. Within this hierarchy, therefore, the factor that determines such difficulty is the grammatical function of the NP that is being relativized.

Keenan and Comrie (1977) claimed that the NPAH makes correct predictions because it 'directly reflects the psychological ease of comprehension' (p.88) That is, RCs formed on lower positions are harder to understand than those formed on higher positions. While subject RCs are always among the most acceptable in any given language, RCs formed on objects of comparison are often deemed only marginally acceptable, even in English (Keenan & Comrie, 1977, p. 90).

Evidence that the NPAH represents the psychological accessibility to relativization is derived from several L1 experimental studies (e.g. Brown, 1971; Hatch, 1971; Legum, 1975; Valli et al., 1972). The NPAH, however, has found mixed support from works in L2. While several studies such as Doughty (1991), Gass (1979), and O'Grady (1999) showed results that were consistent with the hierarchy, a few papers, such as Flanigan (1995) and Xiao and Lu (2005), failed to fully support the hypothesis.

Perceptual Difficulty Hypothesis (PDH)

In an attempt to explain why RCs in languages with similar syntactic arrangement are positioned in the same way in relation to their head nouns, Kuno (1974) proposed that the phenomenon has to do with the capacity of the human memory system to retain temporary information; some syntactic arrangements are more perceptually difficult to process than others. To be more specific, center-embedded relative clauses (e.g. The person [who is speaking] is my friend.) create more perceptual difficulties than do left- or right-embedded relative clauses (e.g. My friend is eating the cake [that I baked]. (right-embedded)). Therefore, regardless of the grammatical function of the relativized material, the difficulty can be predicted from the position of the head of the relative clause in the matrix clause. In other words, the difficulty can be predicted not from the grammatical function of the relativized material, but from the grammatical function in the matrix clause of the head of the relative clause. Therefore, it is postulated that RCs whose heads function as subject will normally appear center-embedded, and thus be more difficult to process than RCs whose heads function as object. These will usually appear right-embedded as shown below in (14).

(14) OS, OO, OIO, OOPREP, OGEN, OCOMP > SS, SO, SIO, SOPREP, SGEN, SOCOMP

For each pairing label, the first letter refers to the function of the antecedent in the matrix clause and the second letter refers to the syntactic role of the relative pronoun within the RC. Therefore, an example of OS is, "He drank the milk [that ___ was already sour]." The head of the RC *the milk* functions as an object in the matrix clause, hence the first letter *O*, and the relativized material functions as a subject in the RC, hence the second letter *S*.

Regardless of the grammatical function of the RC gap (the second part of each pairing), the PDH predicts that RCs that modify objects or are right-branching are easier than RCs that are center-embedded to modify subjects because the former do not cause interruption in the processing of the matrix clause. Consider the following examples:

(15)   I like the vase [that is on the table].   (Right-embedded)

(16)   The vase [that I like] is on the table.   (Center-embedded)

In (15), the RC 'that is on the table' appears at the end of the sentence and does not interrupt the matrix clause 'I like the vase.' On the other hand, in (16), 'that I like' is inserted between the subject and the predicate of the matrix clause ('The vase … is on the table') and causes a burden to the processing.

The PDH has received support from several L1 studies, such as Cook (1973), Prideaux and Baker (1987),), and Slobin (1973). A number of L2 studies, such as Ioup and Kruse (1977), Schumann (1980), Sadighi and Jafarpur (1994), and Izumi (2003), have also lent support to the PDH as well.

Table 3 below summarizes both hypotheses discussed above.

Hypotheses	Theoretical basis	Focus	Order of difficulty
NPAH	Typological markedness	Relative clause	SU>DO>IO>OPREP>GEN>OCOMP
PDH	Short-term memory capacity	Matrix clause	OS, OO, OIO, OOPREP, OGEN, OCOMP > SS, SO, SIO, SOPREP, SGEN, SOCOMP

Table 3: Summary of both RC-related hypotheses

Previous works in L1 Thai learners

The most comprehensive among these works is Phoocharoensil (2009). The study examined the extent to which ERC acquisition in L1 Thai learners conformed to the NPAH and the PDH as well as the influence of L1 Thai on ERC acquisition. Based on the analysis of data elicited from 90 L1 Thai students using a descriptive essay task, a descriptive speaking task, and a translation task, the study found that the ERC acquisition path appeared to be in line with the predictions of the NPAH and the PDH. It was also found that problems the learners face in acquiring ERCs could be ascribed to L1 transfer, influence of previous instruction, overgeneralization, and avoidance. It should be noted that the scope of the research included both RRCs and NRRCs, although the latter accounted for only less than 10 percent of all the RCs in the elicited data (Phoocharoensil, 2009, pp. 169, 202).

Phoocharoensil (2011) examined resumptive pronouns in the interlanguage of low- and high-proficiency L1 Thai learners. The results were partly borne out by the Resumptive Pronoun Hierarchy (Keenan & Comrie, 1977), which postulates that resumptive pronouns are found more

frequently in an inverse order of the NPAH. That is, resumptive pronouns appeared more frequently in DO relatives than in SU counterparts. Since the Resumptive Pronoun Hierarchy is formed on the basis of the NPAH and was confirmed in the study, as mentioned above, the study gave vicarious support to the NPAH.

Amornwongpeeti and Pongpairoj (2013) investigated the acquisition of English RRCs by L1 Thai learners of three different proficiency levels using a grammatical judgment test. The results showed that, with increasing English proficiency, the Thai subjects were more accurate in judging the grammaticality of English RRCs, indicating that RRCs were attainable for L1 Thai learners.

It can be seen that research on the acquisition of ERC by L1 Thai learners is still in its inchoate state, with several gaps to bridge, such as the limited variety of tasks used to elicit data and the deficit of attention paid to less prototypical RCs. More specifically, one such gap lies in the asymmetry in the number of studies dedicated to RRCs and NRRCs that is evident. The gap in the body of research warrants a more thorough and systematic investigation of the relationship between NRRC acquisition and the two RC-related hypotheses.

OBJECTIVES AND HYPOTHESES

The objectives and the hypotheses of this study were as follows.

Objectives

This study aimed to:

i) test the applicability of the NPAH and the PDH to English NRRCs in comparison to English RRCs by L1 Thai learners.

ii) compare the extent to which the acquisition order of English RRCs and NRRCs conforms to the NPAH and the PDH.

Hypotheses

The hypotheses of the current study were as follows:

i) The NPAH and the PDH will be applicable to the acquisition of English NRRCs as the distinction between English RRCs and NRRCs does not rely on the differences in linear syntactic arrangements that affect the factors these hypotheses are hinged upon, namely the position of the grammatical role of the relativized material and the position of the RC in relation to its head.

ii) Although both RC-related hypotheses will be applicable to the acquisition of both RRCs and NRRCs, the extent to which they are applicable to RRCs and NRRCs might differ. That is, while the acquisition order might be the same for RRCs and NRRCs, the rate at which the same type of RC is acquired might diverge for RRCs and NRRCs.

METHODOLOGY

This section describes the subjects, the research instruments, data collection, and data analysis involved in this study.

Subjects

The subjects were 40 L1 Thai undergraduate students in the first and second semesters of academic year 2012 from various faculties (Law, Engineering, Medicine, Education, and Arts) at Chulalongkorn University, at the time of the experiment. They were recruited by the teachers who taught the courses and they participated voluntarily.

The subjects were divided into two proficiency groups, namely intermediate and advanced, on the basis of their scores on the Oxford Placement Test (Allan, 1992), a proficiency test featuring 100 grammatical test items Those scoring in the range of 60 to75 out of 100 were placed in the intermediate group, and those scoring higher than 75 were put in the advanced group. The average ages of the intermediate and advanced groups were 18.15 and 18.40 respectively (for individual information, see Appendix A).

In addition, five native English speakers, all of whom were English teachers with Bachelor's degrees, were included as a control group and asked to complete the OPT as well. Their average age was 26.2 (for individual information, see Appendix B).

Details of the three groups, their average ages and scores on the OPT are described in Table 4.

Groups	Numbers	Average ages	Score ranges	Average scores
Intermediate	20	18.15	60-75	66.55
Advanced	20	18.4	Above 75	80.75
Control	5	26.2	-	96.2

Table 4: The numbers of subjects, the average scores, and the standard deviations of the three groups

Research instruments

As production tasks had been heavily used in previous studies, as mentioned above, this study opted for a combination of both production and reception tasks, with an emphasis on the latter, to shed new light on the acquisition of English RRCs and NRRCs by L1 Thai learners. The reception tasks employed in this research were a sentence interpretation task and a grammaticality judgment task.

Sentence interpretation task

In order to measure the subjects' comprehension of each type of RC, a sentence interpretation task, which is a reception task, was used. Some of the previous studies that employed this type of task include Izumi (2003) and Chou (2006).

For each item, a sentence containing an RC was given, along with two statements that required the subject to judge as either inferable or not inferable from the given sentence. An example is given below in (17).

(17)   The hamster that I kept was called Tyler.

_____   I also kept some other hamsters.

_____   I kept this hamster.

The sub-items were designed in a way that tested the subjects' comprehension of both the differences in implication between RRCs and NRRCs and the relationship between the RC and the matrix clause. For instance, the first statement in (63) is false because the RRC *that I kept* specifies that there was only one hamster that this person kept, while the second statement is true because the RC *that I kept* modifies *The hamster,* which is an element of the matrix clause.

All the instances of RCs were designed so that their heads were uniformly definite singular nouns in order to keep the variants constant.

The test featured altogether 44 items, distributed across different combinations of RC types and relativizers, as shown in Table 5 below. Any combinations that resulted in ungrammaticality were excluded from the test and represented with a dash in the table. In addition, there were two items for each grammatical combination included in the test.

RCs	Relativizers	SS	OS	SO	OO	SOPREP	OOPREP
RRC	*Wh*-operator	2	2	2	2	2	2
	That	2	2	2	2	2	2
	Null	-	-	2	2	2	2
NRRC	*Wh*-operator	2	2	2	2	2	2
	That	-	-	-	-	-	-
	Null	-	-	-	-	-	-

Table 5: The distribution of items in the sentence interpretation task

Each correct sub-item was worth one point while incorrect answers received no point. Each item thus held two points, making each combination carry the maximum score of four points and yielding the maximum score of 88 for the entire test.

The test items were arranged in such a way that no two adjacent test items featured exactly the same RC type and relativizer combination. The subjects were also asked not to go back and change the answers they had already given so as to elicit responses that were as spontaneous, and thus as natural, as possible.

The subjects were given 45 minutes to complete the task. Two practice items were also given before the real test to help them understand the instructions better. They were also allowed to ask any questions they might have regarding the instructions (for the actual test, see Appendix C).

Grammaticality judgment task

A grammaticality judgment task was also employed as part of the study. This type of task, although questioned by some researchers (e.g. Johnson et al., 1996; Liceras, 1993) for its ability to reflect learners' competence, has many supporters (e.g. Gass, 1994; Leow, 1996; Mandell, 1999) and seems to have enjoyed considerable popularity in previous studies of a similar nature, including Ioup and Kruse (1977), Gass (1979), Izumi (2003), and Chou (2006).

For each item on the test, a complete sentence was given. The subjects were asked to judge whether or not the sentence was grammatical and to identify how certain they were of the answer, as well as to provide a correction if that sentence was deemed to be incorrect. They were to put A if they believed the sentence was definitely correct, B if the sentence was probably correct, C if the sentence was probably incorrect, and D if the sentence was definitely incorrect. An example is given below in (18).

(18)   _____ The bus he got on was almost empty.

For example, in (64), the subjects should judge the sentence as correct because a null subject is allowed in a non-subject RRC. If this sentence was deemed as definitely correct, then the subjects should write A.

Similar to the first task, the head of the RC in each item was a definite singular noun. In addition, the subjects were also informed that errors regarding spelling, tense, and punctuation were not part of the test.

The test consisted of a total of 120 items, distributed across different combinations of RC types, relativizers, and error types, namely those involving *that*-complementizer and null subjects

in NRRCs as well as those regarding resumptive pronouns and doubly-filled CPs[4] in both RRCs and NRRCs, as shown in Table 6 below. It should be noted that there were two items for each combination and ungrammatical items are represented with italicized numbers.

RCs	Relativizers	SS	OS	SO	OO	SOPREP	OOPREP
RRC	*Wh*-operator	2	2	2	2	2	2
	That	2	2	2	2	2	2
	Null	*2*	*2*	2	2	2	2
	Resumptive pronoun	*2*	*2*	*2*	*2*	*2*	*2*
	Doubly-filled CP	*2*	*2*	*2*	*2*	*2*	*2*
NRRC	*Wh*-operator	2	2	2	2	2	2
	That	*2*	*2*	*2*	*2*	*2*	*2*
	Null	*2*	*2*	*2*	*2*	*2*	*2*
	Resumptive pronoun	*2*	*2*	*2*	*2*	*2*	*2*
	Doubly-filled CP	*2*	*2*	*2*	*2*	*2*	*2*

Table 6: The distribution of items in the grammaticality judgment task

As for scoring, there were two separate score rubrics for grammatical and ungrammatical sentences as shown in Table 7.

	For grammatical sentences	*For ungrammatical sentences*
A (definitely correct)	3	0
B (probably correct)	2	1
C (probably incorrect)	1	2
D (definitely incorrect)	0	3

Table 7: Score rubrics for the grammaticality judgment task

Therefore, the maximum point possible for each item was three, and the maximum point possible for each relative clause type was six. The highest score possible for the entire test totaled 360 points. In addition, while the corrections provided were not counted towards scoring, they served as production data and were used to help explain what was found in the reception data.

In addition, the test items were arranged so that no two adjacent items tested the same structure, and the participants were asked not to change any answers already given, as in the previous task.

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[4] A doubly-filled CP refers to a CP whose specifier is filled with a *wh*-operator and whose head is the complementizer *that*. Because a co-occurrence of a *wh*-operator ([+wh]) and *that* ([-wh]) will cause a feature clash, a constraint on doubly-filled CPs is said to exist in English (Chomsky & Lasnik, 1977, p. 469).

The subjects were given 60 minutes to finish the task. Similar to the sentence interpretation task, they were given clear instructions from the teachers supervising the session and provided with three warm-up items to practice. They were also encouraged to inform the teachers of any part of the instructions they felt had to be further clarified (for the actual test, see Appendix D).

Data collection

After the OPT had been administered and 40 participants had been categorized into the intermediate and advanced groups based on their scores, the two tasks were given in class. Because of the time the tasks required, the tests were administered one week apart rather than back to back, with the sentence interpretation administered first and the grammaticality judgment task given a week later. After the participants finished each test in the allotted time, they were asked to turn it in immediately.

Data analysis

After the tests were scored, the results were calculated into percentage scores. Because of the asymmetries between the numbers of RRC and NRRC items in the first task and the ratios of correct and incorrect RRC and NRRC items in the second task, as discussed above, data analysis was conducted based on these percentage scores rather than the raw scores.

RESULTS

The results obtained from both the sentence interpretation task and the grammaticality judgment task are detailed below.

Task 1: Sentence interpretation task

In this section, the subjects' accuracy scores on RRCs and NRRCs in Task 1 are presented and then arranged from highest to lowest to observe the degrees of difficulty of each RC type in different subject groups. The scores are then further analyzed to determine the extent to which they support or contradict claims made by the two RC-related hypotheses and whether RRCs and NRRCs interact with these hypotheses in the same manner. It should also be noted that in order to keep the focus on the learners' data, the scores of the control group will be presented only in the overall score section.

Overall scores

The overall scores of items on RRCs and RRCs sorted by subject groups are presented in Table 8 below. It should be noted that each percentage in parentheses represents the difference

between the number in that cell and the cell above and therefore the difference between the accuracy score of the same RC type between two adjacent groups.

Groups/RC types	RRCs	NRRCs
Intermediate	85.63%	82.92%
Advanced	90.28% (+4.65%)	87.50% (+4.58%)
Control	95.28% (+4.65%)	95.00% (+7.50%)

Table 8: Average accuracy scores on RRCs and NRRCs in the sentence interpretation task

For RRCs, the average accuracy score of the intermediate group stood at 85.63%, which was 4.65% lower than that of the advanced group, which was 90.28%. The control group scored the highest among the three groups at 95.28%, also 4.65% higher than the average score of the advanced group.

As for the items testing NRRCs, the lowest average accuracy score also belonged to the intermediate group (82.92%). The advanced group came in second at 87.50% (4.58% higher than the score of the intermediate group), and the control group ranked the highest at 95.00% (7.50% higher than the score of the advanced group).

For both RRCs and NRRCs, there seemed to be a strong proficiency-related trend, with the intermediate group scoring the lowest, the advanced group coming in second, and the control group scoring the highest.

When a comparison between RRCs and NRRCs was made, another clear trend emerged. That is, every group exhibited lower average scores on NRRCs, as illustrated in Figure 1 below, in which the line representing NRRC remained under the line representing RRC across the three subject groups.
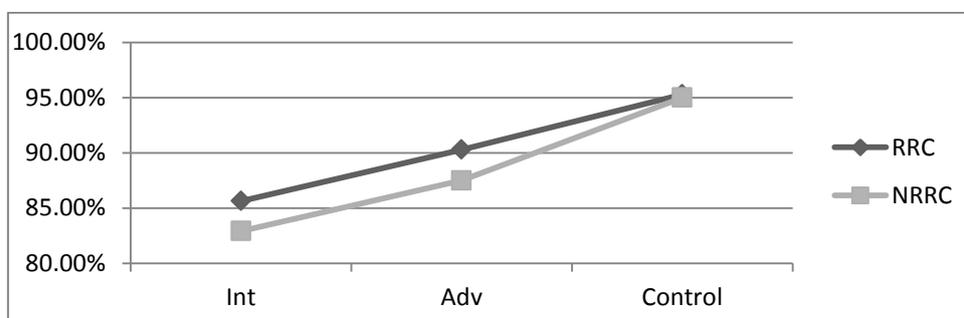

Figure 1: Progression of scores on RRCs and NRRCs across the three subject groups in the sentence interpretation task

Detailed scores and orders of difficulty

In order to illustrate a more detailed picture of the trends mentioned above, the scores were broken down by RC subtypes and arranged into orders. The scores on RRC subtypes by both subject groups are presented in Table 9 below.

Groups/RC types	SS	OS	SO	OO	SOPREP	OOPREP
Intermediate	89.38%	91.88%	85.83%	87.08%	80.42%	79.17%
Advanced	95.00% (+5.62%)	93.75% (+1.88%)	89.58% (+3.75%)	90.83% (+3.75%)	85.42% (+5.00%)	87.08% (+7.29%)

Table 9: Accuracy scores on each RRC subtype of the learner groups in the sentence interpretation task

The intermediate group seemed to find OS (91.88%) and SS (89.38%) the easiest two while they were less accurate with OO (87.08%), SO (85.83%), SOPREP (80.42%), and OOPREP (79.17%), respectively.

A little switch-up in the order of accuracy scores could be seen in the advanced group. SS (95.00%) appeared to be the easiest, followed by OS (93.75%), OO (90.83%), SO (89.58%), OOPREP (87.80%), and SOPREP (85.42%), respectively. It should also be noted that the advanced group scored higher than the intermediate group on every RRC subtype, with the biggest increase evident in OOPREP (+7.29%) and the smallest increase in OS (+1.88%)

The orders of the accuracy scores of the two learner groups arranged from highest (left) to lowest (right) described above are illustrated schematically below in (19). The 'greater than' symbol (>) means that the score of the subtype on the left of the symbol is greater than that on the right, and the equal symbol (=) means that the scores of the subtypes on both sides of the symbol are equal.

(19) Accuracy scores on each RRC type arranged from highest to lowest

Intermediate group:

OS	>	SS	>	OO	>	SO	>	SOPREP	>	OOPREP
(91.88%)		(89.38%)		(87.08%)		(85.83%)		(80.42%)		(79.14%)

Advanced group:

SS	>	OS	>	OO	>	SO	>	OOPREP	>	SOPREP
(95.00%)		(93.75%)		(90.83%)		(89.58%)		(87.08%)		(85.42%)

It can be seen that the orders of both groups were not identical. However, there seemed to be an underlying pattern, with XS (X representing any grammatical role of the head noun of the RC) assuming the top two highest ranks, XO taking the next two, and XOPREP occupying the two lowest slots. These orders, along with those on NRRCs discussed below, will be further analyzed in the next section below.

As for the NRRC, the scores on each subtype of both learner groups are presented in Table 10 below.

Groups/RC types	SS	OS	SO	OO	SOPREP	OOPREP
Intermediate	87.50%	85.00%	82.50%	81.25%	82.50%	78.75%
Advanced	92.50% (+5.00%)	88.75% (+3.75%)	87.50% (+5.00%)	86.25% (+5.00%)	86.25% (+3.75%)	83.75% (+5.00%)

Table 10: Accuracy scores on each NRRC subtype of the learner groups in the sentence interpretation task

The table shows that the intermediate group found SS by far the easiest among the six subtypes (87.50%), followed by OS (85.00%), SO and SOPREP (82.50%), OO (81.25%), and OOPREP (78.75%), respectively.

Similarly, SS (92.50%) and OS (88.75%) were ranked the two top subtypes that the advanced group found easiest, followed by SO (87.50%). The order started to diverge from that of the intermediate group at the fourth place, jointly assumed by OO and SOPREP (86.25%), before ending with the same least accurate subtype OOPREP (83.75%). It should be noted that the advanced group scored higher than the intermediate group on every subtype of NRRC, with an increase of 3.75-5%.

The accuracy scores were also organized into high-to-low orders as illustrated below in (20).

(20) Accuracy scores on each NRRC type arranged from highest to lowest

Intermediate group:

SS	>	OS	>	SO	=	SOPREP	>	OO	>	OOPREP
(87.50%)		(85.00%)		(82.50%)		(82.50%)		(81.25%)		(78.75%)

Advanced group:

SS	>	OS	>	SO	>	OO	=	SOPREP	>	OOPREP
(92.50%)		(88.75%)		(87.50%)		(86.25%)		(86.25%)		(83.75%)

It can be seen that while both groups exhibited different accuracy orders, there seemed to be a detectable pattern, with SS, OS, and SO assuming the three top slots, SOPREP and OO taking the next two, and OOPREP sitting at the bottom.

The RRC orders shown above in (67) and the NRRC orders shown in (68) appeared to have too little in common to make out any meaningful pattern at this stage. In addition, they did not seem to strictly follow any claims posited by both RC-related hypotheses. This will be discussed in the section below, where the scores are analyzed in relation to both RC-related hypotheses in order to delve into the extent of the effects made on this ordering.

To better illustrate the trend, the scores of each RC subtype of each subject group are plotted in Figure 2 below. The unbroken lines represent RRC and the dotted lines represent NRRC.
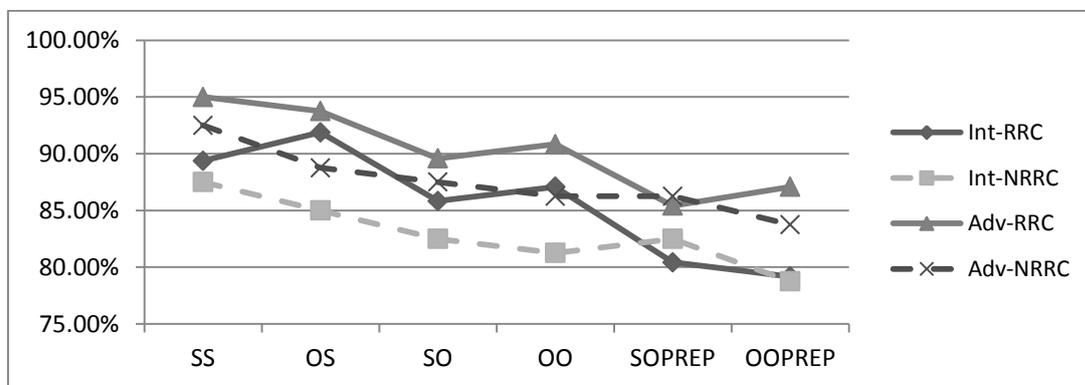
Figure 2: Accuracy scores of each RRC and NRRC subtype in the sentence interpretation task

When the scores of each subtype of RRC and NRRC were compared, most RRC subtypes had higher scores than their NRRC counterparts, with the exceptions of SOPREP. The results demonstrate a general trend in which both learner groups were more accurate with RRC than with NRRC in most RC subtypes.

Scores in relation to the RC-related hypotheses

The scores were also analyzed to determine the extent to which they conformed to the predictions posited by the NPAH, PDH, and SOHH, respectively.

NPAH

As the NPAH makes predictions based on the grammatical role of the gap/relativized material alone, the scores were divided into three subtypes corresponding to the three grammatical roles of the gap included in this study (namely subject, object, and object of preposition), instead of the six subtypes treated in the previous section.

For RRC, the average accuracy scores categorized by the grammatical role of the gap are presented in Table 11. It should be noted that X represents the grammatical role of the RC head noun, which is irrelevant to the claims made by the NPAH. Therefore, in this study, XS refers to both SS and OS, and the scores of XS are therefore the average scores of SS and OS.

Groups/RC types	XS	XO	XOPREP
Intermediate	90.63%	86.46%	79.79%
Advanced	94.38% (+3.75%)	90.21% (+3.75%)	86.25% (+6.46%)

Table 11: Average accuracy scores on each RRC type based on the grammatical role of the relativized material

For the intermediate group, the accuracy score peaked at 90.63% with the RRC relativized materials functioning as subjects. The score tapered to 86.46% with XO and finally to 79.79% with XOPREP.

In the advanced group, XS also ranked first in the accuracy score (94.28%), followed by XO (90.21%) and XOPREP (86.25%), respectively.

In both learner groups, a discernible trend was perceived. The participants appeared to find the grammatical role of Subjects to be the easiest among all three, followed by objects, while objects of preposition seemed to pose the most trouble to the learners.

As for NRRC, the scores based on the grammatical role of the relativized material are shown below in Table 12.

Groups/RC types	XS	XO	XOPREP
Intermediate	86.25%	81.88%	80.63%
Advanced	90.63% (+4.38%)	86.88% (+5.00%)	85.00% (+4.38%)

Table 12: Average accuracy scores on each NRRC type based on the grammatical role of the relativized material

Again, the same trend found in RRC was also manifest in NRRC, with the highest scores found in XS, the next highest in XO, and the lowest in XOPREP. For the intermediate group, the XS score was 86.25%, the XO score stood at 81.88%, and the XOPREP score plunged slightly to 80.63%.

For the intermediate group, the score started out at 90.63% for XS and fell to 86.88% for XO and 85.00% for XOPREP.

In addition, although the accuracy score orders shown in (67) and (68) might not appear to strictly adhere to the NPAH, the hypothesis did appear to exert its influence on the overall ordering. The fact that some XO appeared before an XS in the actual ordering, although the NPAH posits that XS should be easier than XO, might be attributed to some other influences that could also be at play (namely perceptual difficulty and discontinuities) apart from the accessibility hierarchy. However, this did not deny the influence of the NPAH, as shown in Tables 11 and 12.

To explore whether the trend was exactly the same in RRC and NRRC, a comparison between the scores of the same grammatical role in RRC and NRRC was made. The differences are shown in Figure 3.
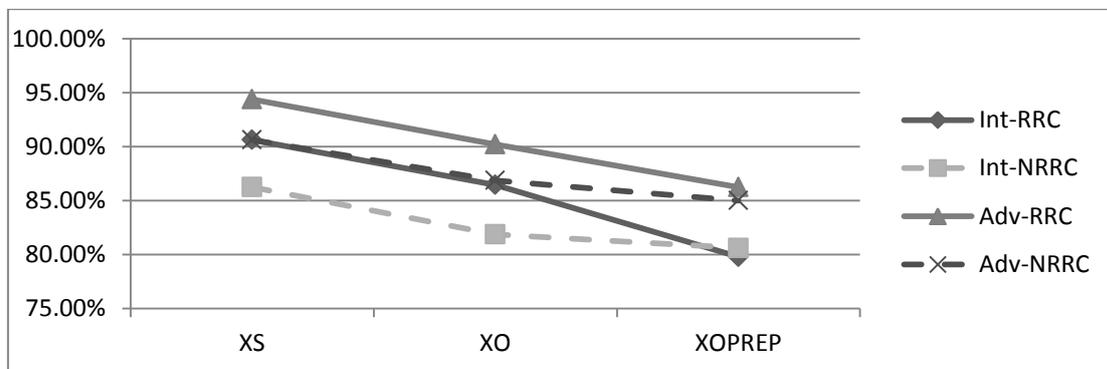

Figure 3: Progression of each RRC and NRRC type based on the grammatical role of the relativized material

When the same grammatical role was compared between RRC and NRRC, it was found that subjects were judged in the same grammatical role more accurately in an RRC than in an NRRC, with the exceptions of XOPREP for the intermediate group. In addition, the results lent support to the trend found in 6.1.1 that the subjects perceived RRCs to be easier than NRRCs even when the data was arranged on the basis of the grammatical role of the relativized material.

PDH

Disregarding the grammatical role of the relativized material, the PDH makes claims based on the position of an RC in relation to the head noun or, in other words, the grammatical role of the head of the RC. Therefore, to fathom the extent of the effect of PDH in the results, the scores were divided into two subtypes based on the grammatical role of the RC head (namely subject and object).

As for RRC, the scores of each group are shown below in Table 13. It should be noted that X represents any grammatical role of the relativized material. Therefore, SX includes SS, SO, and SOPREP, and the score of SX is an average of the scores of these three subtypes.

Groups/RC types	SX	OX
Intermediate	85.21%	86.04%
Advanced	90.00% (+4.79%)	90.56% (+4.51%)

Table 13: Average accuracy scores on each RRC type based on the grammatical role of the head noun

For the intermediate group, SX stood at 85.21% while OX stood at 86.04%. For the advanced group, the SX questions were accurately answered 90.00% of the time, while the OX questions were accurately answered at 90.56%.

It can be seen that the OX scores were slightly higher than the SX scores across the subject groups, leading support to the presence of the influence of the PDH in RRCs. In addition, the advanced group seemed to perform better than the intermediate groups consistently in both RC subtypes.

As for NRRC, the scores based on the grammatical role of the RC head of both subject groups are presented below in Table 14.

Groups/RC types	SX	OX
Intermediate	84.17%	81.67%
Advanced	88.75% (+4.58%)	86.25% (+4.58%)

Table 14: Average accuracy scores in each NRRC type based on the grammatical role of the head noun

For the intermediate group, the SX score was 84.17%, and the OX score was 81.67%. For the advanced group, the SX score stood at 88.75%, and the OX score stood at 86.25%.

The pattern that emerged in this set of data seemed to contradict the pattern found in RRC. That is, it appeared that subject-modifying NRRCs seemed to be perceived as easier than object-modifying NRRCs. This went directly against the prediction of the PDH, which posits the opposite. The results, thus, suggested that the PDH might not have applied to NRRCs. Some possible reasons for this will be discussed in Section 7.4.2.

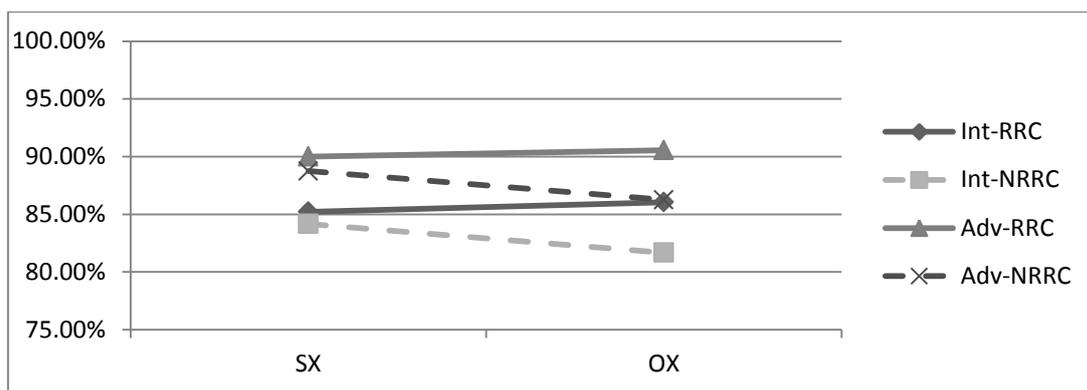The differences between the subtypes of RRC and NRRC are shown below in Figure 4.

Figure 4: Progression of each RRC and NRRC type based on the grammatical role of the head noun in the sentence interpretation task

It can be seen that the scores of RRC were higher than those of NRRC across the board, which indicates that the two learner groups were more accurate with RRCs than with NRRCs even when the influence of the PDH was taken into account.

Task 2: Grammaticality judgment task

Similar to the previous section, this section will start off with the overall scores of RRCs and NRRCs in Task 2. Then, the accuracy scores will be presented in detail and arranged in order from highest to lowest to observe the degrees of relative difficulty each RC presents in each subject group. Following this, the scores will be analyzed in relation to both RC-related hypotheses to analyze the extent to which they are supported or contradicted by the data. Written data will only be mentioned if it is relevant to the discussion. It should also be noted that in order to keep the focus on the learners' data, the scores of the control group will be presented only in the overall score section.

Overall scores

The overall scores of items on RRCs and RRCs sorted by subject groups are presented in Table 15 below.

Groups/RC types	RRCs	NRRCs
Intermediate	79.72%	73.08%
Advanced	91.25% (+11.53%)	87.33% (+14.25%)
Control	96.89% (+5.64%)	95.89% (+8.66%)

Table 15: Average accuracy scores of judgment of RRCs and NRRCs of the three groups in the grammaticality judgment task

For RRCs, the average accuracy score of the intermediate group stood at 79.72%, which was 11.25% lower than that of the advanced group, which was 91.25%. The control group scored the highest among the three groups at 96.89%, which was 5.64% higher than the average score of the advanced group.

As for the items testing NRRCs, the lowest average accuracy score also belonged to the intermediate group (73.08%). The advanced group came in second at 87.33% (14.25% higher than the score of the intermediate group), and the control group ranked the highest at 95.89% (8.66% higher than the score of the advanced group).

For both RRCs and NRRCs, there seemed to be a strong proficiency-related trend similar to what was found in Task 1, with the intermediate group scoring the lowest, the advanced group coming in second, and the control group scoring the highest. This trend suggested that L1 Thai learners could acquire English RCs. This will be further elaborated in Section 7.1.

When a comparison between RRCs and NRRCs was made, it was evident that every group exhibited lower average scores on NRRCs, as illustrated in Figure 5 below, in which the line representing NRRC constantly remained under the line representing RRC, across the three subject groups.
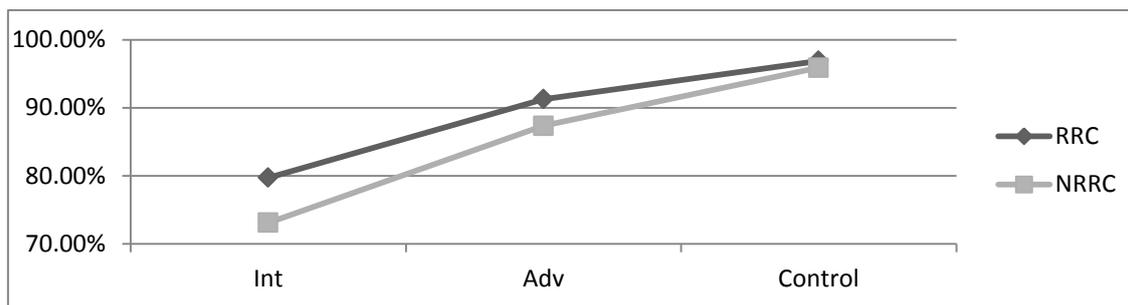

Figure 5: Progression of scores of RRCs and NRRCs in the learner groups in the grammaticality judgment task

Detailed scores and orders of difficulty

To get a more refined picture of the data presented above, the scores were broken down by RC subtypes and arranged into accuracy orders. The scores on RRC subtypes by the learner groups are presented in Table 16 below.

Groups/RC types	SS	OS	SO	OO	SOPREP	OOPREP
Intermediate	83.67%	83.33%	77.83%	81.67%	75.83%	76.00%
Advanced	93.50% (+9.83%)	92.17% (+8.83%)	91.00% (+13.17%)	92.67% (+11.00%)	88.83% (+13.00%)	89.33% (+13.33%)

Table 16: Accuracy scores on judgment of each RRC type of the learner groups in the grammaticality judgment task

In the intermediate group, the highest score belonged to SS (83.67%), only slightly higher than the second highest subtype OS (83.33%). OO (81.67%) came next in order, followed by SO (77.83%), OOPREP (76.00%), and SOPREP (75.83%), respectively.

As for the advanced group, the easiest subtype was SS (93.50%), with OO (92.67%) and OS (92.17%) trailing very closely. SO (91.00%) came in fourth, followed by OOPREP (89.33%) and SOPREP (88.83%)

When each subtype is compared, it can be seen that there was a clear proficiency-related progression. That is, the accuracy scores increased with proficiency, suggesting that, as in Task 1, RRCs can be acquired.

The accuracy score orders of both subject groups described here are presented schematically from highest to lowest in (21) below.

(21) Accuracy scores of judgment of each RRC type arranged from highest to lowest

Intermediate group:

SS	>	OS	>	OO	>	SO	>	OOPREP	>	SOPREP
(83.67%)		(83.33%)		(81.67%)		(77.83%)		(76.00%)		(75.83%)

Advanced group:

SS	>	OO	>	OS	>	SO	>	OOPREP	>	SOPREP
(93.50%)		(92.67%)		(92.17%)		(91.00%)		(89.33%)		(88.83%)

Similar to the results of the first task, it can be seen that the orders featured different sequences. However, this does not mean that there were no underlying patterns. First of all, the last two slots for both orders were assumed by OPREP and SOPREP respectively, suggesting that they were the most difficult types of RCs among these six. Second, the RC subtype that both intermediate and advanced learners perceived to be the easiest was unanimously SS. Despite the patterns, these orders did not seem to lend support to either RC-related hypotheses as of now. Therefore, a further in-depth analysis of the data will be carried out in the next sections below.

As for NRRCs, the scores of each subtype by the learner groups are shown below in Table 17.

Groups/RC types	SS	OS	SO	OO	SOPREP	OOPREP
Intermediate	76.67%	74.00%	75.17%	73.33%	70.50%	68.83%
Advanced	90.67% (+14.00%)	87.50% (+13.50%)	89.00% (+13.83%)	86.83% (+13.50%)	86.17% (+15.67%)	83.83% (+15.00%)

Table 17: Accuracy scores on judgment of each NRRC type of the learner groups

For the intermediate group, the subtype with the highest score was SS (76.67%). SO (75.17%) occupied the second highest score slot, followed by OS (74.00%), OO (73.33%), SOPREP (70.50%), and OOPREP (68.83%), respectively.

The intermediate group exhibited an identical sequence, with SS trumping the other subtypes at 90.67%, followed by SO (89.00%), OS (87.50%), OO (86.83%), SOPREP (86.17%), and lastly OOPREP (83.83%).

When the scores of the same subtype were compared, it can be seen that the higher the proficiency level, the higher the score, lending itself as evidence of a proficiency-related progression.

The scores of each group described above are arranged from highest to lowest in the charts detailed in (22) below.

(22) Accuracy scores on judgment of each NRRC type arranged from highest to lowest

Intermediate group:

SS	>	SO	>	OS	>	OO	>	SOPREP	>	OOPREP
(76.67%)		(75.17%)		(74.00%)		(73.33%)		(70.50%)		(68.83%)

Advanced group:

SS	>	SO	>	OS	>	OO	>	SOPREP	>	OOPREP
(90.67%)		(89.00%)		(87.50%)		(86.83%)		(86.17%)		(83.33%)

Unlike the data on RRCs presented above, the orders of the two learner groups were actually identical in terms of subtype sequences and featured a few underlying patterns. First, the two lowest spots were occupied by XOPREP, similar to the results of the RRCs. Second, the top two spots were taken by SX (this X not including OPREP). Following this, the third and fourth slots were occupied by OX (this X not including OPREP). Again, in order to fully understand this ordering and how they reflected the effects of either RC-related hypotheses, the data will be further analyzed in the next sections.

For a better illustration of the data presented above, Figure 6 below plots the scores of each RRC and NRRC subtype of each of the subject groups.
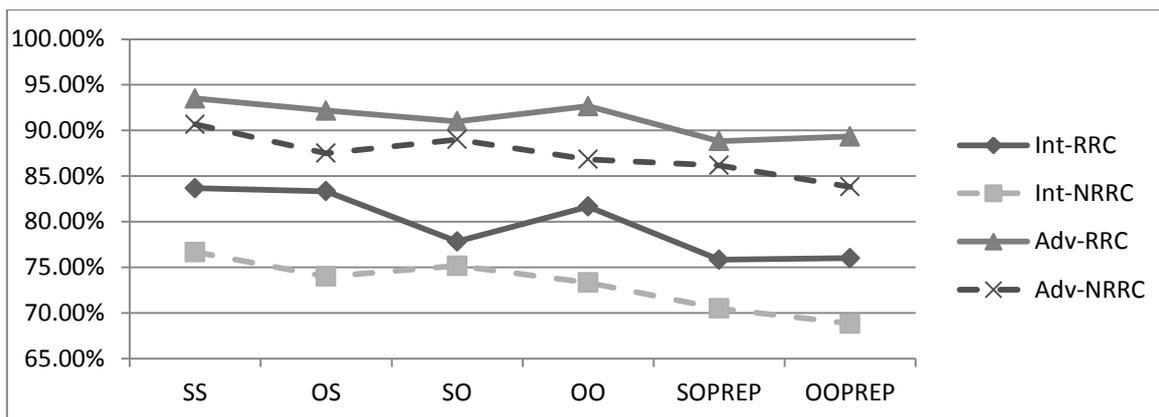
Figure 6: Accuracy scores on judgment of each RRC and NRRC subtype in the grammaticality judgment task

It can be seen that for the same subtype, the scores of RRCs (unbroken lines) were higher than those of NRRCs (dotted lines). It can be inferred from this that NRRCs were perceived to be more difficult than RRCs across all the subtypes. In addition, SS had the highest score for every line, showing that SS was perceived by the subjects to be the easiest.

Scores in relation to the RC-related hypotheses

Since the scores presented in the previous section did not show the extent to which the influence of the RC-related hypotheses was present in the data, this section will present the scores sorted on the basis of the grammatical role of the relativized material to gauge the influence of the NPAH as well as the grammatical role of the RC head noun to plumb the influence of the PDH. As for the effect of the SOHH, the orders of difficulty presented in the previous section will be used.

NPAH

The scores were categorized on the basis of the grammatical function of the relativized material in order to look into the influence of the NPAH in the data. Table 18 below shows the scores on RRCs by both learner groups.

Groups/RC types	XS	XO	XOPREP
Intermediate	83.50%	79.75%	75.92%
Advanced	92.83% (+9.33)	91.83% (+12.08%)	89.08% (+13.17%)

Table 18: Average accuracy scores on the judgment of each RRC type based on the relativized material in the grammaticality judgment task

For the intermediate group, XS (83.50%) appeared to be the easiest type, followed by XO (79.75%) and XOPREP (75.92%), respectively.

Similarly, the type with the highest accuracy score for the advanced group was XS (92.83%), followed XO (91.83%), and XOPREP (89.08%).

From the RRC data, the results seem to indicate the presence of the influence of the NPAH. That is, because the accessibility hierarchy posited by the NPAH held a degree of validity, the subjects found XS to be easier than XO and XOPREP, respectively.

As for NRRCs, the scores sorted by the grammatical role of the relativized material of the learner groups are presented in Table 19 below.

Groups/RC types	XS	XO	XOPREP
Intermediate	75.33%	74.25%	69.67%
Advanced	89.08% (+13.75%)	87.92% (+13.67%)	85.00% (+15.33%)

Table 19: Average accuracy scores on the judgment of each NRRC type based on the relativized material in the grammaticality judgment task

For the intermediate group, XS had the highest accuracy score of 75.33%. XO occupied the second highest score slot with 74.25%, followed by XOPREP (69.97%).

XS ranked highest at 89.08% for the advanced group, followed by XO (87.92%) and XOPREP (85.00%).

The data suggests that even for NRRCs, the NPAH applied to both groups. Therefore, from both RRC and NRRC data, it could be inferred that the NPAH exerted significant influence on the results, similar to the findings in Task 1.

To observe the differences between the RRC and NRRC data, the scores on the grammatical role of the relativized material are presented in Figure 7 below.
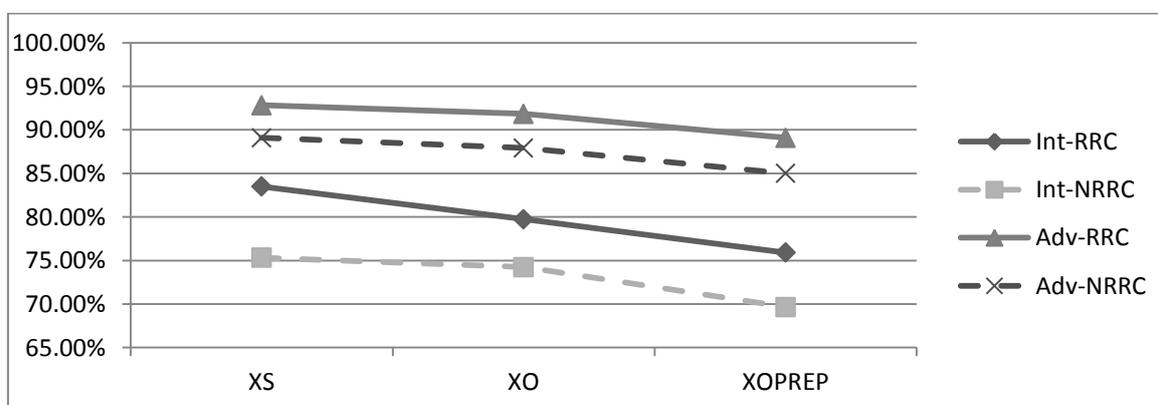
Figure 7: Progression of each RRC and NRRC type based on the grammatical role of the relativized material in the grammaticality judgment task

It can be seen that for both groups, apart from the fact that the scores followed the prediction of the NPAH mentioned above, the gap between the RRC and the NRRC also diminished as the proficiency increased. In addition, it can be seen that the subjects perceived RRCs to be easier than NRRCs even when the data was arranged on the basis of the grammatical role of the relativized material, supporting the findings in 5.2.1 and mirroring the findings of Task 1.

PDH

To delve into the influence of the PDH in the data, the scores were also sorted on the basis of the grammatical role of the RC head. The scores on items testing the RRCs of both subject groups are presented in Table 20 below.

Groups/RC types	SX	OX
Intermediate	79.11%	80.33%
Advanced	91.11% (+12.00%)	91.39% (+11.06%)

Table 20: Average accuracy scores on the judgment of each RRC type based on the grammatical role of the head noun in the grammaticality judgment task

In both learner groups, the OX scores were higher than their SX counterparts. For the intermediate learners, the OX score was 80.33% while the SX score stood at 79.11%, (1.22% lower). As for the advanced group, the OX score was 91.39%, only 0.28% higher than the SX score (91.11%).

The results suggest the presence of the influence of the PDH in the RRC data of both learner groups, albeit very small. That is, the grammaticality of an RRC could be judged more easily if it modified an object rather than a subject of the matrix clause.

In addition, the between-group score differences were also all in the plus, again indicating that a proficiency-related progression shown previously was evident even when the scores were arranged according to the grammatical role of the RC head.

As for NRRCs, the scores categorized by the grammatical role of the RC head are presented below in Table 21.

Groups/RC types	SX	OX
Intermediate	74.11%	72.06%
Advanced	88.61% (+14.50%)	86.06% (+14.00%)

Table 21: Average accuracy scores on the judgment of each NRRC type based on the grammatical role of the head noun in the grammaticality judgment task

Interestingly, for both groups, the SX scores seemed to outstrip the OX scores. For the intermediate group, the SX score stood at 74.11%, 2.05% higher than the OX score (72.06%). For the advanced group, the SX score was 88.61% while the OX score trailed at 86.06%. The results indicate that the PDH did not seem to have as much influence, if any at all, on NRRCs as on RRCs. This phenomenon mirrored what was found in Task 1.

To observe the differences between the RRC and NRRC data, the scores are presented in Figure 8 below.
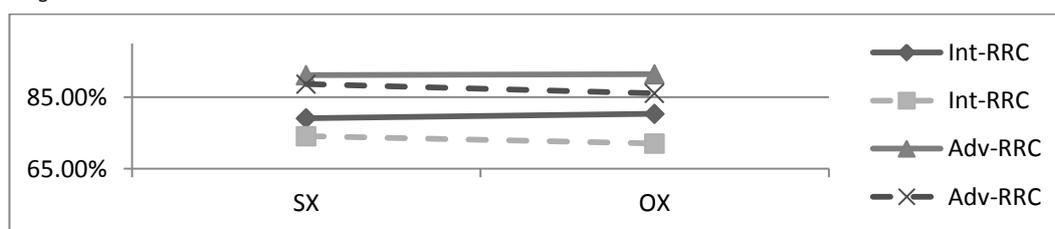

Figure 8: Progression of each RRC and NRRC type based on the grammatical role of the head noun in the grammaticality judgment task

It can be seen that the gap between RRCs and NRRCs seemed to diminish as the proficiency level increased. This suggests that although NRRCs might be considerably more difficult than RRCs for learners at lower proficiency levels, the construction came increasingly closer to RRCs in terms of difficulty/ease as learners became more advanced.

DISCUSSION

In this section, the trends demonstrated in the data will be discussed in terms of possible explanations.

Proficiency-related progression

All through the data in both tasks, it can be seen that the higher the proficiency level, the higher the accuracy scores (see Table 8 in 6.1.1 and Table 15 in 6.2.1). This tendency also manifested itself at a closer look throughout Tasks 1 and 2. This trend, as opposed to the one in

which learners' performance did not improve with increasing proficiency levels, suggests that RRCs and NRRCs can be acquired by L1 Thai learners, corroborating the findings of Amornwongpeeti and Pongpairoj (2013). That is, although they might not have exhibited complete mastery of the constructions at a lower level of proficiency, learners can become more and more accurate as they develop along the acquisition trajectory and even grow close to native speakers in certain aspects. The conclusion is consistent with Phoocharoensil (2009) and Amornwongpeeti and Pongpairoj (2013) with respect to RRCs (NRRCs were not studied exhaustively in both works,).

The most likely explanation as to why English RRCs and NRRCs can be acquired by Thai learners lies in L1 influence, which refers to the tendency for learners to use the forms and meanings in their first language in the target language (Gass & Selinker, 2008, p. 519). As shown in Table 1 in 2.4, English and Thai RCs share a number of common characteristics, which can facilitate the acquisition of English RCs. That is, because both English and Thai RCs are external-headed, right-embedded, and postnominal, as well as their use of the gap strategy, these similarities allow L1 Thai learners to acquire L2 English RCs with greater ease.

RRCs and NRRCs

The subjects were shown to be able to make a distinction between RRCs and NRRCs. This could be ascribed to L1 transfer. That is, because Thai also encodes the distinction between the two types of RCs, although the encoding methods have not been examined exhaustively (see 2.3.2), the subjects were primed to better classify RCs as restrictive and non-restrictive and grasp the difference in forms and functions between the two types.

Also evident throughout the results of Tasks 1 and 2 was the tendency for the subjects to be more accurate with RRCs than with NRRCs (see Figure 1 in 6.1.1 and Figure 5 in 6.2.1). That is, although the learners appeared to be able to acquire English RCs, their performance on RRCs always stayed slightly ahead of that on NRRCs. As the acquisition of RRCs and NRRCs has never been examined thoroughly side by side in the literature, whether this phenomenon is common across L1s has yet to be explored.

There are a few possible explanations for this phenomenon. First, the asymmetry could be ascribed to the frequency with which RRCs and NRRCs are used. As mentioned earlier, Biber et al. (1999) found in their corpus study that RRCs are more common than NRRCs in all written genres (p. 603). To be more precise, NRRCs account for only 15% of all RCs in fiction and academic prose. This number goes up to only 30% in news. Because humans have been shown to be sensitive to frequency to linguistic events (Ellis, 2002, cited in Robinson & Ellis, 2008) the evidence that NRRCs are less common suggests that it is possible that because learners were less exposed to NRRCs

than to RRCs, they were, thus, not able to acquire NRRCs at the same rate as RRCs and, as a result, they were not as accurate with NRRCs as they were with RRCs (p.46).

The frequency mentioned above is linked to the second explanation. That is, RRCs are claimed to be more prototypical to the category of RC than are NRRCs. As mentioned in 2.1, Comrie (1989) claimed that NRRCs are less central to the notion of RCs than RRCs (p. 139). This claim seems to be confirmed by the amount of research devoted to RRCs when compared to that dedicated to NRRCs. This prototype claim is also linked to frequency, which is said to determine the prototype of a category (Bybee, 2001, cited in Robinson & Ellis, 2008, p. 46). As prototypes are more salient, they can positively affect L2 development (Robinson & Ellis, 2008, p. 7). The positive effects of salience on L2 acquisition have been demonstrated in a number of studies across different linguistic areas (such as Carroll & Shea, 2007, on prosody ; Goldschneider & DeKeyser, 2001, on L2 morpheme acquisition; Trenkic & Pongpairoj, 2013, on L2 article use) Therefore, it is possible that the subjects were more accurate on RRCs than NRRCs because RRCs are more prototypical and, thus, more salient.

Another possible explanation may have to do with the textbooks to which these learners were exposed. Five textbooks used by Thai high school students were sampled (*New Inside Out – Intermediate* (Kay & Jones, 2009, p. 89), *New English File – Intermediate* (Oxenden & Latham-Koenig, 2006, pp. 92-95)*, American Headway 4* (Soars & Soars, 2005, p. 67), *Solutions – Intermediate* (Falla & Davies, 2012, pp. 25-27), and *Knock Out*: *First Certificate* (May, 1999, p. 70)). Indeed, in each of the textbooks, RRCs are introduced before NRRCs. Even when the main topic in the lesson is RCs, RRCs are taught first. As a consequence, these learners might have developed a notion that RRCs were more central to RCs and perceived NRRCs as secondary. In addition, the tendency for NRRCs to be introduced after RRCs have been taught also appears in English grammar textbooks. Five commercial textbooks by international publishers were sampled (*Macmillan English Grammar in Context – Advanced* (Vince, 2008, p. 158), *Advanced Grammar in Use* (Hewings, 2005, p. 106)*, Oxford English Grammar Course* (Swan & Walter, 2011, p. 208. 210)*, Oxford Practice Grammar* (Yule, 2006, p. 174), and *Understanding and Using English Grammar* (Azar, 2002, p. 281)). Unsurprisingly, in not one of these five books are NRRCs taught before RRCs. Because of such reinforcement, the asymmetry between RRC and NRRC acquisition evident in the data is understandable.

Difficulty orders

A number of studies have been conducted in pursuit of the difficulty order in the acquisition of RCs. However, the results from this study varied considerably and did not yield any

conclusive order for each subject group. Although generally SS was shown to be the easiest RC subtype across the data, the remaining subtypes did not remain constant.

A possible explanation for this is that the difficulty order was governed by a conglomerate of factors, whose dynamics and relationships were not straightforward. For example, the NPAH and the PDH were shown to be at play in the data. However, the extent to which they held sway over the data could vary which, in turn, could alter the difficulty order. To illustrate, an extreme example is in order. If the NPAH effect has more influence on the data than the effect of the PDH, the difficulty order yielded might be SS > OS > SO > OO > SOPREP > OOPREP. However, if the scenario is reversed, the difficulty order might be SS > SO > SOPREP > OS > OO > OOPREP. In both cases, the accessibility hierarchy and the perceptual difficulty are still at play. As it is very unlikely for the two hypotheses to exert their influence to an equal degree under every circumstance, it is only natural that the orders found in the current study exhibit a degree of variety.

RC-related hypotheses

Attempts will be made to offer some explanation for the trends related to both RC-related hypotheses that have been found in the data.

The NPAH

Based on the grammatical role of the gap, the NPAH predicts that XS is easier than XO, and XO is easier than XOPREP. When other factors were excluded and only the grammatical role of the gap was considered, a trend became evident; the overall results lent support to this hypothesis (see Figure 3 in 6.1.3.1 and Figure 7 in 6.2.3.1). The results were consistent with a number of studies, including Gass (1979, 1980), Eckman et al. (1988), Yip and Matthews (1991), Hsin and Wang (2005), and Phoocharoensil (2009), all of which point out the role the NPAH has on the acquisition of RCs. It should also be noted that the influence of the NPAH was also present in the NRRC data, adding a new piece of information to the literature on RC acquisition and the NPAH.

With the trend established, it should be pointed out that although the hierarchy found in this study did not strictly follow the order the NPAH postulates, it is possibly because the order was also influenced by the PDH. In other words, the validity of the accessibility hierarchy was still supported in this study even though the difficulty orders did not appear to be exactly as postulated by the NPAH.

The results were also borne out by corpus findings. Biber et al. (1999) has shown that RCs with subject gaps or XS are the most common subtype of RCs, and are found in conversation and fiction (55%) and in news and academic prose (75%) (pp. 621-22). Biber et al. has

claimed that this is because XS is easier to process than non-XS as no clause element is displaced from its normal position[5].

The PDH

The PDH makes predictions based on the notion of perceptual difficulty, claiming that RCs that modify subject head nouns, and thus intervene between subjects and verbs, are more difficult than RCs that modify object head nouns. The overall results interestingly seemed to reveal two contradicting trends for RRCs and NRRCs.

For RRCs, the PDH was generally supported (see Figure 4 in 6.1.3.2 and Figure 8 in 6.2.3.2) in both tasks. That is, OX was shown to be slightly easier than SX. The results appeared to be consistent with a number of studies, such as Ioup and Kruse (1977), Schumann (1980), Iwami (1991), Izumi (2003), and Phoocharoensil (2009), which have indicated that OX poses less trouble to learners than SX and can be acquired more easily.

Apart from the perceptual difficulty as an explanation for this phenomenon (see 3.1.2), another possible factor possibly reinforcing the results lies in the frequency of SX. Biber et al. (1999) found that SX accounts for only 10-15% of all RCs across different registers (p.623). Because SX is considerably rarer than OX, it is possible that learners received lesser exposure to SX as well, and as a result, did not acquire SX at the same rate as OX.

However, as noted above, OX was shown to be only slightly easier than SX (see Table 13 in 6.1.3.2 and Table 20 in 6.2.3.2). This comparison introduces a further dimension worthy of discussion. That is, the written data revealed that the learner subjects have been trained to parse SX. Many learners put parentheses around SX to make sure they could find the subject and the verbs on either side. This technique could perhaps be ascribed to tutorial school instruction. To help students deal with national examinations, many tutorial schools teach their students parsing techniques. This is evident in course materials from two popular tutorial schools (Enconcept and Kru Somsri), both of which teach students to parse RCs, especially SX, using parentheses. This technique even appears in a course material for Brand's Summer Camp, a short cram event held annually and broadcast throughout the nation (Thammasarasopon et al., 2013, pp. 3, 191). Therefore, the results could be affected by transfer of training, one of the five cognitive

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[5] Apart from XS RCs, the other subtypes of RCs involve some sort of clause element displacement.

(i)   XS   the cake [that was in the fridge]

(ii)   XO   the cake[that I ate]

In (i), *that*, which functions as the subject in the RC, is not moved from its subject position in the RC. However, in (ii), *that*, which functions as an object in the RC, is moved from its object position after the verb *ate* to precede the subject *I*. This type of displacement or movement is claimed by Biber et al. to make the statement more difficult to process.

processes that can influence learners' L2 acquisition (Selinker, 1972, cited in R. Ellis, 1994, p. 351). That is, because these learners may have been trained to use such a technique, they could parse more accurately and are less affected by the perceptual difficulty caused by SX.

As for NRRCs, the PDH was systematically contradicted (see Figure 4 in 6.1.3.2 and Figure 8 in 6.2.3.2) in both tasks. That is, the subjects were more accurate with items testing SX than with items testing OX. However, instead of concluding that the PDH played no role in the NRRC data, an attempt will be made to give an alternative explanation that does not reject the PDH. That explanation has to do with prototypes. It is possible that the prototype of NRRCs is a NRRC whose head noun functions as a subject in the matrix clause. This is reflected in commercial English grammar textbooks produced by international publishers. In all five sampled books (see 7.2), the NRRCs used to introduce this type of RC are all SX. To further test if SX-NRRCs are more prototypical than OX-NRRCs, the researcher sent out an informal online questionnaire to ten participants[6], asking each to write one random sentence with an NRRC. Nine out of ten NRRCs sent back were SX. Whether the prototype of NRRCs is SX certainly requires a more formal and thorough investigation. However, as the distinctions between RRCs and NRRCs, in terms of linear syntactic arrangement, do not involve factors that would make perceptual difficulties apply to only RRCs and not to NRRCs, the effect of the PDH will not be completely ruled out. Instead, it will be proposed that the PDH influence might be overridden by the prototype effect in the NRRC data.

CONCLUSION

In conclusion, the first hypothesis of the study, which stated that the NPAH and the PDH would be equally applicable to both RRCs and NRRCs, was only partially supported. In terms of the acquisition orders posited by both RC-related hypotheses, the orders yielded by the data of both tasks pointed to the possibility that the difficulty orders were governed by more than one factor, and these factors interacted in such a way that did not allow the orders to perfectly conform to any single order posited by both RC-related hypotheses. Therefore, in this respect, it had to be concluded that both RC-related hypotheses failed equally in predicting the precise order of difficulty in both RRCs and NRRCs. However, in terms of the overall influence of these RC-related hypotheses, the NPAH was shown to apply to both RRCs and NRRCs (see 6.4.1). While the hypothesis was initially formed on RRC data, the results indicated that the NPAH could be extended to NRRCs. This was probably due to the fact that the distinctions between English RRCs and NRRCs do not involve any drastic changes in the linear syntactic arrangement that would

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[6] All of the participants had been graduated from the Faculty of Arts, Chulalongkorn University for 3 years at the time of the administration of the questionnaire.

otherwise affect the position of the grammatical role of the relativized material, the factor upon which the NPAH is hinged. Interestingly, the PDH had been shown to apply clearly only to the RRC data, contradicting the first hypothesis posed by the study. The NRRC data has consistently defied the effect of the PDH, and the current study has ascribed this phenomenon to the prototype effect. That is, because SX seems to be more prototypical of NRRCs than OX, the subjects were primed to score higher on items with SX. Therefore, the first hypothesis was supported only with regard to the overall influence of the NPAH. That is, only the influence of the NPAH seems to apply equally to RRCs and NRRCs.

The second hypothesis of the study stated that while the acquisition orders might be the same for RRCs and NRRCs, the rate at which each subtype of RC would be acquired might diverge for RRCs and NRRCs. This hypothesis is borne out by the research results. Although the acquisition orders were shown to vary greatly, the rate at which the same RC type was acquired differed quite systematically, with NRRCs generally trailing behind RRCs for each RC type. This went hand in hand with the general trend discerned throughout the study; that is, NRRCs are more difficult than RRCs. The asymmetry was explained in terms of the unequal frequencies of RRCs and NRRCs, the prototype effect, and transfer of training. In addition, NRRCs also seemed to involve more restrictions on relativizers, which in turn predisposed the subjects to making more mistakes.

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REFERENCES

Allan, D. (1992). *The Oxford placement test*. Oxford: Oxford University Press.

Amornwongpeeti, A., & Pongpairoj, N. (2013). Acquisition of L2 English restrictive relative clauses by L1 Thai speakers: A case of the failed functional features hypothesis *Thoughts 2012*, 42-69.

Arts, B., & McMahon, A. (2006). *The handbook of English linguistics*. Malden, MA: Blackwell Publishing.

Azar, B. S. (2002). *Understanding and using English grammar* (3rd ed.). New York: Pearson Education.

Bache, C., & Jakobsen, L. K. (1980). On the distinction between restrictive and non-restrictive relative clauses in modern English. *Lingua, 52*, 243-267.

Bardovi-Harlig, K. (1987). Markedness and salience in second-language acquisition. *Language Learning, 37*(3), 385-407. doi: 10.1111/j.1467-1770.1987.tb00577.x

Biber, D., Johansson, S., Leech, G., Conrad, S., & Finegan, E. (1999). *Longman grammar of spoken and written English*. London: Longman.

Brown, H. D. (1971). Children's comprehension of relativized English sentences. *Child Development, 42*(6), 1923-1936. doi: 10.2307/1127595

Bybee, J. (2003). *Phonology and language use*. Cambridge: Cambridge University Press.

Carroll, S. E., & Shea, C. (2007). Salience, focus and second language acquisition. *Nouveaux Cahiers de Linguistique Française, 28*, 99-106.

Chomsky, N., & Lasnik, H. (1977). Filters and control. *Linguistic Inquiry, 8*(3), 425-504.

Chou, Y.-h. (2006). *Acquisition of English relative clause by Taiwan EFL college students.* (M.A.), National Sun Yet-sen University, Taiwan.

Comrie, B. (1989). *Language universals and linguistic typology* (2nd ed.). Chicago: The University of Chicago Press.

Cook, V. J. (1973). The comparison of language development in native children and foreign adults *IRAL - International Review of Applied Linguistics in Language Teaching* (Vol. 11, pp. 13).

Doughty, C. (1991). Second language instruction does make a difference. *Studies in Second Language Acquisition, 13*(04), 431-469. doi: doi:10.1017/S0272263100010287

Eckman, F. R., Bell, L., & Nelson, D. (1988). On the generalization of relative clause instruction in the acquisition of English as a second language. *Applied Linguistics, 9*(1), 1-20. doi: 10.1093/applin/9.1.1

Ellis, N. C. (2002). Frequency effects in language processing. *Studies in Second Language Acquisition, 24*(02), 143-188. doi: doi:10.1017/S0272263102002024

Ellis, R. (1994). *The study of second language acquisition*. Oxford: Oxford University Press.

Falla, T., & Davies, P. A. (2012). *Solutions: Intermediate: Student book*: Oxford University Press.

Flanigan, B. O. (1995). Anaphora and relativization in child second language acquisition. *Studies in Second Language Acquisition, 17*(03), 331-351.

Gass, S. (1979). Language transfer and universal grammatical relations. *Language Learning, 29*(2), 327-344. doi: 10.1111/j.1467-1770.1979.tb01073.x

Gass, S. (1980). An investigation of language transfer in adult second language learners. In R. C. Scarcella & S. D. Krashen (Eds.), *Research in second langauge acquisition* (pp. 132-141). Rowley, MA: Newbury House.

Gass, S. (1994). The reliability of second-language grammaticality judgments. In E. Tarone, S. M. Gass & A. Cohen (Eds.), *Research methodology in second language acquisition* (pp. 303–322). Hillsdale, NJ: Lawrence Erlbaum.

Gass, S., & Selinker, L. (2008). *Second language acquisition: An introductory course* (3rd ed.). New York: Routledge/Taylor Francis.

Goldschneider, J. M., & DeKeyser, R. (2001). Explaining the "natural order of L2 morpheme acquisition" in English: A meta-analysis of multiple determinants. *Language Learning, 51*, 1-50.

Hatch, E. (1971). The young child's comprehension of relative clauses. *Technical Note, 2*, 16-17.

Hawkins, J. A. (1999). Processing complexity and filler-gap dependencies across grammars. *Language, 75*(2), 244-285. doi: 10.2307/417261

Hawkins, R., & Chan, C. Y.-h. (1997). The partial availability of Universal Grammar in second language acquisition: the 'failed functional features hypothesis'. *Second Language Research, 13*(3), 187-226.

Hewings, M. (2005). *Advanced grammar in use*. Cambridge: Cambridge University Press.

Hsin, A. L., & Wang, M. J. (2005). The order of difficulty in relative clause learning for Chinese EFL students. *English Teaching and Learning, 29*, 61-84.

Ioup, G., & Kruse, A. (1977). Interference vs. structural complexity in second language acquisition: Language universals as a basis for natural sequencing. In H. D. Brown, C. A. Yorio & R. H. Crymes (Eds.), *On TESOL '77 - Teaching and learning English as a second language: Trends in research and practice*. Washington, DC: TESOL.

Iwami, I. (1991). *The learning of relative-clause formation by Japanese junior high school students and textbook design.* (Ph.D.), University of Kansas.

Iwasaki, S., & Ingkapirom, P. (2005). *A reference of Thai grammar*. Cambridge: Cambridge University Press.

Izumi, S. (2003). Processing difficulty in comprehension and production of relative clauses by learners of English as a second language. *Language Learning, 53*(2), 285-323. doi: 10.1111/1467-9922.00218

Johnson, J. S., Shenkman, K. D., Newport, E. L., & Medin, D. L. (1996). Indeterminacy in the grammar of adult language learners. *Journal of Memory and Language, 35*, 335–352.

Kay, S., & Jones, V. (2009). *New inside out: Intermediate*: Macmillan.

Keenan, E. L., & Comrie, B. (1977). Noun phrase accessibility and universal grammar. *Linguistic Inquiry, 8*(1), 63-99. doi: 10.2307/4177973

Keenan, E. L., & Comrie, B. (1979). Noun phrase accessibility revisited. *Language, 55*(3), 649-664. doi: 10.2307/413321

Kullavanijaya, P. (2006). Noun modifying clauses. In A. Prasithrathsint (Ed.), *Controversial constructions in Thai grammar: Relative clause constructions, complement clause constructions, and passive constructions* (pp. 7-65). Bangkok: Chulalongkorn University Press.

Kuno, S. (1974). The position of relative clauses and conjunctions. *Linguistic Inquiry, 5*(1), 117-136. doi: 10.2307/4177810

Legum, S. (1975). Strategies in the acquisition of relative clauses. *Southwest Regional Laboratory Technical Note, TN 2-75-10*.

Leow, R. (1996). Grammaticality judgment tasks and second-language development. *Georgetown University Round Table on Languages and Linguistics*, 126–139.

Liceras, J. (1993). Los juicios de gramaticalidad en terreno movedizo. *Foro Hispànico, 6*, 15-30.

Mandell, P. (1999). On the reliability of grammaticality judgement tests in second language acquisition research. *Second Language Research, 15*(1), 73–99.

May, P. (1999). *Knock out: First certificate: Student's book*: Oxford University Press.

O'Grady, W. (1999). Toward a new nativism. *Studies in Second Language Acquisition, 21*(04), 621-633.

Oxenden, C., & Latham-Koenig, C. (2006). *New english file: Intermediate*: Oxford University Press.

Phoocharoensil, S. (2009). *A study of English relative clauses in the interlanguage of Thai EFL learners.* (Ph.D), Chulalongkorn University.

Phoocharoensil, S. (2011). Resumptive pronouns in learner language. *International Journal of Arts and Sciences, 4*(4), 182-193.

Prideaux , G. D., & Baker, W. J. (1987). *Strategies and structures: The processing of relative clauses* (Vol. 46). Amsterdam: John Benjamins.

Robinson, P., & Ellis, N. C. (2008). *The handbook of cognitive linguistics and second language acquisition*. New York/London: Routledge.

Sadighi, F., & Jafarpur, A. (1994). Is there a role for learner treatment in comprehending relative clauses? *RELC Journal, 25*(1), 56-74.

Schachter, J. (1974). An error in error analysis. *Language Learning, 24*(2), 205-214. doi: 10.1111/j.1467-1770.1974.tb00502.x

Schumann, J. H. (1980). The acquisition of English relative clauses by second language learners. In R. C. Scarcella & S. D. Krashen (Eds.), *Research in second language acquisition*. Rowley, MA: Newbury House.

Selinker, L. (1972). Interlanguage *IRAL - International Review of Applied Linguistics in Language Teaching* (Vol. 10, pp. 209).

Slobin, D. I. (1973). Cognitive prerequisites for the development of grammar. In C. A. Ferguson & D. I. Slobin (Eds.), *Studies of child language development* (pp. 175-208). New York: Holt, Rinehart, & Winston.

Soars, J., & Soars, L. (2005). *American headway 4: Student book* (2nd Ed.): Oxford University Press.

Stauble, A. (1978). *A frequency study of restrictive relative clause types and relative pronoun usage in English*. UCLA.

Stowell, T. (2005). Appositive and parathetical relative clauses. In H. Broekhuis, N. Corver, J. Koster, R. Huybregts & U. Kleinhenz (Eds.), *Organizing grammar: Linguistic studies in honor of Henk van Riemsdijk* (pp. 608–617). Berlin/New York Mouton de Gruyter.

Suktrakul, S. (1975). *Contrastive analysis of relative clauses in Thai-English.* (Ed.D.), The State University of New Jersey, New Brunswick, New Jersey.

Swan, M. (2005). *Practical English usage.* Oxford: Oxford University Press.

Swan, M., & Walter, C. (2011). *Oxford English grammar course: Advanced*. Oxford: Oxford University Press.

Thammasarasopon, S., Tanapakit, A., & Inpong, S. (2013). *Brand's Summer Camp 2014*

Trenkic, D., & Pongpairoj, N. (2013). Referent salience affects second language article use. *Bilingualism Language and Cognition, 16*(11), 152-166.

Valli, H., Hernandez, N., Archard-Baule, M., & Beretti, M. F. (1972). *Compte-rendu d'une experience realisee dans une classe de 6e 2, dont le but etait d'etudier les mecanismes de la production des relatives chez l'enfant.* Institut de Didactique et Pedagogie: Universite de Provence.

Vince, M. (2008). *Macmillan English grammar in context: Advanced*. Oxford: Macmillan.

Wasow, T., Jaeger, T. F., & Orr, D. (2011). Lexical variation in relativizer frequency. In H. Simon & H. Wiese (Eds.), *Expecting the unexpected: Exceptions in grammar* (pp. 175-195): De Gruyter.

Xiao, Y., & Lu, J. (2005). Chinese learners' interlanguage development in the acquistion of several types of English relative clauses. *Foreign Language Teaching and Research*(4).

Yaowapat, N. (2005). Pronoun retention in Khmer and Thai relative clauses. In P. Sidwell (Ed.), *SEALSXV: Papers from the 15th meeting of the Southeast Asian Linguistics Society* (pp. 121-132). Canberra: Pacific Linguistics.

Yaowapat, N., & Prasithrathsint, A. (2008). A typology of relative clauses in mainland Southeast Asian languages. *Mon-Khmer Studies, 38*, 1-23.

Yip, V., & Matthews, S. (1991). Relative complexity: Beyond avoidance. *CUHK Papers in Linguistics, 3*, 112-124.

Yule, G. (2006). *Oxford practice grammar*. Oxford: Oxford University Press.

Appendix A: Individual learner subject information

12	Age	Faculty	OPT score	Proficiency
Subject 1	18	Engineering	62	Intermediate
Subject 2	19	Medicine	63	
Subject 3	18	Law	63	
Subject 4	18	Law	63	
Subject 5	17	Law	64	
Subject 6	18	Law	64	
Subject 7	18	Law	65	
Subject 8	18	Medicine	66	
Subject 9	19	Engineering	66	
Subject 10	18	Medicine	67	
Subject 11	18	Engineering	68	
Subject 12	18	Engineering	68	
Subject 13	18	Engineering	68	
Subject 14	18	Engineering	68	
Subject 15	19	Law	68	
Subject 16	18	Education	68	
Subject 17	18	Medicine	70	
Subject 18	18	Engineering	70	
Subject 19	18	Medicine	71	
Subject 20	19	Law	71	
Subject 21	20	Arts	75	Advanced
Subject 22	19	Arts	76	
Subject 23	18	Medicine	77	
Subject 24	18	Law	77	
Subject 25	18	Law	77	
Subject 26	18	Law	78	
Subject 27	18	Law	78	
Subject 28	18	Law	78	
Subject 29	18	Law	79	
Subject 30	19	Medicine	80	
Subject 31	18	Medicine	80	
Subject 32	18	Engineering	80	
Subject 33	18	Engineering	80	
Subject 34	18	Medicine	81	
Subject 35	18	Medicine	84	
Subject 36	19	Engineering	86	
Subject 37	18	Engineering	86	
Subject 38	18	Engineering	87	
Subject 39	19	Arts	89	
Subject 40	20	Arts	89	

Appendix B: Individual native speaker subject information

Subject	Age	OPT Score
Subject 1	22	92
Subject 2	24	96
Subject 3	26	97
Subject 4	28	98
Subject 5	31	98

Appendix C: Sentence interpretation task

Task 1: Sentence Interpretation

Instructions: Read the given sentences and rate if the statements given under each sentence can be inferred from the sentence. If they can be inferred from the sentence, mark ✔. If they cannot be inferred from the sentence, mark ✘. You have 45 minutes to complete this task.

Example

0. If I had paid attention in class, I would have passed the exam.
_____ I did not pass the exam.
_____ I paid attention in class.

If you think the first statement can be inferred from the given sentence, put ✔ in the space provided.

_____✔_____ I did not pass the exam.

If you think the second statement cannot be inferred from the given sentence, put ✘ in the space provided.

_____✘_____ I paid attention in class.

For each sentence, both statements could be all correct or all incorrect, or only one of the statements is correct.

0. If I had paid attention in class, I would have passed the exam.
_____✔_____ I did not pass the exam.
_____✔_____ I did not pay attention in class.

0. If I had paid attention in class, I would have passed the exam.
_____✘_____ I passed the exam.
_____✘_____ I paied attention in class.

0. If I had paid attention in class, I would have passed the exam.
_____✔_____ I did not pass the exam.
_____✘_____ I paid attention in class.

Warm up:

i. He has no one to blame but himself.

_____ He is at fault.

_____ He should not blame anyone else.

ii. Not unlike raising a child, having a pet is a huge responsibility.

_____ There is no similarity between raising a child and having a pet.

_____ Both child rearing and pet keeping are a huge responsibility.

1. The dog which is sleeping is mine.

_____ I have at least one dog.

_____ Some other dogs are also sleeping.

2. I really like the plant that grows by your window.

_____ The other plants do not grow by your window.

_____ This plant grows by your window.

3. The exporter I contacted told me that the products would arrive in two weeks.

_____ I also contacted some other exporters.

_____ I contacted this exporter.

4. Pat disliked the ending of the movie, which most reviewers praised.

_____ There was also another ending, and most reviewers hated it.

_____ Pat disliked most reviewers.

5. The bakery which you talked about was just shut down.

_____ You did not talk about other bakeries.

_____ Your bakery was just shut down.

6. The villagers cut the tree that an evil spirit lived inside.

_____ There were probably some other trees with an evil spirit as well.

_____ The villagers did not cut this tree.

7. The factory the government closed hired illegal employees.

_____ The government also closed some other factories.

_____ The government closed this factory.

8. The band had to fire the drummer, who(m) the police found using drugs last week.

_____ This drummer was the only drummer in the band.

_____ The police found the band using drugs after the concert.

9. The woman who(m) you used to be in love with just got married to a billionaire.

_____ You were also in love with other women.

_____ You were not in love with this woman.

10. This morning Jim visited the school that Amy and he went to.

_____   There were also some other schools that Amy and Jim went to.

_____   Amy and Jim did not go to this school.

11. The shareholders do not like the product you manufacture.

_____   You do not manufacture the other products.

_____   You manufacture this product.

12. The actress, who(m) you might not have heard of, is a Youtube celebrity.

_____   It is possible that you might not have heard of some other actresses as well.

_____   You must have heard of the Youtube celebrity.

13. I just found the supermarket which your sister worked at.

_____   If there were other supermarkets, your sister did not work there.

_____   Your sister worked at this supermarket.

14. The rose that came from your garden was so beautiful.

_____   Apart from this rose, some other roses also came from your garden.

_____   Your garden was so beautiful.

15. I do not think you fully understand the article she wrote.

_____   There might be some other articles, but she did not write them.

_____   I do not think she wrote the article.

16. The book, which the movie was based on, was little known before the movie came out.

_____   The movie was based on this book.

_____   Everybody knew the book even before the movie came out.

17. I know the professor who(m) you are looking for.

_____   You are also looking for the other professors.

_____   The professor is looking for you.

18. The thermometer that was wrapped in paper did not work anymore.

_____   If there were other thermometers, they were also wrapped in paper.

_____   The paper did not work anymore.

19. The information you're looking for is not available on our database.

_____   There might be other information, and you are looking for it as well.

_____   This information is what you are looking for.

20. The institute is forced to end the project, which John has been working on since he first worked here.

_____   What John has been working on since he first worked here was this project.

_____   The project is ended.

21. The postman who often came here just left his job.

_____   The other postmen also came here often.

_____   This postman came to leave his job.

22. Apple just released the application that allows its users to upload data from anywhere.

_____   The other applications do not allow their users to upload data from anywhere.

_____ Apple uploads data from anywhere.

23. The grandmother you borrowed money from just called an hour ago.

_____ An hour ago, this grandmother just called.

_____ You borrowed money from this grandmother an hour ago.

24. We have been avoiding the woman, who(m) Jane is still angry at.

_____ Jane is angry at this woman.

_____ We have been avoiding Jane.

25. I just ate the cake which was in the fridge.

_____ There might be some other cake outside the fridge.

_____ This particular cake was in the fridge.

26. The theory that Sir Isaac Newton proposed marked the beginning of science.

_____ If there were other theories, Sir Isaac Newton did not propose them.

_____ Sir Isaac Newton proposed the beginning of science

27. The government continued the policy people protested against anyway.

_____ People also protested against the other policies.

_____ People protested against this policy.

28. The dictionary, which has more than 300,000 entries, is the most expensive of its kind.

_____ This dictionary is probably not the only one with more than 300,000 entries.

_____ This dictionary contains more than 300,000 entries.

29. A policeman fined the driver who was driving too fast.

_____ The other drivers were not driving too fast.

_____ This driver was fined for driving too fast.

30. The hamster that I kept was called Tyler.

_____ I also kept some other hamsters.

_____ I kept this hamster.

31. A dark forest with dangerous animals lay in the direction Kim was heading for.

_____ There were other directions, but Kim was not heading those ways.

_____ Kim was heading for this direction.

32. The suspect, who was 26, drove a red car towards the expressway.

_____ What this suspect drove was a red car.

_____ This 26-year-old person was a suspect.

33. The fridge which Jane bought did not fit the space.

_____ Jane also bought the other fridges.

_____ This fridge was bought by Jane.

34. My poodle broke the vase that I made.

_____ If there were other vases, I also made them.

_____ I made this vase.

35. The earthquake caused the tsunami, which is expected to hit the shore in two days.

_____ If there are some other tsunamis, they might hit the shore in two days as well.

_____ The earthquake is expected to hit the shore in two days.

36. The thief who(m) the girl saw ran out the back door.

_____ If there were other thieves, the girl did not see them.

_____ The girl ran out the back door.

37. Rosa clearly did not like the dress that her daughter was wearing.

_____ Her daughter might have some other dresses, but she was not wearing them.

_____ Rosa did not like her daughter.

38. People seemed to hate the minister, who had no previous experience in politics.

_____ People seemed to hate this inexperienced minister.

_____ People also hated politics.

39. The storm destroyed the park which the city people loved.

_____ The city people also loved the other parks.

_____ This park was destroyed by the storm.

40. The plan that the government intended to carry out was criticized.

_____ The government did not intend to carry out other plans.

_____ People praised this plan.

41. The band, which Thai people love so much, started out with only three members.

_____ Thai people love this band so much.

_____ This band loves Thai people so much.

42. She liked the teacher who(m) all of her friends hated.

_____ The other teachers were not hated by all of her friends.

_____ Not all of her friends hated this teacher.

43. The man that Danielle went out with called her again.

_____ Danielle did not go out with other men.

_____ This man called Danielle

44. The burglar, who(m) no one managed to catch, was arrested this morning.

_____ There was another burglar.

_____ This morning, no one could catch the burglar.

Appendix D: Grammaticality judgment task

Task 2: Grammaticality judgment test with sentence correction

Instructions: Read each sentence. Then, put either A, B, C, or D in the blank in front of the sentence to rate if it is grammatical or not.

A = Definitely correct

B = Probably correct

C = Probably incorrect

D = Definitely incorrect

<div style="border:1px solid">

Example 1

_____a. I love ice cream.

If you think this sentence is <u>definitely correct</u>, put the letter A in the blank in front of the sentence.

____A___a. I love ice cream.

If you think this sentence is <u>probably correct</u>, put the letter B in the blank in front of the sentence.

____B___a. I love ice cream.

</div>

If you think the sentence is incorrect (i.e. if you put C or D in the blank), please also provide a correction. Also note that <u>you will not be tested on errors related to spelling, tense, and punctuation</u>

<div style="border:1px solid">

Example 2

_____b. They does not know where the toilet is.

If you think this sentence is <u>probably incorrect</u>, put the letter C in the blank in front of the sentence as well as cross out the incorrect part and provide a correction over it.

           do
___C___b. They ~~does~~ not know where the toilet is.

If you think this sentence is <u>definitely incorrect</u>, put the letter D in the blank in front of the sentence as well as cross out the incorrect part and provide a correction over it.

           do
___D___b. They ~~does~~ not know where the toilet is.

</div>

You have 60 minutes to complete the task.

DO NOT return to previous questions to change answers.

Warm up:

_____ i. Chulalongkorn University was founded in 1917.

_____ ii. I didn't bought the vase.

_____ iii. The grass always looks greener on the other side.

_____

_____ 1. The document which was on the table was given to Mr. Evans.

_____ 2. I like the cake that has chocolate fudge and chocolate chips on top.

_____ 3. The house Henry got from his grandmother was too big for him to live there alone.

_____ 4. I didn't see the bag which you made it.

_____ 5. The tart which that this bakery is famous for is actually very easy to make.

_____ 6. Einstein came up with the theory, which we are making use of at the moment.

_____ 7. The doll, that sat on the shelf, belonged to his sister.

_____ 8. The court also supported the law, will force every motorist to wear a helmet.

_____ 9. The contract, which Jimmy signed it, made him lose his house.

_____ 10. Jennifer Aniston popularized the hairstyle, which that every girl in the 90's tried to imitate.

_____ 11. The book which you are looking for has already been borrowed.

_____ 12. I won't sleep in the bed that she slept in.

_____ 13. The seed received no light grew very little compared to the one in the sun.

_____ 14. He asked me not to use the pan which it was in the cupboard.

_____ 15. The explosive which that Nobel invented changed the world forever.

_____ 16. HBO is going to air the scene, which nobody has ever seen before.

_____ 17. The restaurant, that Ricky and I just went to last Friday, also serves grilled fish.

_____ 18. The island's main attractions include the waterfall, every visitor has to take a photo of.

_____ 19. The book, which it will hit the shelf this Monday, contains all the details about the new star.

_____ 20. They missed the event, which that would not be held again in the next four years.

_____ 21. The package which you took also included breakfast.

_____ 22. You've picked the t-shirt that I hate the most.

_____ 23. The bus he got on was almost empty.

_____ 24. The military successfully captured the killer who(m) people were so afraid of him.

_____ 25. The flag which that was replaced by the current one was last flown in 1936.

_____ 26. Most people on higher floors should be able to feel the earthquake, which measured over 5 on the Richter scale.

_____ 27. The element, that scientists can create in a lab, is highly unstable.

_____ 28. He was forced to drop the gun, he held in his right hand the whole time.

_____ 29. The board, which you can also put your ads on it, is right in front of the canteen.

_____ 30. Several experts have been invited to discuss the topic, which that Peter was really keen on.

_____ 31. The committee also chose the book which won the popular vote.

_____ 32. The street that you will have to take should be on your left.

_____ 33. Tom lost the watch his grandmother gave him.

_____ 34. The ticket which you have paid for it can be collected at the entrance.

_____ 35. You must report to the police the noise which that you have been putting up with.

_____ 36. The church, which was built in the 14th century, once served to protect refugees.

_____ 37. People in the village believe in the legend, that has been passed on from generation to generation.

_____ 38. The parasite, Dr. Henry found accidentally, is revealed to be harmless.

_____ 39. The flood has severely damaged the temple, which the villagers built it just 2 years ago.

_____ 40. The sauce, which that John doesn't dip his chicken nuggets in, is actually neither hot nor spicy.

_____ 41. Please make sure that you clean the slot which you put discs in.

_____ 42. The germ that lives in your ear can cause an infection.

_____ 43. Ken bought the shirt went well with his pants.

_____ 44. The food which he cooked it was so tasty we all asked for more.

_____ 45. You should have bought the shirt which that we saw in the first shop.

_____ 46. The house, which he lived in when he was a child, has been replaced by a small church.

_____ 47. A group of entertainment companies decided to sue the website, that millions of users logged into each month.

_____ 48. The star, was mentioned in many ancient inscriptions, is visible in a really dark night.

_____ 49. Several people go to the zoo to see the panda, which it was given to Thailand by the Chinese government.

_____ 50. The book, which that we will use only for the first half of this course, is available at the library.

_____ 51. People will finally like the song which the station plays again and again.

_____ 52. The song that you're listening to is sung by Rebecca Ferguson.

_____ 53. Abortion is the topic they are arguing about.

_____ 54. The book which it has no cover is separated from the rest.

_____ 55. People around here love the shoemaker who that owns a shop on the corner of the street.

_____ 56. The expressway, which you must not take, will be on your left.

_____ 57. Many critics praised the policy, that the government proposed under the pressure of the economic crisis.

_____ 58. The test, he had spent months preparing for, was cancelled at the last minute.

_____ 59. Finally, I saw the comet, which I spent the whole night waiting for it.

_____ 60. The planet, which that is almost twice bigger that the earth, has the perfect environment for life to develop.

_____ 61. The doctor who had to be in tonight came 15 minutes late.

_____ 62. The technician failed to recover the data that was in the hard disk.

_____ 63. The tool you have alone might not be enough for the job.

_____ 64. We went back to school to visit the teacher who(m) we admired her.

_____ 65. The professor who(m) that I took psychology with just moved to another town.

_____ 66. Joey ran into the coach, who(m) he had not heard of for several years.

_____ 67. The photo, that was taken on the last day of the war, has been put up for sale.

_____ 68. They were not allowed to enter the area, strictly prohibited improper attire.

_____ 69. The comedian, who(m) Ellen has interviewed him twice, will come to the show again.

_____ 70. My father personally knows the philosopher, who that my teacher often quotes.

_____ 71. The postman who(m) all the dogs bark at does not come by on Tuesday.

_____ 72. I want to play the game that you told me about last week.

_____ 73. The stamp comes with the cereal box can be used as a discount coupon.

_____ 74. The policeman had no choice but to shoot the thief who he was going to hurt a little girl.

_____ 75. The patient who(m) that the vaccine was given was very young.

_____ 76. The elderly man ran out to hug the girl, who(m) he recognized right away.

_____ 77. The answer, that nobody could think of at the moment, was actually right under their nose.

_____ 78. A mad man killed the victim, many Thai people gave donation to.

_____ 79. The boy, who he has already performed 500 operations, started curing people when he was 7.

_____ 80. The gangsters attacked the beggar, who that was sitting on the floor in front of the store.

_____ 81. The professor who(m) you mentioned is going to give a lecture at the conference.

_____ 82. That artist painted the picture that I hung in my room.

_____ 83. The topic I wrote on was considered too dangerous to be published.

_____ 84. Tom nearly punched the neighbor who(m) he was having a serious argument with her.

_____ 85. The sailor who that was left on that island did not know that the war was over.

_____ 86. The police finally found the murderer, who tried to escape to Cambodia.

_____ 87. The card, that he drew slowly, turned out to be the worst– Death.

_____ 88. We all went to buy the novel, Dan wrote a year before he died.

_____ 89. The politician, who(m) my mother voted for him, just resigned from his party.

_____ 90. Sarah hopes to meet the producer, who(m) that she has always wanted to work with.

_____ 91. I know the mechanic who lives on the fifth street.

_____ 92. The bomb that the terrorists threw did not go off.

_____ 93. Still angry at Natalie, Nick refused to touch the cake she baked him.

_____ 94. The girl who(m) you fell in love with her just got married.

_____ 95. Mandy thought she knew the man who(m) that Judy was talking to.

_____ 96. The doctor, who specializes in brain diseases, had published several articles.

_____ 97. In 1982, they discovered the island, that was the home of thousands of new species.

_____ 98. The dress, you have worn only once, costs more than my salary.

_____ 99. We met the golfer, who(m) many people criticized him for his affairs with several women.

_____ 100. The physicist, who(m) that we were invited to have a dinner with, just won a Nobel Prize.

_____ 101. I just don't like the contestant who(m) you voted for.

_____ 102. The picture that is hung on the wall was taken when I went to Japan.

_____ 103. Dr. Franco discovered the dinosaur linked crocodiles with birds.

_____ 104. The doctor who(m) you saw her thought there was nothing to worry about.

_____ 105. A TV show just interviewed the activist who(m) that we met in Hong Kong.

_____ 106. The author, who(m) you used to share a room with, was just given an award.

_____ 107. They finally reached the temple, that only a few people could get into.

_____ 108. The river, runs through every province in the region, plays an important role in the people's lives.

_____ 109. I want you to see the therapist, who he will give you tips on how to cope with stress.

_____ 110. The hero, who(m) that the kids love so much, can be said to be a little too aggressive.

_____ 111. The critics seem to like the chef who(m) you hated so much.

_____ 112. The leaf that these bugs feed on will turn brown at the edge.

_____ 113. The city is repairing the street we used to walk along every evening.

_____ 114. The teacher who he used to teach Spanish is currently teaching English.

_____ 115. Jenny decided to throw away the box which that was in the basement.

_____ 116. The president, who(m) the media are attacking severely, decided to resign.

_____ 117. The conditions of that period forced them to invent the symbol, that we can still find nowadays.

_____ 118. The teenager, everybody used to laugh at, has become really successful and famous.

_____ 119. Harry travelled across the country to see the actress, who(m) he was really fond of her.

_____ 120. The cook, who that is famous for his soup, will open a cooking school.