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Target-like Syntactic Representations of L1 Thai Learners: A Case of L2 English Number Agreement[1]

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Abstract

The study investigated the representations of L1 Thai learners on English number agreement, a form which is non-existent in Thai. It is hypothesized that the L2 learners have target-like syntactic representations of English number agreement according to the non-impairment view of the Missing Surface Inflectional Hypothesis (MSIH), and against the impairment view of the Failed Functional Feature Hypothesis (FFFH). The participants were 58 intermediate and 45 advanced Thai undergraduates. The study was conducted via two tests, a Cloze Test and a Grammatical Judgment Task. Both tests featured singular/plural head nouns with modification and irregular nouns. The results showed that the L2 learners' accuracy on English number agreement was above 80% on the structures of singular/plural head with modification. However, deviant production was found on irregular nouns. The results indicated the learners' target-like syntactic representations of English number agreement but incomplete knowledge of lexicon. The L2 learners can access Universal Grammar on the grammatical area not found in their L1. The participants were assumed to be less exposed to the irregular nouns featured in the study so those nouns in their lexicon were not tagged with target-like syntactic information. Since the results indicated that the L2 learners do not have syntactic impairment of English number agreement and incomplete knowledge of lexicon can explain the deviant production of the irregular nouns, FFFH is contradicted and MSIH is confirmed.

Keywords: Target-like syntactic representations, L1 Thai learners, L2 English number agreement, Missing Surface Inflection Hypothesis, Failed Functional Feature Hypothesis

1. Introduction

In the field of Second Language Acquisition (SLA), the issue of adult L2 learners able to access UG during SLA phase is still subject to debate. Chomsky (1965, 1995) claimed that the reason language learners of very young ages are able to develop their L1 at a rapid and more accurate rate is that they can access Universal Grammar (UG). Since L2 is as a natural language as L1, a number of SLA scholars adapt the concept of UG to explain the acquisition. The case is still controversial in SLA since L2 acquisition seems to be much different from L1 acquisition. SLA scholars are examining whether adult L2 learners can

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access UG like L1 learners, and, if L2 learners can do so, in what degrees the access could be? The present study aims to investigate and answer the questions as well as confirm and weaken two accounts on UG access during SLA.

The production of English subject-verb agreement structure by L1 Thai L2 English learners is of interest of the present study. A few studies have mentioned production problems of L1 Thai L2 English learners on the said structure. For instance, Lekawatana (1971) mentioned in her contrastive study of English and Thai that number agreement along with others such as tense and person on English verbs are new to L1 Thai learners as this feature is not instantiated in L1 Thai. However, not much research studied the structure of English subject-verb agreement in both comprehension and performance of L2 learners. Moreover, performance and comprehension of such a structure by L1 Thai/L2 English learners, whose L1 Thai does not have the syntactic structure of number agreement, has not been investigated yet, causing a gap in the field of SLA. This has led to the objective of the present study.

Moreover, production problems of L1 Thai L2 English learners always involve L2 English grammar (Lekawatana, 1971). Their production, even of the advanced ones, do not always sound target-like. The point this study investigated further was whether the production problems were from either knowledge of morphology or syntax. If the problem is found to be located at the morphological level, the learners then are likely to achieve target-likeness in principle because their syntax is not impaired. All they need to do, if the case is the morphological problem, is to fill in gaps in their lexicon with target-like knowledge of L2 English morphological items. However, if the problem is of the reason of defective syntax, the solution to fix the production problem seems to be out of reach since the learners' fundamental syntax is impaired. The conclusion of the two prediction extremes is believed to be able to clue teachers of L2 English so that they could know the states of their learners.

2. Literature review

2.1 Interlanguage

L2 adult learners may have their own L2 language system during the process of learning L2. The learners' language is called "interlanguage" (Selinker, 1972; White, 2003). As it reflects the developmental stages of L2 adult learners, interlanguage tends to have dynamic, permeable characteristics with optionality (Song, 2012). Selinker (1972) claimed that there are five psychological processes that possibly cause optionality of the interlanguage. The five psychological processes are as follows: language transfer, transfer of L2 training, strategies of L2 learning, strategies of L2 communication and overgeneralization of target-language linguistic materials. L2 learners may employ the five processes during L2 production, causing optionality or variability.

2.2 Variability

Variability refers to optionality (Hawkins & Liszka, 2003) or non-target-like production (Franceschina, 2001) during second language acquisition. The phenomenon of variability is referred to as evidence of interlanguage development as L2 learners experiment with their L2 production and may produce optionality. There are various views on L2 learners' competence when producing optionality. Since variability seems to be prominent in the learners' interlanguage, some researchers propose a view of global impairment (White, 2003). Regarding the notion of SLA being an error-full track and first language acquisition is

error-free by default; L1 and L2 acquisition are considered as two different language acquisition paths. While L1 acquisition is assumed to rely on UG, L2 acquisition is considered not constrained by UG, resulting in different paths of language acquisition.

Other SLA researchers proposed counter evidence to global impairment, initiating the concept of local impairment (Beck, 1998; Eubank, 1993; Hawkins & Chan, 1997). In this view, L1 and L2 acquisition are not totally different paths. If some L2 structures have been instantiated by L1 or, strictly speaking, the learners have acquired through their L1, the learners will then be able to acquire those L2 structures eventually. They are assumed unable to acquire L2 structures that are not found in their L1 because they have never acquired them before through L1 during early ages. The learners' interlanguage is partially UG constrained by this view. In this case, the learners are predicted not to rely on their competence which is assumed to be impaired. For instance, L2 gender marking structure might be easy to acquire by L2 learners whose L1 has the grammatical gender structure specified. However, it would be assumed impossible for the learners whose L1 is not specified for gender to acquire the gender structure, i.e. L1 English learners learning L2 Spanish gender structure (Franceschina, 2005).

Opposed to the two previous views, the non-impairment view provides counter evidence to explain cases where the learners seem to reflect target-like competence during SLA (White, 2003). The non-impairment view assumes that the learners' interlanguage is indeed fully UG-constrained and fully accessible. L1 transfer may occur during the initial stage of SLA. This explains cases where L2 learners in later stages, such as advanced or near-native learners, are able to deliver higher accurate performance. The learners by this view are considered, in principle, able to acquire structures non-existent in their L1. Thus, it is predicted that there is possibility of the learners representing a new target-language when acquiring L2 structures contrastive to L1 grammar.

The different views of L2 learners' competence lead to different hypothetical frameworks in SLA. The present study chooses two hypotheses, the impairment view of Failed Functional Feature Hypothesis (FFFH) and the non-impairment view of Missing Surface Inflectional Hypothesis (MSIH) and tests both hypotheses in explaining results of the study. The next section describes the two hypotheses in details.

2.3 Two accounts on variable production of functional morphology

2.3.1 The Failed Functional Feature Hypothesis (FFFH)

Based on the ground that L2 learners' syntactic representations are impaired, the Failed Functional Feature Hypothesis (FFFH) claims L2 learners fail and are unable to acquire L2 structures. Syntactically, FFFH proponents claim that syntactic representations of L2 learners are non-target-like because of L1-L2 difference in syntax (Franceschina, 2001; Hawkins & Chan, 1997). Specifically, FFFH claims that, after they hit puberty or pass the critical age period, the learners' syntax is impaired or locked-up by L1 syntax permanently (Birdsong, 2004; Birdsong & Paik, 2008) and there is no way to reset it (Franceschina, 2003; Hawkins & Chan, 1997; White, 2003). In other words, the non-L1 syntactic categories, features and parameters of the learners fail to operate due to differences between L1 and L2 grammar. If a certain shape of L2 syntax exists in the L1, the learners will reflect target-like syntactic representations as the syntax of both languages are alike. However, with an L2 feature not realized in the L1, the learners will fail to acquire such an L2 feature. Should the learners produce non-L1 L2 structures, they are predicted to resort to other mechanisms since they may realize that their competence is incompatible with the structures.

2.3.2 The Missing Surface Inflection Hypothesis (MSIH)

In contrast to the impairment view of FFFH, L2 learners' syntactic representation according to the Missing Surface Inflection hypothesis is not impaired or defective. The learners' syntax is fundamentally "target-like." Errors are due to surface factors such as morphological deficit (Haznedar & Schwartz, 1997) and realization or mapping between morphology and intact syntax (Lardiere, 1998a, 1998b, 2000; Prévost & White, 2000). While variability occurs among L2 learners, it is claimed that such errors are not a good judgment of defective syntactic representation. Instead, errors may result from morphological deficit or other surface performance problems that are considered not related to the learners' comprehension such as communication pressure or slip of the tongue (Chomsky, 1995). MSIH proponents explain the deficit morphological knowledge by claiming that the morphology of L2 learners does not match that of the natives but that the syntactic representations do (Haznedar & Schwartz, 1997; Prévost & White, 2000). To sum up MSIH, the learners can, in principle, fully access UG. They can access syntactic parameters not instantiated by L1 and be able to reset parameter setting. The problem of SLA, according to the MSIH view, is surface morphology and other computational processing problems just discussed, resulting in "asymmetry" between target-like syntax and non-target-like morphology of the L2 learners.

2.4 Previous studies related to FFFH, MSIH and the subject-verb agreement structure

Production errors on the structure of English subject-verb agreement by L1 Thai L2 English learners have been investigated and mentioned by some studies. Lekawatana (1971) described the number structure on English verbs as one of "a whole new set of differentiations" which L1 Thai learners have never produced in their L1 Thai. Target-like production on number agreement, along with other structures on English verbs, was predicted to be the most difficult skill to acquire. Some errors mentioned in her study are such as "*He have many problems" and "*John do homework every night" (Lekawatana, 1971, p. 67). The equivalent Thai verbs of both English verbs "have" and "do" do not take any inflections. This difference was predicted to be the reason of the resulting errors.

A number of SLA studies supporting MSIH and the non-impairment view confirmed that L2 learners actually have built-in target-like syntactic representations similar to native speakers since the learners can perform accurate production on L2 grammar not found in L1. They claimed that L2 learners' syntactic representations are intact and UG constrained while surface factors including deficit knowledge of morphology or psychological pressure are claimed to worsen the learners' access to their competence (Ali Muftah & Eng, 2011; Haznedar & Schwartz, 1997; Hopp, 2010, 2013; Lardiere, 1998a, 1998b, 2000, 2008; Prévost & White, 2000a, 2000b). Haznedar and Schwartz (1997) found that an L2 English child learner produced systematic variability and improved L2 performance by learning L2 morphology. They concluded that the child learner actually resorted to UG-based intact syntax during L2 acquisition. Errors found in their longitudinal study were claimed to be the result of deficit or "missing" morphosyntactic inflection. Lardiere (1998a, 1998b, 2000, 2008) found that an L1 Hokkien L2 English learner, Patty, could perform 100% accurately on English pronominal case although her L1 does not allow the said structure to occur. She found that Patty's errors found in the study resulted from wrong mapping between deficit morphology and the intact syntax. Prevost and White (2000b) also found overall accurate

results in the structure of verb inflection by L1 Moroccan Arabic, Spanish and Portuguese L2 French and German learners. They also found systematic variability from the learners, supporting the UG constrained representations account of the learners. Ali Muftah and Eng (2011) also found the overall accurate results by L1 Arab L2 English learners. They also found language transfer motivated by L1 morphology not L1 syntax. Hopp (2010) found similarities between the native's and the L2 learners' syntactic representations. He found that possible effects of psychological pressures caused the native speakers of German to perform subject-verb agreement production much as similarly as the L1 English, Dutch and Russian L2 German learners who were not stimulated with the time pressures. On the ground of these similarities, he concluded that the L2 learners had the native-like syntactic representations.

As opposed to MSIH, FFFH proponents who claimed that L2 learners' syntax is indeed impaired would investigate non-native strategies or behaviors of L2 learners. Jiang (2004) found differences of sensitivity between the native speakers and L2 learners. The native speakers in his study showed lagging in reading sentences with English subject-verb agreement errors. The learners, on the other hand, did not show a significant sign of pause or lagging when reading the same sentences. He claimed that as the native speakers resorted in native-like representations, they could detect the errors. The learners were claimed not to have the same fundamental syntactic knowledge. They became insensitive and could not notice the errors. The findings weakened MSIH and supported the impairment view of FFFH.

2.5 Number agreement in English and Thai

This section discusses number agreement in English and Thai.

2.5.1 Number agreement in English

English nouns and verbs are marked with number suffixal morphemes. Most English nouns take plural morpheme if they are plural. Singular ones do not take any number morpheme. English verbs, on the other hand, take the singular morpheme if the subject, except the first person singular subject I, is singular. English verbs do not take any number morphemes if the subject is plural. English number concord on verbs is limited to the present tense except the auxiliary and copular verb "be" which also has subject-verb concord in the past tense. Other usages of English verbs including most modal auxiliaries, non-finite verbs or verbs in imperative clauses are not marked for subject-verb concord.

From the perspective of the minimalist program on number agreement, the inflectional morpheme for number feature in English is assigned to merge with the finite verb in the lexicon. The subject noun phrase assigns the plurality over the verb. The verb with the assigned value of number will then be inflected or change forms accordingly to pass the number feature checking in Infl (I) or T node (Chomsky, 1993, 1995; Webelhuth, 1995).

The derivation process of assigning the present-day English inflectional morpheme is explained by Radford (2004) in terms of affix hopping (or affix lowering by Carnie (2002)). Before the speaker derives a sentence, s/he would select lexical items relevant to what is being expressed. These include some morphemes with phonetic forms and ones that are given a null phonetic form, if any, but with syntactic features assigned. All items at this stage are not yet checked for their subject-verb concord. All items would be projected in situ first and then moved according to the syntactic motivation.

Consider sentence (1):

(1) The horse eats the apple.

Before the sentence is spelled out as "The horse eats the apple," the visible lexical items, "the," "horse," "eat," "the," "apple," are selected from the lexicon. Other null-formed constituents including the (present tense) affix "Af" which is required and assigned on the verb are selected also[2]. The speaker then projects all items in situ: all items should be in the right nodes before the derivation begins.

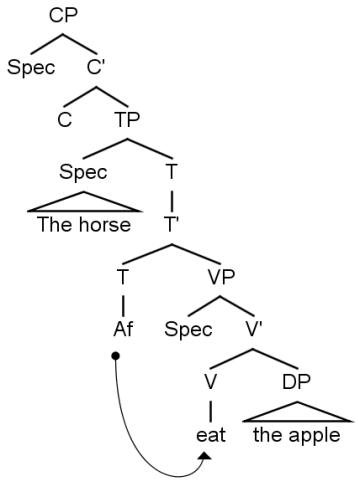

Figure 1: The syntactic tree of "The horse eats the apple" before the spell-out

The singular feature (marked as "Af" in the tree) then undergoes the syntactic movement operation of Affix Hopping to pass feature checking, resulting in the form "eat + Af." Since verb features in English are weak, the affix is moved in to attach the verbal host at the PF level or moved covertly. Once the movement is done correctly, the feature checking is made. The affix at the T node is then deleted[3], leaving the inflected form of the verb "eat + Af," which is specified to finally pronounce as "eats" in the PF level. After the derivation process, all items will be spelled out as "The horse eats the apple."

[2] In affix lowering by Carnie (2002), affix projected at the T node is given a phonological form at the D-level. In this case, it is [s] and needs to attach (move) to the verbal host to get support so that it can be pronounced at the S-level.

[3] Radford (2004) explained the deletion of the moved element by using the metaphor "copy." The movement operation is the process of copying the original moved item and pasting to the landing site. The original copied item is then deleted but leaves "trace" (*t*) on the original node so that no other items can be moved or pasted stacking on the same site.

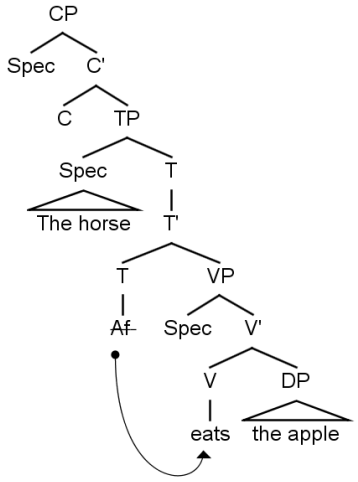

Figure 2: The syntactic tree of "The horse eats the apple" after the spell-out

The movement that involves the number agreement in English is done by the process of feature checking. If feature checking did not exist, the derivation would crash, leading to ungrammatical sentences (Carnie, 2002). For feature checking to occur, the T node needs to be present so the affix has a landing site to place in situ before the derivation begins. The affix can be specified to have a physical form like the case of English singular subjects, or it can be given a null-form like the case of the plural.

2.5.2 Number agreement in Thai

While English is a largely suffixal language, a language rich in final inflectional suffixes (Radford, 2004), Thai is observed not to have affixations for case, gender, tense or number (Comrie, 1990) and is therefore classified as an analytic language which conveys grammatical relationships without inflections (Boonkwan & Supnithi, 2007). Since there is no spell-out form for the number inflectional morpheme in Thai, native speakers of Thai utilize strategies on semantics and pragmatics. Context interpretation is vital when identifying plurality of the subject. Since Thai verbs are not marked, they do not show plurality. Only nominals and their modifiers do through context interpretation.

Numerals and quantifiers are also used along with the subject noun phrases in Thai to clarify the number (Iwasaki & Horie, 2005).

(2) nɯ̀ŋ khon
one person
"one person"

(3) sɔ̌ɔŋ khon
two person
"two persons/people"

In (2) and (3), "khon" is a noun that is modified by numerals "nɯ̀ŋ" and "sɔ̌ɔŋ."

(4) khon diaw
person only
"only one person"

(5) lǎi khon
many person

"many persons/people"

In (4) and (5), "khon" is modified by quantifiers "diaw" and "lăi."

Another way to indicate plurality in Thai is reduplication of some nouns.

(6) dèk
child
"a child"

(7) dèk dèk
child child
"children"

To sum up, the meaning of number on subjects in Thai is not conveyed by relationships of syntax. In other words, L1 Thai does not realize number agreement morphologically on verbs because Thai verbs are not specified for any affixes in the PF level.

2.6 Predictions

Based on the differences on number structures in both languages and the two hypotheses, FFFH and MSIH, predictions can be made.

1. Following the impairment view of FFFH, L1 Thai learners will fail to achieve target-likeness in both production and comprehension in L2 English number agreement because their L1 Thai does not realize number agreement morphologically.
2. Following the non-impairment view of MSIH, L2 learners will have non-target-like production on L2 English number agreement, but their comprehension should correlate with that of the natives because they possess target-like syntactic representation.

3. Methodology

3.1 The participants

There were 103 L1 Thai participants who were undergraduates from the Faculty of Arts and the Faculty of Engineering, Chulalongkorn University, Thailand. Their age range was 17-20. Their experience in English exposure was similar, i.e. they have been studying English in the country for 12-15 years; some had lived in English speaking countries for 2 or 3 years. The subjects were classified into two groups of English proficiency: 58 for intermediate and the other 45 for advanced. To access their proficiency level, all the participants took the Oxford Quick Placement Test (Syndicate, 2004).

Five English natives were also included as the control group of the study. They were lecturers of the Department of English, the Faculty of Arts, Chulalongkorn University. The five native speakers received university diplomas in language teaching and studies.

3.2 The instruments

The study employed two instruments, the Cloze Test to assess performance and the Grammaticality Judgment Task (GJT) to assess comprehension of test takers. All the vocabulary level featured in the two tasks matched what the learners have learned from their national high school textbook "Upstream" series (Evans & Dooley, 2002) regulated by the Office of the Basic Education Commission. The nominal types were classified into nouns with postmodification and irregular nouns with and without –s ending. The idea of including postmodification with subject regular nouns was to "trick" the test takers whether they could locate the right head nouns that require the verb to agree with while having modification with the opposite plurality value. To keep variables constant, all contexts of the test items were retained to be only in the present tense. In the Cloze Test, both types were included with a form of sentences. Each sentence was provided with a bare form of a verb and a blank next to it. The test takers then were asked to fill in the blank with the right form of the verb agreeing with the subject head. In the GJT, each nominal type was composed of 2 items; one was correct and the other was not. Four items showed correct subject-verb agreement. Four other items showed disagreement of number concord. The other 12 items were fillers. In the Cloze Test, the test takers were asked to fill in the accurate verb forms of the given word in parentheses. In the GJT, the test takers were asked to evaluate the test items if they were correct or not. If the test takers decided that a test item was wrong, they needed to correct it by writing the correct version of the error in a space provided. The words selected for each nominal type that were used in each test are presented in Table 1.

Table 1: Subject-noun words featured in the study

Test	Regular nouns with modification[4]	Irregular nouns
Cloze	**fluid** in our bodies **author** of these books **photographs** of herself **symptoms** of sunburn	news (singular) police (plural) measles (singular) staff (plural)
GJT	**pasta** from fine Italian food factories **classification** of today's ballets **captions** under the image **critics** of this idea	diabetes (singular) bacteria (plural) cattle (plural) aerobics (singular)

The Quick Oxford Placement test was administered first, followed by The Cloze test and the GJT. (See Appendix A and B for the Cloze Test and Grammatical Judgment Task.) The tests, the Cloze Test and GJT as well as the placement test for the L2 learners were given to the test takers on the same day. The test takers were asked to conduct the test procedures including all the 3 tests in 1 hour without using other tools such as dictionaries or grammar references.

[4] Selected subject nouns are presented in bold. Please note that the noun in each modification have the opposite plurality value to the head noun.

4. Results and Discussion

4.1 Results

Table 2 below presents the Cloze Test scores by the L2 learners and the native speakers. The scores of accurate production were counted and presented with total production that showed number agreement. In each score cell in Table 2, scores are presented in pair: accurate production and total number agreement production. The number on the left of the slash represents the accurate production. The number on the right hand-side of the slash presents the total counted number agreement production. Note that production that did not show number agreement, such as the past tense form of a verb, was not counted. Thus, the total production scores would not be of the same number in the same participant groups. Also, please note that since the native speakers were the control group, they were asked again for confirmation after taking both Cloze and GJT to review the tests so that their answers would not be the results of carelessness in reading.

Table 2: Cloze Test scores by the participant groups in relation to different nominal types

Proficiency level	Cloze Test							
	Singular heads +modification		Irregular singular		Plural heads + modification		Irregular plural	
Intermediate (N=58)	78/102	76.47%	47/100	47.00%	96/107	89.72%	42/109	38.53%
Advanced (N=45)	69/72	95.83%	51/72	70.83%	79/86	91.86%	40/88	45.45%
Native (N=5)	10/10	100.00%	7/10	70.00%	8/8	100.00%	10/10	100.00%

Table 2 shows the production data of the study. The data showed a similar pattern of production between both learner groups and the native speakers group in the structure of regular noun heads with modification. From Table 2, most of the performances of the native controls were at the ceiling (100%). However, the native produced some errors (30%) on the type of irregular singular nouns. The L1 Thai proficiency groups performed more accurately on the nominal types with modification than the irregular types. For the singular heads with modification, the rate of accurate suppliance by the advanced was 95.83% and that of the intermediate equaled 76.47%. On plural heads with modification, the rate of accurate suppliance by the advanced equaled 91.86% while that of the intermediate was 89.72%. The advanced performed 70.83% and the intermediate performed 47.00% of the irregular singular nominal type. Of the irregular plural nominal type, the advanced scored 45.45% while the intermediate scored 38.53%. The two singular nominal types, the heads with modification and the irregular singular nouns, showed a greater difference in scores between the two L1 Thai/L2 English learner groups when compared with the plural types (19.36% and 23.83%, respectively). Both learner groups, however, performed similarly in the plural nominal types as compared with the singular nominal types.

Considering Grammaticality Judgment Task (GJT), the scores of all participants are shown below in Table 3.

Table 3: GJT scores by the participant groups in relation to different nominal types

Proficiency level	GJT							
	Singular heads +modification		Irregular singular		Plural heads +modification		Irregular plural	
Intermediate (N=58)	95/110	86.61%	63/109	57.66%	92/99	93%	51/112	44.74%
Advanced (N=45)	79/86	91.86%	62/87	71.26%	79/82	96.34%	41/86	47.67%
Native (N=5)	10/10	100%	7/10	70%	10/10	100%	5/10	50%

In the GJT, the only structures that the native could perform at ceiling (100%) were the singular and plural heads with modification. They made more errors on the irregular types. Although they could not achieve 100% accuracy on the irregular types (70% for the irregular singular and 50% for the irregular plural), they scored more than the learners except for the irregular singular type where they performed fairly less than the advanced (70% as opposed to 71.26%).

Similar to what was found in the Cloze Test, all the learners performed more accurately in nominal heads with modification while they still made errors of the irregulars. The intermediate and the advanced learners' scores of singular heads with modification equaled 86.61% and 91.86%, and 93% and 96.34% of the plural ones, respectively, which are similar to the scores of the native controls. Of irregular singular nominal type, the accurate suppliance rate by the intermediate and the advanced were 57.66% and 71.26%, respectively. Both groups performed the worst in the irregular plural nominal type as the intermediate supplied 44.74% and the advanced supplied 47.67% of the irregular plural type.

4.2 Discussion

4.2.1 The target-like production

The production data from Table 2 showed that the L2 learners supplied subject-verb concord on regular subject noun heads with modification more than 80% accurately on average, which is more than the acceptable threshold level (80%) (Bardovi-Harlig & Comajoan, 2008). Moreover, the learners' data of regular subject noun heads with modification seemed to conform to that of the native speakers. Postmodifiers with contrast number NP do not affect the production of the L2 learners at large. Thus, the L2 learners are likely to have competence on the regular L2 English subject-verb agreement.

The perception data from Table 3 showed similar results to the production data from Table 2. The accurate scores of the learners of both proficiency levels were also more than 80% on average, which were close to those of the native speakers, who performed 100% accurate results on the regular subject nouns. It could then be assumed that the learners have target-like syntactic representations on the said structure. The learners then reflected their target-like competence through the high accurate production of the structure.

However, it could be argued by FFFH view that the results of the structures of regular subject noun heads with modification were not the production of fully-accessed UG but the production of rote learning according to Selinker's five psychological processes mentioned in Section 2.1 such as transfer of training or strategies of second language learning. The learners' representations by the view of FFFH might be non-target-like. The prediction of FFFH would say that they did not rely on their impaired competence and produced the accurate results out of their metalinguistic rules. However, it is unlikely for the present study since it was found that both production and perception of the learners seemed to conform to those of the native speakers. It could be explained further by the ground of Universal

Grammar (UG) that since English is the native language of the native speakers, whenever the native speakers produce their L1 production, they are assumed to fully access their target-like competence or UG. It is unlikely that the native speakers may have employed L2 learners' psychological processes. Likewise, since the results on both production and perception of the learners seemed to conform to those of the native speakers, they indicated that the learners may also have employed the same strategies the native speakers did. The metalinguistic rules argument possibly made by FFFH is thus weakened by the similarity of the results by both native speakers and L2 learners.

Then, MSIH was confirmed because, on the ground of similarities of the results by both native speakers and L2 learners, the learners seemed to have target-like syntactic representations. There was, however, variability found in the structure of number agreement with regular nouns produced by the learners. Since the account of FFFH is found incompatible to the case, MSIH would explain that the variability results from the surface factors of incomplete or pressurized computational process that affects the learners' performance on the structure. Hindrances such as close proximity or locality on a closest noun and the main verb (Biber, 1999) are predicted to obscure the learners' computational process. In case of English subject head nouns with modification, the string between the subject head and the verbal host where the affix is attached is longer. Consider a part of one target test item in the present study "…the fluid in our bodies compresses our internal organ." The subject head is "fluid" and the target verb is "compresses." The two items however were not immediately merged but an adjunct of the subject head "in our bodies" is placed between them. Since the adjunct "in our bodies" was closer to the main verb "compresses" in the linear order fashion than the subject head "the fluid," it was likely that Af at the T node where the main verb "compresses" is placed in situ may be influenced by the closer noun "bodies." Without careful reading, the participants may have supplied a verb form that agrees with the adjunct "bodies" instead of the subject head "fluid". The movement mechanism for feature checking was still found to operate but it was done with a wrong noun. The learners' perception is assumed to be target-like because the mechanisms of number agreement seemed to occur, but the production failed to reflect target-likeness since the performance reflected number disagreement. However, such errors by the learners were hardly found since the learners still produced results with more than 80% accuracy, leading to a possible conclusion that L2 learners could have target-like representations of the said structure when compared with the natives who produced results in the ceiling level (100%). Another reason to explain this phenomenon of errors is that L2 learners were assumed to suffer greater pressure[5] when producing L2 sentences (Hopp, 2010), leading to worsened performance when compared with the native speakers. It is assumed by MSIH that although both participant groups may have the same shape of syntactic representations, the L2 learners were not primed with the L2 structures like the native speakers who were exposed to the language from birth. The learners then sustained greater psychological pressure, and so they performed less accurately.

[5] Confusion or communication pressure that affects mental load or syntactic derivation is irrelevant to the syntactic impairment. It was mentioned by Chomsky (1995) that errors caused by pressure are not produced by the language user's competence. In other words, pressure blocks reflection of the language user's competence.

4.2.2 The non-target-like production

While the syntactic representations of the learners on the structure of number agreement were found more likely to be target-like as discussed in 4.2.1, the learners' production of the structure with the irregular nouns was, contradictorily, less likely. It is considered that the learners' perception of irregular nouns to trigger number agreement on verbs might be incompetent, resulting in more deviant production of the structure with the irregular nouns. It is predicted that the learners may be less exposed than the native speakers to the irregular nouns featured in the study. The data from British National Corpus (BNC) could confirm the uncommon use of the targeted irregular nouns in the study. Most of them returned fewer relative frequencies in British National Corpus (BNC) in Table 4. Compared with the most frequent noun in BNC "time" with the relative frequency in both spoken and written English data at 1833.35 per million words, the relative frequencies of the irregular nouns in the study range from 2.39 to 274.66 per million words which is more than 6 times lower than the most frequent noun "time." This rarity of the irregular nouns could be a reason why the irregular nouns were problematic to the participants of the present study.

Table 4: Frequencies of the irregular nouns in the study from British National Corpus (BNC)

Nouns	Number	Frequency per million words in BNC
news	Singular	143.57
measles	Singular	2.39
diabetes	Singular	6.62
aerobics	Singular	3.14
police	Plural	274.66
staff	Plural	228.6
bacteria	Plural	12.84
cattle	Plural	25.88

From all the irregular nouns featured in the study, "measles" and "aerobics" are found the least in BNC. This might be able to explain why the native controls made more errors on "measles" and "aerobics": only 2 of 5 native controls produced accurate results. "Bacteria" was also found less in BNC as opposed to "news," "police" and "staff." Only 1 native control could produce number concord for "bacteria" without optionality. As the native speakers may have problems with inadequate exposure of the irregular nouns, the learners are assumed to suffer greater dilemma (Hopp, 2010). Since English is simply not their L1, the learners may have fewer chances to be exposed to proper usages of the irregular nouns and are likely to have more problems when using the words. That is, L1 speakers of Thai seem to be less primed to the English lexical items than L1 speakers of English. There are thus more reasonable chances for the learners to tag non-target-like syntactic information with the irregular nouns when compared with the native speakers. The number agreement mechanism still takes place but with wrong plurality information assigned to the lexical items.

4.2.3 The asymmetry between lexical knowledge and syntactic representations of the learners

The performance especially of the irregular nouns and the competence of the participants seemed to show asymmetry. With the structures of regular nouns with

modification, the learners and native speakers produced a satisfactory rate of production and perception. With the structures featuring irregular nouns, however, both participant groups produced more errors while the learners performed worse. The situation of the irregular nouns was likely to be a phenomenon where the participants failed to meet lexical competence; that is, the participants' lexicon is likely to be non-target-like. On the other hand, the situation of the regular nouns which required less specific vocabulary knowledge reflected greater accurate results, showing possible target-like competence that both participant groups have. It can be concluded that the participants', especially the learners', lexicon or grammatical properties of lexical items, is likely to be non-target-like while the underlying syntax on English subject-verb agreement seems to be target-like. Representations of lexicon and syntax therefore seemed to show distinct asymmetry in the study.

Since the asymmetry is found in the study, MSIH then can better account for the data in the study than FFFH. The reason is that MSIH considers knowledge of lexicon or surface morphology and syntax as separate components. L2 learners' lexical representations may be missing or non-target-like but they are assumed to have target-like syntactic representations. In contrast, the asymmetry seems to contradict FFFH. Since FFFH may assume that the syntactic representations are impaired when variability is found, the variability in the study was found not parallel to the syntactic representations of the learners which were actually found to be similar to those of the native speakers. Thus, FFFH is considered incompatible to explain the results in the study.

5. Conclusion

The objective of the study is to investigate target-like syntactic representations of English number agreement by L1 Thai L2 English adult learners. It was hypothesized that the learners have target-like syntactic representations of English number agreement according to the non-impairment view of the Missing Surface Inflectional Hypothesis (MSIH), and against the impairment view of the Failed Functional Feature Hypothesis (FFFH). To complete the study, the two tests, Cloze Test and Grammatical Judgment Task (GJT), were employed.

The results of the two tests confirmed the hypothesis. In the structures of head nouns with modification, the participants performed overall accurately (above 80%), confirming the hypothesis of the target-like syntactic representations of the learners. In the structures with irregular nouns, however, the participants performed much less accurately. The inaccurate performance on the irregular nouns could result from incomplete knowledge of lexicon. The learners were assumed to be less primed to L2 English lexical items than the native speakers. Consequently, the learners failed to meet lexical competence, while their syntactic competence of number agreement is likely to be present.

The asymmetry between knowledge of syntax and lexicon confirmed MSIH and contradicted FFFH. First, the learners were assumed to be able to access their target-like syntactic representations because they could perform accurately on the structures non-existent in their L1 Thai. The results did not confirm FFFH since the learners did not perform inaccurately on the non-existent structure. Second, according to the impairment view of FFFH, the learners might have employed metalinguistic rules to produce L2 structures assumed to be non-existent in their syntactic competence. According to the FFFH view, the learners' metalinguistic rules then started to be inapplicable when the learners confronted the irregular nouns, resulting in more deviant production of the said structure. This second claim of FFFH was also rejected because of the similarity in results between the native and the learners found in the study. The native speakers, like the learners, also showed more

variability on the irregular nouns. It was unlikely that the native speakers would rely on metalinguistic rules when producing the said structures because, by the virtue of UG, they should be able to access UG during their L1 acquisition. Since the data showed similarities of perception and production between the native speakers and L2 learners on both structures, it is assumed that the learners also employed as same competence as that the native speakers should rely on. The deviant production found in the study was possibly not the result of impaired syntax but the incomplete knowledge of lexicon. The participants of the study were assumed to be less exposed to the irregular nouns featured in the study so these nouns in their lexicon were not tagged with target-like syntactic information. Since the results indicated that the learners do not have syntactic impairment of English number agreement and incomplete knowledge of lexicon on grammatical properties is presumably the reason of deviant production of the verb concords with irregular nouns, FFFH is contradicted and MSIH is confirmed.

6. Limitation

Although it is assumed that the learners did not produce accurate results out of metalinguistic rules, there was a still a room to claim the opposite direction; that is, the learners might have employed metalinguistic rules to pass the tests. Their L2 rules then seemed to be inapplicable when they came across the irregular nouns featured in the study so their scores dropped in the cases of the irregulars.

Although some techniques such as fillers were used to prevent the test takers from thinking of the rules, the limitation was still possible because the tests themselves in the study were written and offline, allowing more time for the learners to think of L2 rules to survive the tests. A speaking test, in contrast, is spontaneous and online, allowing more automatic and intuitive responses than what the written tests could do. Thus, to eliminate this limitation, a speaking or mutual communication test could have been employed. This is a suggestion for a future study of this kind.

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Appendices
Appendix A: Cloze Test

Instruction: Complete the cloze questions with the right form of words given in the parentheses.

1. When we get up, the fluid in our bodies (compress) _____ our internal organs.
2. The author of these books (make) _____ clear the nature of their importance.
3. New pieces of equipment for medical diagnosis have (make) _____ many unpleasant procedures quite painless.
4. It does not matter why the news (reach) _____ him so late.
5. Photographs of herself taken by her lover (look) _____ like lots of different women.
6. The church can communicate more (effective) _____ to young people today for the benefit of their safety and emotional health.
7. AIDS is the (big) _____ health challenge we have had to face this century.
8. We operate in an unfair world where corrupt police (limit) _____ people's rights.
9. Symptoms of sunburn (include) _____ hot, painful skin, redness and tautness.
10. The food theater where Lincoln was shot must have been (restore) _____.
11. German measles (be) _____ not as harmless as you think.
12. To remove stains from permanent press clothing, carefully (soak) _____ in cold water before washing with a regular detergent.
13. The examiner made us (show) _____ our identification in order to be admitted to the test center.
14. You are warm in my arms, your body right next to (my) _____.
15. When staff (be) _____ absent, the class is split between other teachers.
16. For him, critical writing has to take up (wide) _____ issues than enjoyment of a picture or a sculpture.
17. Women nowadays are becoming (fierce) _____ than men.
18. I will be able to take (he) _____ and continue into London to pick up another guy.
19. The gold used in jewelry is not strong enough unless it is (alloy) _____.
20. (she) _____ mother was only about 21 at the time — she had been married when only 13.

Appendix B: Grammaticality Judgment Task (GJT)

Instruction: Identify the bold part of the sentences. If correct, mark ✓. If incorrect, mark × and rewrite the incorrect part in the space provided.

Example: This test is divided into two **part**.
× parts

1. When the silkworm gets through to **lay** its eggs, it dies.
_____
2. Pasta from fine Italian food factories **comes** in controlled-atmosphere packaging.
_____
3. Many ancient cultures begin **their** spiritual life by worshipping the Sun.
_____
4. Diabetes **affects** about 1 in every 300 children.
_____
5. Few airports in the United States are as modern as **that** of Atlanta.
_____
6. The bacteria **reproduces** every 20 minutes or so until the food source has expired and the smell gone.
_____
7. If a person does not have an attorney, the court will appoint **one**.
_____
8. Today on the fertile plains of Central America, cattle **graze** peacefully.
_____
9. Put the ingredients altogether in a bowl when you make **the** cake.
_____
10. If Robert Kennedy would have lived a little longer, he probably **would** have won the election.
_____
11. In the 1920s, Art Deco, **knew** for plastic and chrome-plated objects, was very popular.
_____
12. Bob was chosen as the first male name for a hurricane **which** was traditionally named for women.
_____
13. Ice skating and **to go skiing** are popular winter sports in the northern United States.
_____
14. Aerobics **work** on the areas you'd rather not think about such as hips and thighs.
_____
15. The classification of today's ballets **become** more difficult as their stories, themes and music get more complicated.
_____
16. Some international students use a cassette recorder to make tapes of their classes so that they can repeat the lectures **again**.
_____
17. The captions under the image **are** too blurred to read.
_____
18. World hunger **it is** one of the most urgent problems that we face today.
_____
19. Critics of this idea **says** it would be very expensive to renovate the old buildings.
_____
20. Some metals **such as** gold, silver, copper and tin occur naturally, and are easy to work.
_____