

English Sentential Subject Extraposition: Toward a ‘How Far’ and ‘Why’ View

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Lee, Seung Han & Uhm, Chul Joo. (2017). English sentential subject extraposition: Toward a ‘how far’ and ‘why’ view. *The Linguistic Association of Korea Journal*, 25(3), 69-91. English sentential subject extraposition is a marked feature, but it is quite a systematic structure. This study aims to provide an extraposition occurrence environment and a plausible trigger for the extraposition of a sentential subject. To this end, we first identify a total of 414 examples of COCA corpus, and then discuss their predicates as well as sentential types. An adjectival predicate (52.2%) is frequently employed without a strict semantic restriction, whereas *that*-clause (55.8%) and *to*-infinitival clause (35.5%) are mostly extraposed at the sentence-final position. From this corpus data, we suggest that the extraposition occurs across no more than the first complement of a head verb if and only if the complement is not a clause. In addition, the extraposition is assumed to be triggered in order to maximize focus effect (i.e., degree of pitch increase) rather than its grammatical weight, information structure, or BNFC constraint. The essence of the extraposition can be interpreted without solely grounds of the complex syntactic constituents or the discourse-new/old structures. In other words, in order to achieve a speaker’s desired result to put an emphasis on a main predicate, he or she employs the rise of pitch on the main predicate, thereby extraposing a sentential subject.

Key Words: SSE, extraposition, focus effect, Focus Effect Principle

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1. Introduction

English sentential subject extraposition (hereafter SSE) is described as a marked feature that a grammatically heavy constituent such as *wh*-clause, *that*-clause, or infinitival clause is extraposed at the end of a sentence:

- (1) a. It is unclear [why these patients continued to exhibit nasal emissions postoperatively]. (COCA, 2015)
 b. It was assumed [that most of the instruction would happen with individual students in the media center]. (COCA, 2015)
 c. It appears wise [that the answer be sought]. (COCA, 2015)
 d. It was difficult [for me to visualize the things that were being talked about in passage]. (COCA, 2015)
 e. It is worth [advising people about the potential for nausea when taking varenicline]. (COCA, 2015)

In all these examples, a clausal element is preceded by a verb predicate or a predicate complement of copula *be*, and then simultaneously an expletive pronominal *it* is placed at a subject place. This construction is quite systematic, so speakers can easily and productively employ SSE structure (Sag et al., 2003):

- (2) a. That dogs bark annoys people.
 b. It annoys people that dogs bark. (Sag et al., 2003: 338)
 (3) a. That the Cardinal won the game gave Sandy a thrill.
 b. It gave Sandy a thrill that the Cardinal won the game. (Sag et al., 2003: 339)

As described in (2) and (3), the sentential subject extraposition alternatively occurs. Even a clause moves beyond three grammatical functions like (3b): a predicator, an indirect object, a direct object. However, one thing to remember is that a noun subject cannot undergo the extraposition, leaving behind an expletive *it* (Miller, 2001):

- (4) a. [The fact that a bloodthirsty, cruel capitalist should be such a graceful

fellow] was a shock to me.

- b. *It was a shock to me [the fact that a bloodthirsty, cruel capitalist should be such a graceful fellow]. (Miller, 2001: 684)

The long and complex NP subject in (4b) is not permitted to be extraposed at the sentence final position.

Another thing to notice is that the subject *it* of SSE construction makes us anticipate what appears later within an identical sentence, called anticipatory *it* (Kaltenböck, 2003). He proposes that this anticipatory *it* takes a middle position between the prop *it* associated with wide and general reference (e.g., weather, time, circumstance) and the referential *it* denoting a narrow referent and entity. Thus, it works within no clear boundary. Keeping this point in mind, the expletive *it* of SSE structure is considered to be a semantically dummy noun, thereby conveying no definite meaning as attested by the following *wh*-question test (Kim, 2008):

- (5) a. It bothers me that John speaks loudly.
 b. *What bothers you that John speaks loudly? (Kim, 2008: 118)
- (6) a. For him to smoke is itself illegal.
 b. *It is itself illegal for him to smoke. (Kim, 2005b: 856)

If the pronoun *it* in (5a) is not semantically null, it could have been replaced by *wh*-pronoun in (5b). The pair in (6) describes the different properties between the anaphoric *it* and expletive *it*. The emphatic reflexive *itself* in (6b) is not supported by the expletive *it* unlike the usage of the anaphoric pronoun. In addition, a nonreferential pronoun *it* of SSE construction has similar behavior with an expletive *there*, having the restrict distribution.

- (7) There is a unicorn in the garden. (Sag et al., 2003: 335)
- (8) a. *That Pat is innocent proves.
 b. It proves that Pat is innocent. (Sag et al., 2003: 339)

Dummy *there* in (7) is followed by an NP and a prepositional phrase featured with [PRED +]. On the other hand, the status of *it* in (8b) is a referential

pronoun, thereby featuring a distinctive lexical information different from the expletive *it*.

Considering all these characteristics of SSE structure, it can be summarized as a template as follows:

(9) Expletive *it*+VP[*finite*]+[Extraposd Sentential Subject [GAP < >]]

A predicate in (9) is featured with *finite* tense. A subject is described as a semantically dummy *it*. An extraposd sentential constituent need not be filled with any filler, implying that the clausal element is complete. This template can differentiate SSE construction from idiosyncratic structures:

- (10) a. A syllabus is made available [that outlines the rules and procedures]. (COCA, 2000)
 b. A rumor circulated widely [that he was secretly engaged to the Marchioness]. (Quirk, et al., 1985)
 c. The problem then arose [(of) what contribution the public should pay]. (Quirk, et al., 1985)
 d. It is [this principle that drives new literacy proponents]. (COCA, 2015)

English relative clause extraposition (hereafter RCE) in (10a) violates the X-bar phrase structure. A restrictive relative clause is extraposd to the position immediately preceded by a verb predicate, being detached from its head noun. A discrepancy is evident between SSE and RCE constructions. The subject in (10a) is referential and its modifying relative clause has a gap. The examples in (10b) and (10c) also show the discontinuous structure, thus extracting a clause or phrase from inside an NP and then extraposd it at the end of a sentence. Although these structures do not have any gaps within the extraposd constituents, they are not licensed as SSE structure because their subjects are non-expletive. *It*-cleft sentence in (10d) tells us a different story. Its surface structure is seemingly similar to SSE construction. The expletive *it* and the copula *be* are interpreted to be semantically inert, being immediately followed by a focused XP (Reeve, 2011). However, only a noun phrase *this principle* moves

out of the whole sentence; *this principle* is coindexed with a gap NP within *that*-clause. Thus, the structure in (10d) is not interpreted as SSE construction.

Taking into account all of these aspects, this paper introduces an occurrence environment of SSE construction as well as a plausible trigger for why a sentential subject is extraposed. In doing so, we first identify the grammatical properties about the predicates and sentential types of SSE construction to be drawn from corpus data, thus shedding light on the occurrence rule for the extraposition. We further provide an alternative analysis to explicate SSE construction in a better motivated manner by employing focus effect principle.

2. Previous Analyses

The commonly held analysis of SSE construction is that an expletive *it* appears in a derivational process. An extraposed sentential subject resides within VP, but moves to the front of a sentence in order to generate a canonical structure (cf. Chomsky, 1981; Groat, 1995):

- (11) a. [[e] hits me [that Rob isn't in his twenties]].
 b. [That Rob isn't in his twenties]_i hits me [t_i]. (*that*-move)
 c. [[It] hits me that Rob isn't in his twenties]. (*it* insertion)
 (Kim, 2005a: 152)

In the deep structure in (11a), *that*-clause becomes base-generated within VP. When SSE structure is generated as given in (11c), the dummy *it* is inserted in transformational process. On the other hand, if there is no need for the extraposition, *that*-clause moves to leftward direction as exemplified in (11b). Although this argument well captures a certain aspect of SSE construction, it is rather circular in the explanation for what drives the leftward movement of the sentential subject and the insertion of the expletive *it*, leaving us much to be done in idiosyncratic lexical properties of SSE construction which will be discussed in section 3.

On the other hand, a constraint-based analysis of SSE construction well provides systematic accounts (Kim, 2005a; Kim, 2005b; Kim, 2006; Kim & Lim,

2008; Sag, et al., 2003). SSE construction is rather lexically determined, thus introducing a lexical rule described in feature structure of HPSG system:¹⁾

(12) Extraposition Lexical Rule (Kim, 2005a):

$$[\text{ARG-ST } \boxed{A} \oplus \langle \boxed{I} \rangle \oplus \boxed{B}] \rightarrow \left[\begin{array}{l} \text{ARG-ST } \boxed{A} \oplus \langle \text{NP}[\text{FORM } \textit{it}] \rangle \oplus \boxed{B} \\ \text{EXTRA } \langle \boxed{I}[\text{CONT } \textit{message}] \rangle \end{array} \right]$$

They propose lexeme-focused ARG-ST(argument structure) with the implication that a lexical rule enables one lexeme to be specified as a word. This view implies that ARG-ST value is properly applied to a word level, not to a phrasal level. ARG-ST is also made on grounds of the combination of an external argument (i.e., \boxed{A}), a clausal element (i.e., \boxed{I}), and a complement (i.e., \boxed{B}). The rule in (12) puts the semantic restriction on an extraposed sentential element, thus describing it as *message* type. In other words, this rule changes a head verb selecting a sentential complement (i.e., \boxed{I}) into another that takes both an expletive *it* and CP[*message*] described with EXTRA feature. However, one question is raised about this rule, 'how an element A in ARG-ST explains a sentential subject within SSE construction?'; A is not a clausal constituent. Furthermore, this approach assumes that EXTRA feature is percolated up to a higher node and discharged by its head, but it lacks the generalization for other types of extraposition:

(13) Head-Extra Rule (Kim, 2005a):

$$[\text{EXTRA } \langle \ \rangle] \rightarrow \text{H}[\text{EXTRA } \langle \boxed{I} \rangle], \boxed{I}$$

This rule in (13) says that when a head takes an EXTRA feature (i.e., \boxed{I}), the EXTRA feature is discharged (i.e., [EXTRA < >]). Though the rule works fine for various extraposition phenomena, it has one potential drawback when a head is a noun, not a verb:

(14) a. **A rumor** circulated widely [that he was secretly engaged to the

1) The abbreviations are CONT(CONTENT) and EXTRA(EXTRAPOSITION). The elements in the ARG-ST are realized as a subject and complements in syntax (Kim, 2005b).

Marchioness].

- b. **The problem** then arose [(of) what contribution the public should pay].

As repeated in (14) again, the head nouns of these constructions take a clause and prepositional phrase as an EXTRA-featured element. Thus, we can raise a basic question, 'how is EXTRA feature passed up to the mother node even if the head noun is not a head of a sentence? We seem to face the violation of HFP.²⁾

Although the extraposition has been syntactically discussed in a vast amount of the literature, the perspective on phonological, phonetic, or discourse conditioning of the choice between the canonical and extraposed construction has been neglected. Thus, the section 4 provides how crucial it is for syntactic approaches to take into consideration the discourse and phonetic conditions bearing on SSE construction studied.

3. Extraposition Occurrence Environment

We employed COCA (Corpus of Contemporary American English), containing 410 million words of American English.³⁾ This corpus data shows the state of written and spoken English from a wide range of sources, designed to represent a wide cross-section of English. We first identified a total of 414 examples of SSE construction. This attempt to discover the grammatical properties of SSE structure will contribute to learning the target language in an appropriate manner.

First, it is worthwhile investigating the types of predicates to select the extraposition of a sentential subject at the end of a sentence. The predicates of SSE construction are mainly classified into the predicative complement of copula *be*, passive voice, and general verb predicate. All examples are brought from COCA as follows:

2) Head Feature Principle (HFP) means that a phrase's head feature (e.g., POS, VFORM, etc.) is identical with that of its head (Kim & Sells, 2008: 74). According to HFP, a head verb of a sentence like (14) cannot have EXTRA features that a head noun of a subject takes.

3) It is freely available at [http:// corpus.byu.edu/coca/](http://corpus.byu.edu/coca/).

■ Predicative complement of copula *be*

- (15) It was **very effective** for children when new material was added to the writing center.
- (16) It was **a good way** to refresh my mind and jot ideas on paper.
- (17) It is **of great importance** that this ensemble's performances be regarded as sincere, not ironic.

■ Passive voice

- (18) It is **strongly recommended** that training programs for teachers with respect to phonics instruction method should be made available.

■ Verb predicate

- (19) a. It doesn't **matter** how you receive the information on what your cat needs.
 b. It **occurs** to me how many birds there are already in this story.
 c. It **seems** almost certain that Santelli borrowed his identification from elsewhere.
- (20) a. It **remains** essential that the culminating task interests the students and motivates them to see the work through to a satisfactory conclusion.
 b. It soon **became** apparent that large-scale failure is politically unacceptable.
- (21) a. It **hurts** him to remember the past.
 b. It **hits** me that Rob isn't in his twenties.

As described above, the adjectival predicate stays on the top of frequency rate (52.2%) and the passive voice ranks as the secondary status (27.1%). The corpus findings of SSE structure are different from the properties of RCE structure given in (10a). Both constructions identically allow the extraposition, but SSE construction does not impose a strict restriction on the types of verb predicates. Only the passive voice, presentative intransitives, and adjectival predicates are prevalent in RCE construction (Lee, 2015; Lee & Uhm, 2017; Lee, 2017; Uhm, 1998). RCE structure prohibits any NPs and PPs as exemplified in (16) and (17) respectively from occurring as the predicative complement of copula *be*. In the

same vein with this finding, Zhang (2015) provides an additional explanation that SSE construction is frequently employed in scientific academic writing than in spontaneous speech in order to express an impersonal and objective stance, so the passive verb of 'subject+predicator' pattern takes priority over other predicates. He also found that the epistemic (e.g., *it is true/clear/likely*) and deontic predicates (e.g., *it is imperative/necessary*) are more commonly used. Our study here did not try to classify such semantic categories because the semantic classification of SSE construction is rather circular.

Sag et al. (2003) suggests that a certain group of verbs conveying 'be bad' appear appropriate for selecting the extraposition of a sentential subject:

- (22) a. That the Giants lost the series (really) **sucks**.
 b. It (really) **sucks** that the Giants lost the series.
- (23) a. That the Giants lost the series (really) **bites**.
 b. It (really) **bites** that the Giants lost the series.

(Sag et al., 2003: 339)

However, the validity of this criterion is questioned by a wide range of verb predicates witnessed in this corpus study as follows:

- (24) *matter, occur, begin, remain, become, stand, tend, hit, hurt, etc.*

As given in (24), most of verbs do not have the implication with badness. Lexical verbs with more diverse meanings are employed in SSE construction.

In addition, the noticeable thing is that SSE construction leaves the way open for a main verb to take its complement as shown in (20) and (21). In (24), verbs such as *remain* and *become* take adjective phrases as their complements whereas noun phrases as a complement are preceded by their head verbs such as *hit* and *hurt*. Considering these facts, it is of value in proposing a general occurrence environment for the extraposition:

- (25) Extraposition Occurrence Rule:

An extraposed element occurs across no more than the first complement of a head verb from its first site if and only if the

complement is not a clause.

This rule tells us that an extraposed constituent cannot jump over two complements taken by a head verb regardless of the existence of adjuncts. In addition, the grammatical category of the complement should not be a clausal argument:

- (26) a. That she survived at all shows [that she must have been very fit].
 b. *It shows [that she must have been very fit] that she survived at all. (Huddleston & Pullum, 2002: 1406)

Under this syntactic condition, a sentential subject cannot be extraposed over a complement clause like (26b). Furthermore, this corpus data fully support the rule that an adjunct does not interrupt the extraposition occurrence:

- (27) a. It was very effective **for children** when new material was added to the writing center. (COCA, 2015)
 b. It occurs **to me** how many birds there are already in this story. (COCA, 2015)
 c. It struck a grammarian **last month, who analyzed it**, that this clause is grammatical. (Bouma, 1996: 2)

As repeated here again, an adjunct after a predicative complement in (27a) and another adjunct after a main verb in (27b) do not violate Extraposition Occurrence Rule. In addition, the extraposed clause in (27c) jumps over both an adverbial noun and a modifying non-restrictive relative from its original subject position without any restriction: *last month* and *who analyzed it*. Interestingly, when two complements occur, the extraposition in this corpus study shows the opposite of the generally expected scenario:

- (28) a. That the Cardinal won the game gave **Sandy a thrill**.
 b. It gave **Sandy a thrill** that the Cardinal won the game. (Sag et al., 2003: 339)

For the case in (28), we searched all authentic data of SSE construction within COCA when an indirect object is followed by a direct object or when a direct object precedes an oblique complement. Unexpectedly, we achieved our desired result to support the occurrence environment for the extraposition. There were no cases to satisfy the intuitive and artificial data like (28). Larsson (2016)'s corpus study also supports our finding, investigating the degree of variability and the frequency of subpatterns of SSE construction in academic writing. She provides the frequently occurring subpatterns of SSE structure, but there are no such cases like (28b) in the learner- and expert-centered writing corpus data.⁴⁾ A viable reason could come into existence that it seems too far away for a reader or listener to trace the first site of extraposed element or it seems to confuse them to figure out simultaneously both two complements and the extraposed sentential subject. What is more, the following COCA examples provide further evidence for Extraposition Occurrence Rule:

- (29) a. The mirror does not lie; it stares back, frank and unpretentious; **it tells** us we are not wrong when we say what we see.
 b. Looking at them as they come and go, the man leading the mule, the mule pulling and dancing its ears, **it strikes** her that she needs a vantage.
 c. Mister Obama said Tuesday, **it sends** a strong message to dictators that people long to be free.

The pronoun *it* in (29) is referential, not expletive. These verbs including *remind*, *help*, *offer*, *show* do not allow any sentential subject to be extraposed at the end of a sentence, going beyond two complements according to the condition in (25). We can also apply the rule for other types of extraposition structures:

- (30) a. A syllabus **is made available** that outlines the rules and procedures.
 b. A rumor **circulated widely** that he was secretly engaged to the Marchioness.

4) Larsson (2016) classified the ten types of subpatterns in SSE constructions: *it+V+ N+to-inf*, *it+V+prep+to-inf*, *it+V+ADJ+to-inf*, *it+V+ADJ+that*, *it+V+that*, *it+V+ADJ+for+ n+to-inf*, *it+V+det+n+that*, *it+V+ADJ+wh*, *it+be+V-ed+that*, *it+V+ADJ+what/how*.

- c. The problem then **arose** (of) what contribution the public should pay.
- d. I read a book **during the vacation** which was written by Chomsky. (Kim & Sells, 2008: 248)
- e. He found sc[it **frustrating** that his policies made little impact on poverty]. (Kim, 2005a: 158)
- f. I regret it **very much** that we could not hire Mosconi. (Bouma, 1996: 2)

As repeated here again, the extraposed relative clause in (30a) moves across one predicative complement *available* of a head verb. A complement clause in (30b) is also postposed without any restriction from an adjunct *widely*. A prepositional phrase within an NP *the problem* in (30c) jumps over a head verb which does not have any complements. The example in (30d) does not violate the occurrence rule because there is no intervening head verb between *a book* and *which was written by Chomsky*. On the other hand, the direct object and predicative complement in (30e) can be construed as one proposition, *That his policies made little impact on poverty is frustrating*. When the extraposition occurs, the expletive *it* in the object position functions as a subject of a small clause. In other words, the example like (30e) is interpreted as two propositions indexed by *found* (S1) and *frustrating* (S2), thus satisfying the occurrence rule for the extraposition. There is no complement or adjunct except *frustrating* between the expletive *it* that replaced the direct object and the extraposed complement clause. Interestingly, the vacuous object extraposition in (30f) is different from the common object extraposition in (30e) because any constituent is prohibited from occurring between the expletive *it* and the extraposed clause. However, we can notice that the extraposition of the clause occurs to the right of an adjunct *very much* without any restriction. Namely, a verb head *regret* has no influence on the extraposition.

4. Grammatical Weight or Another Trigger?

To investigate the major driving forces behind SSE construction, we first

introduce what types of a clause are postposed at the end of a sentence. Allegedly the extraposition of a sentential subject achieves the unexpected result, called 'depersonalising the given information' (Collins, 1994; Kaltenböck, 2004; Kim, 2005a; Uhm, 2000). The use of expletive *it* and the extraposition of a clause enable speakers to deliver the generally accepted and objective messages rather than their personal and subjective opinions. On the other hand, Huddleston and Pullum (2002) suggests that the effect of the extraposition is to constrain a pragmatic condition. If a sentential subject is not explicitly evoked in the prior discourse or it is the new information that an addressee does not feel familiar, it is appropriate to extrapose it to the end. Considering this brief story of literature, we delve into the extraposed sentential types of SSE construction extracted from COCA:

- (31) a. It 's more fun **when** you can get a dialog going.
b. It is unclear **whether** the letter used Florentine dating.
- (32) a. It 's hard **to** believe that so much has happened in just one year.
b. It was difficult for me **to** visualize the things that were being talked about in passage.
- (33) a. It appears wise **that** the answer be sought.
b. It was clear **that** he asserted solidarity with the Karen resistance movement.
- (34) It matters [\emptyset] there are things you can only do with and through government.
- (35) It is worth **advising** people about the potential for nausea when taking varenicline.

As exemplified here again, the most frequently occurring types of an extraposed clause are *that*-clause (55.8%) and *to*-infinitival clause (35.5%). Other clauses such as *wh*-clause, *that*-ommission clause, and gerundive clause are also allowed to be extraposed in English. Smolka (2005) claims that the gerundive clause has the resistance to the extraposition, but if it is extraposed to a sentence final position, it conveys the marginal information in terms of communicative importance. Its adjectival predicates largely express the evaluation about the content of the extraposed gerunds: *worth* like (35), (*no/quite*) *good, nice, bad (enough), weird, typical,*

etc. His corpus study also supports our corpus finding that *that*-clause and *to*-infinitival clause are the most common types in SSE construction.

As described above, postponing the grammatically complex and heavy-loaded sentential information at the end of a sentence can facilitate the language processing and production planning, thus drawing the fact that the heavier constituents tend to be positioned late (Arnold, et al., 2000). Understandably, the extraposition helps speakers to convey their utterances properly and to promote the understanding for listeners (Hawkins, 2004). The speakers reasonably tailor their utterances into more accessible information for successful communication. In other words, they tend to prepose shorter information in the front of a sentence while producing less accessible and longer constituents at the end of a sentence (Francis & Michaelis, 2016). In the same vein with this point, Wasow (2002) also assumes the Principle of End Weight (PEW):

(36) Principle of End Weight (PEW) (Wasow, 2002):

Phrases are presented in order of increasing weight.

As exemplified from (31) to (35), the constituents with ever growing weight such as *that*-clause, and infinitival clause, and *wh*-clause in SSE construction move to the end of clauses, thereby serving to satisfy PEW. Furthermore, Davies and Dubinsky (2009) claims that the relative weight of a subject to a predicate could be a crucial factor to extrapose a sentential subject. When VP becomes lighter, the extraposition of a sentential subject is increasingly motivated.

In relationship to this grammatical weight within an extraposed constituent, it is naturally thought that the heavy information within a sentential subject of SSE construction could be one candidate to trigger the extraposition. Francis and Michaelis (2016) provides the criterion for grammatical weight within an extraposed relative clause, adopting word-based units, not length in syllables. Thus, following their method, we checked the average number of constituents occurring within a predicate and an extraposed sentential subject from this corpus study:

Table 1. Grammatical Weight

	Predicate	Extraposed Sentential Subject
Average#	2.32	13.7

An extraposed sentential subject has the predisposition to hold the heaviest weight, thus not violating PEW. A conclusive statement on this point could be drawn that the grammatical weight is a trigger for the extraposition. However, the grammatical heaviness could not be an absolute answer for the extraposition. Huddleston and Pullum (2002) asserts that the canonical construction does not have to be fairly short.

- (37) [That much of what he calls folklore is the result of beliefs carefully sown among the people with the conscious aim of producing a desired mass emotional reaction to a particular situation or set of situations] is irrelevant.

(Huddleston & Pullum, 2002: 1405)

Here, a sentential subject in (37) serves as a summary of the prior discourse background, so its familiarity and felicity in the non-extraposed sentential subject is allowed for an addressee despite of the extremely heavy information. In relation to this point, Miller (2001) claims that the extraposition is only possible when the content of a sentential subject is not inferrable or discourse-old information without solely grounds of the complex syntactic constituents involved. Unfortunately, this discourse criterion is also not perfect for distinguishing SSE construction from canonical structures:

- (38) While we had expected that **patients with a poor preoperative VCR** would demonstrate greater improvement in speech postoperatively, we also expected that those with poor preoperative LWM would not do as well postoperatively because residual lateral velopharyngeal gaps would presumably be present. Our data suggest that assumption may be incorrect. Only two of our patients had preoperative LWM >0.5: both of **these patients** had **nasal emissions** pre-and postoperatively. However, they did not differ from the other patients in terms of improvement in hypernasality. [It is unclear why **these patients** continued to exhibit **nasal emissions** post-operatively].

(COCA, 2015)

SSE examples studied here provide the counterevidence like (38) that the information within an extraposed sentential subject is discourse-old and inferrable from a prior context. The information about *patients* and *nasal emissions* is already introduced in the preceding lines. Therefore, there is no clear correlation between the extraposition behavior and information status.

In keeping this drawback in mind, we introduce another alternative that English prevents a CP complement from occurring next to its right element, stated as Ban on Non-sentence Final Clause (hereafter BNFC) (Kim, 2005a; Kim, 2005b; Kim, 2008; cf. Kuno, 1987). BNFC constraint forces a CP to appear at a noninitial position in the argument structure of declarative, thus banning anything like [COMPS <CP,...>]:⁵⁾

- (39) a. I owe it to you [that the jury acquitted me].
 b. *I owe [that the jury acquitted me] to you. (Kim, 2005a: 160)

According to BNFC constraint, the example in (39b) becomes ungrammatical. However, when both SSE and its canonical constructions are available, there remains a debatable issue:

- (40) a. That he hasn't phoned worries me.
 b. It worries me that he hasn't phoned.
 (Huddleston & Pullum, 2002: 1403)

According to BNFC, CPs in (40) are an external argument, so they are allowed to be placed at the front followed by other arguments, or to be extraposed at the sentence final. This constraint cannot provide why the status of CP alternatively occurs. Thus, once again, we face the reproachable problem.

Considering all plausible explanations for why a sentential subject is extraposed, we provide a reasonable answer for the extraposition, called Focus Effect Principle (i.e., degree of pitch increase). This principle says that grammatical elements within a sentence receive focus effect when conveying a speaker's main point remarkably. Thus, the extraposition is triggered to maximize focus effect on a predicate (Lee, 2017):

5) COMPS means complements.

(41) Hierarchy of Focus Effect Determiners (Lee, 2017: 103):

Shorter Non-Focus > Shorter Focus > Longer Focus > Longer Non-Focus

As shown in (41), there is a hierarchy among factors to determine the degree of pitch increase on a predicate in order to put an emphasis on the speaker’s point in a varying degree. A sentence consists of non-focused information (i.e., a subject) and a focused element (i.e., a predicate); a pitch rise is usually given to the predicate. The term of ‘Focus’ introduced here is different from the concept of typical discourse-new information within information structure. ‘Non-Focus’ is interpreted as the counterpart of a main predicate which usually receives a focus (i.e., pitch increase). The ‘Shorter Non-Focus’ subject on the left extreme side of the grid is the most powerful determinant to result in the strongest focus effect, whereas the ‘Longer Non-Focus’ subject on the right extreme side of the grid is a trigger to produce the least focus effect. In other words, the shorter non-focused subject a sentence holds in (41), the higher pitch increase it produces. On the other hand, if a sentence has a longer non-focused subject, it is destined to make the least degree of pitch increase. Therefore, when two grammatical functions in (41) combine with each other according to their grammatical weight, there must exist the different degree of focus effect. This combination can be well described in the following table:

Table 2. Focus Effect Table (Lee, 2017: 103)

		Predicate	
		Shorter Focus	Longer Focus
Subject	Shorter Non-Focus	1st e.g., pseudo-cleft	2nd e.g., RCE, <i>it</i> -cleft, pseudo-cleft followed by an adjunct
	Longer Non-Focus	3rd e.g., non-RCE	4th no case

- (42) a. What they ought to start doing is taping. (Buckeye Corpus)
 b. It’s not something that you can do overnight but it’d be like your dad learning the computer. (Buckeye Corpus)
 c. What you really need to do is like in the morning when you’re all

done dressed you need to look the mirror and go.

(Buckeye Corpus)

d. A syllabus is made available that outlines the rules and procedures.

Table 2 tells us that the strongest focus effect (i.e., 1st) occurs when a shorter non-focused subject and a short focused predicate compose a sentence like pseudo-cleft in (42a), called Focus Maximum Principle. Its strength of focus effect is stronger than the ones of *it*-cleft like (42b) and pseudo-cleft followed by an adjunct like (42c). At this point, RCE construction like (42d) in the 2nd case has stronger focus effect than its canonical construction (i.e., non-RCE in the 3rd case), so the extraposition of a restrictive relative clause is triggered to increase focus effect. This logic is also applied to the other types of the extraposition including SSE construction. SSE structure can be classified into the 2nd case of Focus Effect Table:

(43) It was clear that he asserted solidarity with the Karen resistance movement. (COCA, 2015)

As repeated here again, a sentential subject in (43) moves to the end, leaving behind an expletive *it*. According to Table 2, the combination with a shorter non-focused subject (i.e., expletive *it*) and a longer focused predicate (i.e., *was clear that he.. movement*) has stronger focus effect than the canonical structure that is composed of a longer non-focused subject (i.e., *that he... movement*) and a shorter focused predicate (i.e., *was clear*). In other words, the former is classified into the 2nd case of Focus Effect Table whereas the latter fits into the 3rd case of the table. Therefore, the extraposition of a sentential subject is triggered to increase stronger focus effect.

Bearing this point in mind, the following example described here again can be interpreted in terms of focus effect:

(44) [That much of what he calls folklore is the result of beliefs carefully sown among the people with the conscious aim of producing a desired mass emotional reaction to a particular situation or set of situations] is irrelevant. (Huddleston & Pullum, 2002: 1405)

The sentential subject in (44) is designed to summarize the prior discourse context, not focus on new information, thus making an addressee feel its familiarity and felicity. From this perspective, a speaker or writer does not feel necessity to put an emphasis on a predicate (i.e., *is irrelevant*). Subsequently, they do not have to extrapose the sentential subject in order to draw an addressee’s attention by employing the pitch increase. Thus, the heavily-loaded information appears in the front.

Another example to handle is when both canonical and SSE constructions are available as repeated here again:

- (45) a. That he hasn’t phoned worries me.
 b. It worries me that he hasn’t phoned.

The non-SSE structure in (45a) is applied to the 3rd case of Focus Effect Table because a speaker or writer has no intention to put any focus on the effect (i.e., *worries me*) of the act (i.e., *that he hasn’t phoned*). On the other hand, if they are willing to convey stronger focus effect on a predicate (i.e., *worries me*), the extraposition of a sentential subject naturally arises. Such behavior brings about the high degree of pitch increase, thereby attracting the attention from an addressee. It is obvious that the extraposition of a sentential subject is optional according to the speaker’s intention about whether to put the focus.

Last, we apply the logic of focus effect to other types of the extraposition described earlier:

- (46) a. A rumor **circulated widely** that he was secretly engaged to the Marchioness.
 b. The problem then **arose** (of) what contribution the public should pay.
 c. He found *sc*[it **frustrating** that his policies made little impact on poverty].

As introduced here again, the canonical structures of (46a) and (46b) consist of a longer non-focused subject and a shorter focused predicate, being categorized into the 3rd case of Focus Effect Table in Table 2: *A rumor that he was secretly*

engaged to the Marchioness **circulated widely** & *The problem (of) what contribution the public should pay then* **arose**. On the other hand, the extraposition like (46a) and (46b) comprises a shorter non-focused subject and a longer focused predicate, thus being classified into the 2nd case of Focus Effect Table. Thus, the extraposition is generated to produce stronger focus effect with the choice of the 2nd rather than the 3rd case. For the case of (46c), the canonical construction of the small clause (i.e., *that his policies made little impact on poverty* **frustrating**) generates weaker focus effect. Thus, the strategy to put a stronger emphasis on the predicate (i.e., *frustrating*) is deployed with the help of the extraposition. We can immediately notice that the non-canonical construction like (46c) is fitted into the 2nd case of Focus Effect Table whereas the canonical structure is classified into the 3rd case of Table 2. Considering all these facts, it is clear that the focus effect principle provides us with a plausible answer for English sentential subject extraposition.

5. Conclusion

We have begun with this study with two research purposes. One is how far an extraposed element moves across the complements of a head verb. The other is how to provide a plausible answer for why the extraposition of a sentential subject occurs. In doing so, we embarked on employing a total of 414 examples from COCA corpus and then identified the sentential classification as well as the predicate types of SSE construction. Its systematic properties enable us to well establish Extraposition Occurrence Rule where the extraposition exists only when it jumps over only one complement of a head verb if and only if the complement is not a clause. An adjunct does not interrupt the extraposition. On the other hand, we also contrived to answer the question, 'why a sentential subject is extraposed?'. Focus effect Principle (i.e., degree of pitch increase) provided us with an appropriate generalization about the extraposition with the help of the concepts such as Hierarchy of Focuss Effect Determiners and Focus Effect Table. In other words, the extraposition of a sentential subject is triggered to produce stronger focus effect in order to put an emphasis on the speaker's main point remarkably.

Future research needs more to conduct the discourse-based analysis of SSE construction in order to challenge the interaction between discourse and syntactic properties. It will also be worthwhile drawing the generalization of the extraposition from the syntactic perspective.

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Received on July 20, 2017

Revised version received on September 8, 2017

Accepted on September 30, 2017