

Extrapolation of *that*-Complement Clause*

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Lee, Seung Han. (2022). Extrapolation of *that*-complement clause. *The Linguistic Association of Korea Journal*, 30(3), 43-61. This study aims to provide the grammatical and discourse properties of *that*-complement clause extrapolation (hereafter CCE) constructions with the help of a total of 3,791 sentences from COCA. As a starting point, we lend weight to the argument that the extrapolated clause of the head noun appears to be more akin to appositive than relative clause constructions. In corpus findings, the singular form as well as the definite article are clearly more frequent with respect to use of the head noun characterized with [ANIMATE -] and [THEME +] values. As well, the present tense predominantly comes into use, whereas the presentational verbs take the extrapolated *that*-complement clause fairly often. Of particular relevance here is that we provide several types of modality of the head noun, so the epistemic value making up most of the occurrences is further classified into five groups: evaluation, argument, evidence, idea, and perception. The final question addressed in our investigation is what illocutionary force a speaker or writer conveys within the *that*-complement clause. Self-assertion shows the highest rise in the use of illocutionary force, while prior context is highly favored over no discourse-based information in CCE construction.

Key Words: *that*-complement clause, CCE, head noun, modality, illocutionary force

1. Introduction

In English, *that*-complement clause can be extrapolated or postposed towards or at the end of the matrix clause as a supplement of its head noun. Thus, *that*-complement clause extrapolation (hereafter CCE) violates an X-bar phrase structure. Not surprisingly, the heavy constituent is integrated into the structure of NP headed by the licensing noun.

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CCE construction is well attested by the authentic data from Corpus of Contemporary American English (COCA) introducing 410 million words of American English¹:

- (1) Even so, **the possibility exists that** some students with learning disabilities or behavioral disorders were excluded from participation. (COCA, 2012)

As in (1), a verb predicate resides between head noun (e.g., *the possibility*) featured with inanimate value and extraposed CP. The function of extraposed *that*-complement clause is to denote the whole content of its preceding head noun or add descriptive information. This structure is rarely used in conversation and mostly appears in expository writing or in academic prose (Biber et al., 1999). Also, *that* complementizer should not be omitted in extraposition, thus rendering its inclusion grammatical (Hidarto & Andrianto, 2015). Considering this property of CCE construction, it can briefly be schematized as follows:

- (2) Subject[ANIMATE -] + VP[*finite*] + CP[Extraposed *that*-complement clause[GAP < >]

The template in (2) provides an account that referential NP featured with no animate value precedes a main predicate described as finite tense. Extraposed *that*-complement clause has no need of GAP feature value, thereby saying in effect that the clausal complement of head noun is complete.²) Thus, this schema enables us to differentiate CCE construction from other seemingly similar structures:

- (3) a. Evidence exists **that** suggests a familial basis for some forms of developmental language disorders. (COCA, 1993)
 b. **It** soon became apparent **that** large-scale failure is politically unacceptable. (COCA, 2015)
 c. **It** is this principle **that** drives new literacy proponents. (COCA, 2015)
 d. The problem then arose (of) **what contribution** the public should pay. (Quirk et al., 1985)

CCE construction is superficially akin to extraposed relative clause in that head noun seems to be postmodified by its extraposed clause.³) However, extraposed relative clause

1) It is freely available at <http://corpus.byu.edu/coca>.

2) See Kim and Sells (2008) for more details

in (3a) is discharged with a filler (e.g., *evidence*), so here it is not at work in the analysis of CCE template. The same holds for sentential subject extrapolation like (3b) due to a semantically dummy subject conveying no meaning; external argument is not referential. For the case of *it*-cleft structure like (3c), a focused NP (e.g., *this principle*) is coindexed with the gap NP within incomplete *that* clause. The example as in (3d) shows the extrapolation from inside NP, but the extraposed constituent is analyzed as PP or NP, not as clause. Suffice to say, all of the structures like (3) are not licensed as CCE construction.

CCE construction has rarely received attention in a vast body of work, so this study is itself of great value in providing the general properties of CCE construction. As a starting point, we briefly review previous studies, and discuss the status of whether *that* clause of head noun is addressed as apposition or restrictive relative clause with the presentation of authentic data. In the last section, we elaborate on the grammatical and discourse properties of CCE construction with the help of a total 3,791 corpus data.

2. Previous Studies

To our knowledge, relatively little has been known about the status of CCE construction, so we resort to kernel some of previous studies to focus on the properties of *that*-complement clauses in general. Head noun and its *that*-complement clause can be linked with copular *be*, thereby producing a new construction (Quirk et al., 1985). Not only is *that* complementizer impossible to omit, but the paucity of head nouns can be followed by *that*-complement clauses as well. In line with this thought, Krapova and Cinque (2016) provide that *that*-complement clauses of noun like *proof* or unaccusative noun like *possibility* represent the propositional theme, so CPs cannot be predicated of the head nouns across copula.

Charles (2007) classifies head nouns into two semantic groups: evidence and argument. Evidence nouns (e.g., *evidence*, *indication*, *indicator*, and *observation*) refer to evidence or signs that something is the case, whereas argument ones (e.g., *argument*, *assertion*, *contention*, *point*, and *claim*) refer to something that is spoken or written. She places emphasis on a writer or speaker's responsibility for the choice of head noun, so it enables them to indicate their own stance towards the circumstance described. On the other hand,

3) *That*-complement clause is analogous to the structure of relative clause (Biber et al., 1999).

Nomura (1993) and Schmid (2012) assert that head noun of CCE construction has to be approached in terms of its use, not necessarily in terms of its inherent semantic properties.

Hidarto and Andrianto (2015) go on to point out that the semantic feature of head noun does determine the occurrence of *that*-complement clause as well as *that* omission. Also, *that*-complement clause of CCE construction usually occurs with *that* retention rather than *that* omission. However, head nouns like *evidence*, *signs*, and *doubt* show high percentage of *that* omission. As well, emotional nouns (e.g., *happiness*, *terror*, and *pride*) have extremely few occurrences of *that*-complement clauses. On this understanding, they further observe how context affects the existence of *that* complementizer. *That* omission largely occurs in informal context, particularly spoken register, whereas *that* retention is quite prevalent in academic register. Thus, they lead to the conclusion that register has more significant influence on the use of *that* complementizer.

Zeleňáková (2016) discusses the possibility that head noun of CCE construction functions as conveying stance which refers to a speaker or writer's standpoint, assessment or value judgment. Such stance expression delivers personal feeling or attitude that they have about information, how they obtain access to the information, and what perspective they are taking (Biber, 2006; Lee, 2018). Charles (2007) also provides support for the function of head noun; it encapsulates the proposition of *that*-complement clause, representing and summarising it to a reader or listener. Thus, the choice of head noun enables a speaker or writer to incorporate their own stance towards the proposition of *that*-complement clause. This position is in agreement with Ballier's (2004) study that head noun of CCE structure delivers the plausibility of the state of affairs and the modal status expressed in *that*-complement clause. Further, Kanté (2010)'s observation extends the claim that the modality of head noun is one crucial criterion for governing *that*-complement clause. If head noun is featured with non-modal value, it cannot govern CP.

3. Apposition or Relative Clause?

We here address the question of whether *that* clause of head noun is described as apposition or relative clause. Thus, of particular relevance for our purpose here is to resort to kernel the grammatical properties of both constructions. Stowell (1981) provides an account that *that* clause of head noun is actually adjunct CP in apposition to NP, not

in terms of theta role assignment. De Haan (1989) and Grimshaw (1990) take the same position that CP in (4a) is an instantiation of modification relation in that the embedded clause specifies the content of NP to which it is attached. In other words, the property for CP to be predicated of NP across copula is the clear indication of modification:

- (4) a. the idea that he may stay on for another mandate
 b. the idea **is** that he may stay on for another mandate (Grimshaw, 1990)

The possibility of predicating CP across copula, as in (4b), is only available in apposition relation. Subsequent to the predication of copula, the introduction of *namely* remains one crucial test to predict that CP of head noun is true apposition (Kayne, 2010):

- (5) a. Japanese often categorized their faces into 2 groups, **namely** Jomon-jin (Original Japanese) and Yayoi-jin (or Torai-jin, People from the Continent). (COCA, 2012)
 b. *The idea, **namely** that the earth is flat... (Kayne, 2010)

Apposition construction, as in (5a), can be introduced by *namely*, but nominal complement in (5b) does not belong to this property. However, the corpus data we found achieve the opposite of the desired result as follows:

- (6) These people have lost sight of **the essential economic problem, namely that** unlimited wishes and desires are confronted by strictly limited resources.
 (COCA, 2012)

As exemplified in (6), nominal complement can be preceded by *namely*, so CP of head noun appears to be akin to apposition structure. The last thing to notice is that the use of definite article before head noun is strongly associated with apposition construction (Keizer, 2005; Mikkelsen, 2014):

- (7) a. **the physicist** Melissa Franklin (Mikkelsen, 2014)
 b. I don't like **the color** red. (Keizer, 2005)
 c. Bill is amazed by **the fact** that there is so much life on earth. (Keizer, 2005)
 d. Even so, **the possibility** exists that some students with learning disabilities or behavioral disorders were excluded from participation. (COCA, 2012)

In apposition structure like (7a) the second element is proper noun which identifies the referent labeled by the first common noun with definite determiner. Also, the presence of modifier, as in (7b) and (7c), determines the success of definite reference. If the head nouns appear without modifier *red* or CP, the use of definite article is decidedly odd at a first-mention in a discourse. Our corpus finding leads to one crucial point that much in the way of apposition construction, head noun of CCE construction has the property of being felicitously uttered with definite article (n=2,208, 58.24%) as in (7d).

Kayne (2008) appeals to a statement that nominal complementation does not come into existence as a consequence of projecting argument by head noun; instead *that* clause of head noun is analyzed as restrictive relative clause. However, some pieces of evidence raise the question as to whether *that* clause is convincingly relativized. One thing to notice is that restrictive relative clause can stack, but *that* clause of head noun cannot (Moulton, 2009). Stacking of more than one content clause to a single head noun amounts to deliver that the propositions of the stacked clauses are identical, thereby resulting in semantic incongruence as follows:

- (8) a. The rumor **that** Fred made **that** Jill believed **that** Bill spread to his friends...
 b. *The rumor **that** Fred was happy, **that** he was in Paris, **that** he could see ghosts...
 (Moulton, 2009)

Our second observation is the predication of copula. As discussed earlier, *that* clause can be predicated of head noun across copula, but ordinary restrictive relative clause cannot (Quirk et al., 1985; Moulton, 2009):

- (9) a. The story that she never intended to do the crime... (COCA, 2012)
 b. The story **is that** she never intended to do the crime
 c. *The story **is that** she made... (cf. The story that she made...)

Relative clause in (9c) cannot appear in postcopular position, whereas *that* clause in (9b) has a predicative relation with subject when copula is inserted in between. In another respect, also of interest is how syntactic reordering is applied to restrictive relative clause. Head noun can be postposed at the end of sentence for the case of nominal complement, but not for restrictive relative clause (Aldwayan, 2012):

- (10) a. The **problems that** plague nondemocratic countries are often too large.
(COCA, 2012)
- *b. **That** plague nondemocratic countries are often too large **problems**.
- (11) a. The **idea that** wearing a headscarf is 'dressing like a potential enemy' is just ridiculous.
(COCA, 2012)
- b. **That** wearing a headscarf is 'dressing like a potential enemy' is just a ridiculous **idea**.

A counterpart to (10a) is ungrammatical, but the sentence like (11b) is acceptable. What happens next is that there is a restriction on the semantic use of head noun when *that* clause is extraposed. However, any antecedents have relativized clauses (Aldwayan, 2012):

- (12) a. **The first samples that** he'd come alive had been collected.
b. **The first samples** had been collected **that** he'd come alive. (COCA, 2019)
c. ***The criminals** had been collected **that** he'd come alive.
- (13) a. **The first samples that** had come alive had been collected.
b. **The first samples** had been collected **that** had come alive.
c. **The criminals** had been collected **that** had come alive.

We demonstrate this issue with the presentation of our corpus finding that only head noun featured with [ANIMATE -] value has the extraposition of *that* clause, as in (12b). On the other hand, any NPs are available for the case of extraposition like (13b) and (13c). Following is pseudo-cleft construction which plays key roles in clarifying the distinction between nominal complement and restrictive relative structure. This piece of evidence tells us that relative construction does allow for head noun and relative pronoun to become the focus of pseudo-cleft structure, whereas nominal complement does not (Aldwayan, 2012):

- (14) a. **The problems that** plague nondemocratic countries are often too large.
(COCA, 2012)
- b. **What** plagues nondemocratic countries are often too large.
- (15) a. **The idea that** wearing a headscarf is 'dressing like a potential enemy' is just ridiculous.
(COCA, 2012)
- b. ***What** wearing a headscarf is 'dressing like a potential enemy' is just ridiculous.
- c. **The idea** is just ridiculous **that** wearing a headscarf is 'dressing like a potential enemy'.

Antecedent and relative pronoun are replaced with *what* as in (14b), thus implying that they are not analyzed as one constituent. On the other hand, nominal complement as in (15) appears not to allow partitioning between head noun and *that* clause, as they seem to make up one unit. In other words, head noun disallows disunity, and further it can detach itself altogether from *that* clause as in (15c). Another issue left is the status of *that* omission involving the grammaticality of internal structure. *That* clause of head noun leaves us with meaningful sentence even if *that* complementizer is subtracted, but this is not case for restrictive relative clause. The deletion of *that* relative pronoun and head noun yields ungrammatical strings (Aldwayan, 2012):

- (16) a. **The idea that** wearing a headscarf is ‘dressing like a potential enemy’ is just ridiculous. (COCA, 2012)
 b. Wearing a headscarf is ‘dressing like a potential enemy’
- (17) a. **The problems that** plague nondemocratic countries are often too large. (COCA, 2012)
 b.*Plague nondemocratic countries

The absence of *that* complementizer and head noun has no significant effect on the grammaticality of internal sentence as in (16b), but it is the other way around for relative construction like (17). The question to be addressed last is how to interpret the extraposition. Extraposition applies to nominal complement without change of meaning, but the same is not the case for relative structure (Aldwayan, 2012):

- (18) a. **The idea that** wearing a headscarf is ‘dressing like a potential enemy’ is just ridiculous. (COCA, 2012)
 b. **The idea** is just ridiculous **that** wearing a headscarf is ‘dressing like a potential enemy’.
- (19) a. The car **that hit** the lamp post also **ran** into the tree.
 b. The car also **ran** into the tree **that hit** the lamp post. (Aldwayan, 2012)

The meaning of *that* clause in (18a) identically holds even when the extraposition is applied as in (18b), but extraposed relative clause occasions the change of meaning. For the case of (19a), it is *the car* that takes two sequential events (e.g., *hit* and *ran*), while in (19b), *the car* and *the tree* take the respective event.

Subsequent to this grammatical test with the aid of authentic data, we will more specifically elaborate on the general properties of CCE construction in the upcoming discussion of corpus findings.

4. Corpus Findings

4.1. Grammatical Properties

In this section we provide the grammatical and discourse properties of CCE construction with the help of a total 3,791 COCA (Corpus of Contemporary American English) data. This authentic data containing 410 million words from varying ranges of sources reflect the status quo of spoken and written American English. The first concern here is to observe whether head noun of CCE construction is largely in the use of plural or singular form. Biber et al. (1999)'s study claims that over 95% of head nouns has the propensity to be singular. Here this corpus finding is at work as well:

- (20) a. Even so, **the possibility** exists that some students with learning disabilities or behavioral disorders were excluded from participation. (COCA, 2012)
 b. **Rumors** grow that the euro could collapse. (COCA, 2012)

Out of 3,791 hits, singular (n=3,046, 80.35%) form is highly favored over plural (n=745, 19.65%) in the use of head noun of CCE construction.

Another thing to notice is that head noun of CCE construction is predominantly likely to occur with definite article (Charles, 2007). However, this corpus study achieves the opposite of the desired result. Head noun with definite article (n=2,208, 58.24%) has more occurrences of CCE construction than one with indefinite article (n=1,583, 41.76%) as in (20b).⁴ The use of definite article enables the information within *that*-complement clause to be already known to listeners or readers; this is in particular where head noun is thematised. On the other hand, indefinite head noun seems to open up the possibility that *that*-complement clause conveys an objective stance. This suggestion is in line with Charles (2007)'s study that head noun with the absence of person marker enables *that*-complement clause to deliver seemingly objective information.⁵ This corpus finding also provides that

4) Mikkelsen (2014) relates the use of definite head noun with apposition construction.

head noun has no personal pronoun, so head noun without person marker can be construed as indefinite noun. In other words, head noun with indefinite article can leave the way open for a writer or speaker to obscure the origin of any evaluation put forward, thereby driving *that*-complement clause to appear less open to dispute.

The existence of animated feature on head noun of CCE construction is of special interest. Interestingly enough, an overwhelming majority of head nouns are featured with inanimate [ANIMATE -] and thematic [THEME +] value (n=3,787, 99.89%) as in (20). As well, we look at the number of the constituents of head noun, so the result is quite revealing that head noun predominantly consists of one or two constituents on average (n=3,524, 92.96%). It might be no coincidence that the light weight of head noun can be a plausible factor to extrapose *that*-complement clause.

Of particular relevance for our corpus study here is whether tense has a significant influence on the existence of CCE construction. Present tense (n=3,183, 83.96%) of main verb preponderates, largely made up of present and past tense within extraposed *that*-complement clause as follows:

Table 1. Tense of CCE Construction

Tense (n=3,791)		Tense of main verb		
		Present (n=3,183, 83.96%)	Past (n=605, 15.96%)	Future (n=3, 0.08%)
Tense within <i>that</i> -complement clause	Present	n=1,351, 42.44%	none	n=2, 66.67%
	Past	n=1,588, 49.89%	n=605, 100%	none
	Future	n=244, 7.67%	none	n=1, 33.33%

This finding tells us that present tense is highly favored in CCE construction. By contrast, past tense (n=605, 15.96%) stays the second place, being only compatible with past tense within extraposed internal argument. Last of all, future tense does not almost come into use in CCE structure.

Another main concern is to have a close look at the predication of CCE construction. Moulton (2009) and Krapova and Cinque (2016) point out that extraposed clausal argument is preceded by only copula, but this corpus study provides further systematic

5) 3rd person pronoun is not explicitly marked as 1st or 2nd person pronoun (Huddleston & Pullum, 2002).

He, she, it and *they* are categorized as personal pronouns, but NPs (e.g., *fact, evidence, and possibility*) that are not pronouns are not deictic.

investigation of what grammatical category resides before extraposed *that*-complement clause. The resulting outcome presents an interesting anomaly as follows:

- (21) The odds **are good that** there will be another aftershock of magnitude 5 or above will come. (COCA, 2019)

As a starting point, adjectival predicative (n=811, 21.39%) like *good, clear, high, overwhelming, true, strong*, etc. carries factivity for extraposed *that*-complement clause, which is presupposed as the proposition whose truth is not at issue.⁶ Simple present tense (n=772, 95.19%) is predominantly followed by adjective phrase as in (21), but interestingly perfect aspect does not come into use with the exception of present perfect (n=1, 0.12%). Also of interest is that intransitive verb (n=2,463, 64.97%) fairly takes extraposed *that*-complement clause as complement. In accordance with Huddleston and Pullum (2002)'s presentational construction as in *there remain only two issues*, an overwhelming majority of verbs here can be classified as presentational verbs like *remain, come, exist, spread, grow, emerge, mount*, etc.

- (22) But the fact **remained** that something had drawn us together. (COCA, 2017)

Particularly, *remain* (n=1,034, 41.98%) as in (22), which delivers continuation of state, is only compatible with simple tense. Not only does progressive (n=250, 10.15%) or perfect (n=252, 10.23%) come into use with simple tense, but this corpus data show the propensity for both progressive and perfect to come together (n=9, 0.37%) as well. Our last investigation into CCE construction is that transitive verb (n=517, 13.64%) like *make, raise, present, reach, find, express, create*, etc. is also followed by extraposed *that*- complement clause when it becomes passive:

- (23) **The decision had been made** that Perry would undergo wrist surgery. (COCA, 2012)

Not unexpectedly, the subject of matrix clause is aligned with the role of theme [THEME +] as in (23). Also, quite a few verbs are employed with perfect (n=249, 48.16%) or

6) Extraposed clause is presupposed by the semantic properties of factive adjectives (Huddleston & Pullum, 2002).

progressive (n=34, 6.58%), but there is no occurrence of both perfect and progressive coming into use together. On the other hand, another conclusive finding is drawn that simple tense (n=3,005, 79.27%) is predominantly favored over one being compatible with perfect or progressive (n=786, 20.73%). This implies that the situation delivered by head noun featured with [THEME +] and *that*-complement clause has rarely explicit reference to any feature of temporal flow or to any internal phase.

4.2. Modality of Head Noun

We open the possibility that the selection constraints of head noun may be associated with the extraposition of *that*-complement clause. Head noun is intrinsically featured with modality that allows a writer or speaker to express their attitudes or opinions towards *that*-propositional content (Biber et al., 1999; Kanté, 2010; Zelenáková, 2016). In other words, modality plays a significant role in selecting head noun of *that*-complement clause, thus providing it with semantic and/or pragmatic interpretation. Thus, following Charles (2007) and Kanté (2010), we here provide several types of modality residing in head noun. Of modality studied, epistemic modality refers to the semantic assessments or judgments that indicate a writer or speaker's confidence, lack of confidence, knowledge, belief, or commitment to the truth of the proposition expressed. Alethic modality introduces a writer or speaker's estimation of the logical possibility or necessity of the proposition. Deontic modality concerns a writer or speaker's moral desirability, obligation, or permission of the proposition. As well, volitional value expresses a writer or speaker's will, wish, expectation, supplication, decision, or vow, whereas emotional modality carries a writer or speaker's emotional status. Taken together, in this study the classification of head noun is made in terms of its lexical semantic properties solely on grounds of the criteria involved: epistemic, alethic, deontic, volitional, emotional, temporal, etc. Head noun featured with epistemic value (66.92%, n=2,537) make up most of the occurrences, which is further classified into five groups:

Table 2. Head Noun Classification of CCE Construction

Modality	Epistemic(66.92%, n=2,537)					Alethic
	Evaluation	Argument	Evidence	Idea	Perception	
ratio (n=3,791)	25.93% (n=983)	24.08% (n=913)	12.64% (n=479)	3.27% (n=124)	1.00% (n=38)	15.96% (n=605)
Modality	Deontic	Volition	Emotion	Temporal	Document	Others
ratio (n=3,791)	0.16% (n=6)	3.06% (n=116)	2.72% (n=103)	5.17% (n=196)	1.37% (n=52)	4.64% (n=176)

Of epistemic modality, head noun with evaluational value (n=983, 25.93%) indicates objective evaluation of truth or reality concerning the proposition within *that*-complement clause, amounting to the highest frequency overall (e.g., 96.44% for *fact*, 1.42% for *truth*, 1.12% for *case*, etc). As in argument group (n=913, 24.08%), head noun is featured with something that is spoken or written, which leads to positioning a writer or speaker with regard to the work of the discipline. Concerning this category, head nouns such as *word* (26.83%), *argument* (12.71%), *rumor* (10.84%), *news* (8.87%), *reports* (5.81%), *claim* (4.38%), and *point* (4.27%) are listed in order of descending frequency. In the case of evidential group (n=479, 12.64%), head noun introduces evidence or sign feature that something is the case. Not surprisingly, *evidence* (89.98%) is the most frequent noun and then *sign* (4.18%) holds the second place. Following is idea group (n=124, 3.27%) where head noun denotes ideas that are tentative or it refers to wishes, thought processes, or beliefs. The respective frequency runs up along *assumption* (30.65%) - *hopes* (23.39%) - *position* (7.26%) - *confidence* (4.84%) - *hypothesis* (4.03%) - *belief* (2.42%). Last of all, perceptual head noun (n=38, 1.00%) expresses awareness and perception, so it is no coincidence that the examples such as *recognition* (31.58%), *realization* (23.68%), and *perception* (18.42%) are collected.

The following are examples of head nouns featured with alethic modality (n=605, 15.96%): *chances* (48.26%), *possibility* (25.95%), *odds* (21.32%), *probability* (2.15%), *likelihood* (1.98%), etc. Interestingly, deontic value (n=6, 0.16%) shows the sharpest fall among modality groups, and the only instances drawn in this category are *request* (n=2), *demand* (n=2), and *rule* (n=2). This finding goes in tandem with Palmer (1986)'s study that head noun featured with deontic value has the lowest frequency overall. On the other hand, head nouns with volitional value (n=116, 3.06%) are exemplified as in *decision* (54.31%), *speculation* (20.69%), *expectation* (16.38%), *objection* (4.31%), and *determination* (4.31%). The group of emotional modality (n=103, 2.72%) is itself of value in showing extremely few occurrences of head nouns featured with emotional status. All instances of emotional nouns extracted from this corpus are *concern* (51.46%), *fear* (27.18%), *risk* (6.80%), *feeling* (5.83%), *sentiment* (4.85%), *worry* (2.91%), and *threat* (0.97%). Another issue left unclear represents the first attempt to discover the status of temporal modality (n=196, 5.17%), which involves head noun with time expressions, like *time* (75.00%), *day* (17.35%), *moment* (4.59%), *years* (1.02%), *minutes* (1.02%), and *hour* (1.02%). We also note an interesting anomaly in head nouns (n=52, 1.37%) denoting formal and written documents. They are not spoken information, but they are described as text documents like *law* (26.92%),

message (17.31%), *scripture* (17.31%), *constitution* (15.38%), *adage* (7.69%), *text* (5.77%), *literature* (3.85%), and *precedent* (3.85%).

4.3. Illocutionary Force

In what follows, we start out our investigation into what illocutionary force a speaker or writer conveys within *that*-complement clause of CCE construction: obligation, possibility, self-assertion, hypothesis. According to Biber et al. (1999), an indication of the source of knowledge is expressed in the proposition of *that*-complement clause. Palmer (1986) argues that *that*-complement clause is either used to report the opinion and attitude of a writer or speaker or to indicate the subject of main clause. The illocutionary force found in this study derives from the presence of verb or complementizer itself. At first glance, the utterance of extraposed *that*-complement clause delivers the obligation force such as command, instruction, advice, all of which are subsumed under a broader category of directive, amounting to 1.58% (n=60) of the total.⁷⁾ *Must, should, be supposed to, ought to, have to, and need to* belong in this class of illocutionary verbs that denote illocutionary acts⁸⁾:

- (24) That important distinction paved the way for the 1977 Panama Canal Zone Treaties that call for the United States government to evacuate Panama at the end of this century. Of course, it is an open question whether or not **the United States government will actually withdraw** from Panama. But at least the treaties are clear that **the United States government must withdraw** by the year 2000.
(COCA, 2000)

As exemplified in (24), deontic modal like *must* typically has to do with the notion of obligation. Extraposed content clause serves as a summary of a long stretch of prior discourse and it represents familiar information (Huddleston & Pullum, 2002). Thus, the information on withdrawal of the United States government within extraposed

7) Command, request, or advice is subcategorized under the broader category of directive (Huddleston & Pullum, 2002).

8) Deontic necessity (i.e., strong obligation) is expressed by *must*, which is interchangeable with *have to* (Huddleston & Pullum, 2002). *Should, ought to, and need to* also carry deontic meaning and the participial adjective *supposed* expresses medium deontic modality.

that-complement clause in (24) is already elaborated in prior context. This context-based proposition takes up only 58.33% (n=35), while new information that cannot be traced from prior discourse amounts to 41.67% (=25).

The question to be addressed next is that the illocutionary meaning of possibility (n=921, 24.29%) is illustrated in the proposition of extraposed *that*-complement clause, corresponding to modal auxiliaries or lexical adverbs like *perhaps*, *probably*, *possibly*.⁹⁾ Deontic possibility (i.e., permission) is expressed by *may* or *can*; *may* appears in formal style as a very formal alternative to *can* (Huddleston & Pullum, 2002). That is, *may* or *can* enables a speaker or writer's judgement to be subjectively or objectively put forward as possibility. The following is an example of the illocutionary force of possibility with the help of modal auxiliary *can*:

- (25) With about 600,000 performed each year, **hysterectomies** are among the most common operations for women. Yet evidence mounts that **they can** raise cardiovascular disease risk. (COCA, 2011)

This corpus study also observes other modal auxiliaries or lexical items which carry the meaning of possibility such as *could*, *may*, *might*, *probably*, and *be likely to*. Here too the prior discourse (n=585, 63.52%) is highly favored in the use of extrapolation of *that*-complement clause. Thus, as in (25), *they* refers deictically to *hysterectomies* in discourse.

Subsequent to the earlier observation, more consideration needs to be given to throw light on whether the proposition of extraposed *that*- complement clause is attributed to a source of a speaker or writer. Charles (2007) distinguishes three source types of the proposition: self source, research source, non-research source. In the same line of thought, we situate our discussion of self-assertion with the intention of committing a speaker or writer to the truth of the proposition:

- (26) Fourth, an overemphasis on racial or ethnic identity promotes stereotypes and limits the freedom of **individual members of those ethnic and racial groups**. When society encourages people to define themselves primarily by racial and ethnic characteristics, a presumption arises that **members of those groups** share common values. (COCA, 2005)

9) Huddleston and Pullum (2002) define lexical modals such as *probable*, *likely*, *appear*, *seem* as medium modality which presents the likelihood of proposition.

The piece of evidence as in (26) lends weight to the argument that a speaker or writer puts forward the proposition of CCE construction, not with the help of modal auxiliary like *must* or *can*, but with their judgements or sources of knowledge themselves, thereby entailing the factuality of the situation. This self-assertion type makes up most of all tokens (n=2,795, 73.73%), and further it indicates sharper rise in prior discourse preference (n=1,912, 68.41%), as illustrated like *members of those groups* in (26).

Last of all, I end this section with the introduction of the case when extraposed *that*-complement clause has the illocutionary force of hypothesis. Not unexpectedly, complementizers such as *if* and *when* render the hypothetical meaning more salient as follows:

- (27) From the beginning of the Black experience in America, one critical denotation of freedom has remained constant: freedom has always meant the absence of any restraint, which might compromise one's responsibility to **God**. The notion has persisted that **if God** calls you to discipleship, **God** calls you to freedom.
(COCA, 2007)

This type (n=15, 0.40%) makes up negligible portion of corpus data, but it is noteworthy to leave the door open for various analyses of illocutionary force. As introduced like *God* in (27), here prior context (n=9, 60.00%) is at work as well more than no discourse-based information on extraposed *that*-complement clause.

5. Conclusion

In English, *that*-complement clause can be extraposed or postposed towards or at the end of the matrix clause as a supplement of its head noun. Thus, *that*-complement clause extraposition (hereafter CCE) is a marked feature, violating an X-bar phrase structure. This study aims to provide the grammatical and discourse properties of CCE construction with the help of a total 3,791 COCA data.

As a starting point, we resort to test whether extraposed *that*- complement clause of head noun is described as apposition or relative clause. In doing so, we lend weight to the argument that the embedded clause is strongly associated with apposition construction with several grammatical tests: the propensity for CP to be predicated of head noun across copula, the insertion of *namely* preceded by nominal complement, and the use of

definite article before head noun. On the other hand, some pieces of evidence raise the question as to whether *that* clause is convincingly relativized. Stacking of more than one relative clause to a single head noun amounts to result in semantic incongruence. The other grammatical properties also does not lie in relative clause available: the predication of CP across copula, the postposition of head noun at the end of sentence, semantic restriction on head noun, the focus test of pseudo-cleft structure, the deletion of *that* relative pronoun and head noun, and the change of sentential meaning by extrapolation of *that* clause. Considering these facts, a conclusive statement is drawn that that *that* clause of head noun appears to be akin to apposition construction.

In corpus findings, singular (n=3,046, 80.35%) form is highly favored over plural (n=745, 19.65%) in the use of head noun of CCE construction. Also, head noun with definite article (n=2,208, 58.24%) has more occurrences of CCE construction than one with indefinite article (n=1,583, 41.76%). The use of definite article enables the information within *that*-complement clause to be already known to listeners or readers, whereas indefinite head noun seems to open up the possibility that *that*-complement clause conveys an objective stance. Interestingly enough, an overwhelming majority of head nouns are featured with inanimate [ANIMATE -] and thematic [THEME +] value (n=3,787, 99.89%). Of particular relevance here is that present tense (n=3,183, 83.96%) is highly favored in CCE construction. Adjectival predicative (n=811, 21.39%) carries factivity for extraposed *that*-complement clause, whereas presentational verb (n=2,463, 64.97%) fairly takes extraposed *that*-complement clause as complement. As well, we provide several types of modality residing in head noun, which allows a writer or speaker to express their attitudes or opinions towards *that*-propositional content: epistemic, alethic, deontic, volitional, emotional, temporal, document, etc. Of modality studied, head noun featured with epistemic value (66.92%, n=2,537) make up most of the occurrences, which is further classified into five groups: evaluation, argument, evidence, idea, perception. The question to be addressed last is our investigation into what illocutionary force a speaker or writer conveys within *that*-complement clause of CCE construction: obligation, possibility, self-assertion, hypothesis. At first glance, the utterance of extraposed *that*-complement clause delivers the obligation (n=60, 1.58%) force such as command, instruction, advice, with the help of modals such as *must*, *should*, *be supposed to*, *ought to*, *have to*, and *need to*. Next, the illocutionary meaning of possibility (n=921, 24.29%) corresponds to modal auxiliaries like *may*, *can*, *could*, *may*, *might* or lexical adverbs like *perhaps*, *probably*, *possibly*. The self-assertion type makes up most of all tokens (n=2,795, 73.73%), whereas the

illocutionary force of hypothesis (n=15, 0.40%) takes negligible portion of corpus data. Interestingly, prior context is highly favored in the use of extraposition of *that*-complement clause rather than no discourse-based information.

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