

Some Issues on Causative Verbs in English

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Sae-Youn Cho. 2009. Some Issues on Causative Verbs in English. *Language and Information* 13.1, 77–92. Geis (1973) has provided various properties of the subjects and by + Gerund Phrase (GerP) in English causative constructions. Among them, the two main issues of Geis's analysis are as follows: unlike Lakoff (1965; 1966), the subject of English causative constructions, including causative-inchoative verbs such as *liquefy*, first of all, should be acts or events, not persons, and the by + GerP in the construction is a complement of the causative verbs. In addition to these issues, Geis has provided various data exhibiting other idiosyncratic properties and proposed some transformational rules such as the Agent Creation Rule and rule orderings to explain them. Against Geis's claim, I propose that English causative verbs require either Proper nouns or GerP subjects and that the *by + GerP* in the constructions as a Verbal Modifier needs Gerunds, whose understood Affective-agent subject is identical to the subject of causative verbs with respect to the semantic index value. This enables us to solve the two main issues. At the same time, the other properties Geis mentioned also can be easily accounted for in Head-driven Phrase Structure Grammar (HPSG) by positing a few lexical constraints. On this basis, it is shown that given the few lexical constraints and existing grammatical tools in HPSG, the constraint-based analysis proposed here gives a simpler explanation of the properties of English causative constructions provided by Geis without transformational rules and rule orderings. (Kangwon National University)

Key words: English causative verbs, gerund phrase subject, by + gerund phrase, constraint-based approach, lexical constraints, HPSG.

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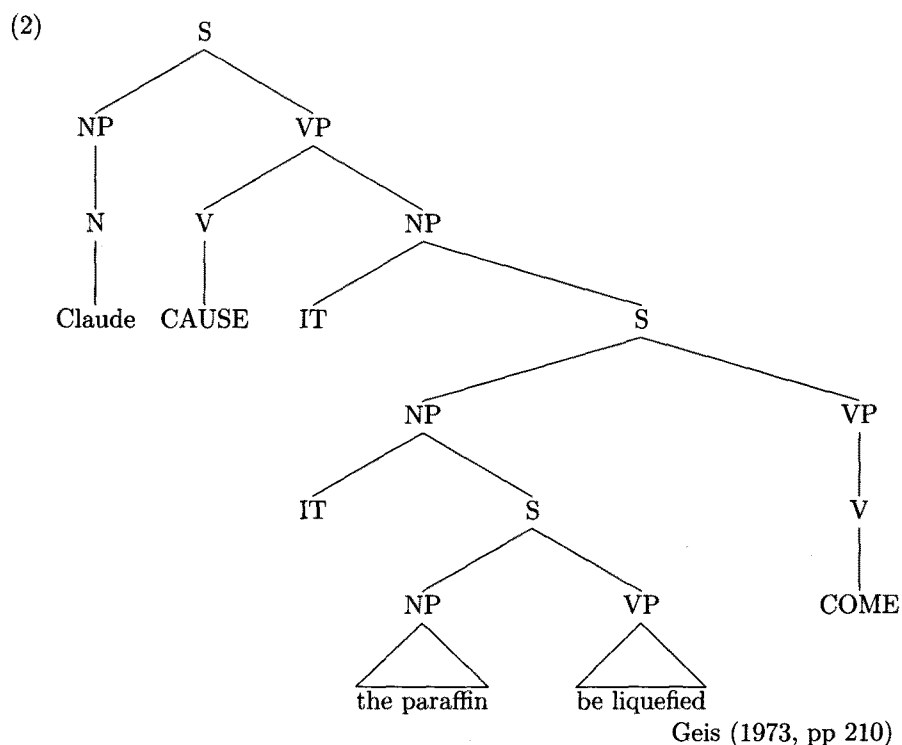
† An earlier version of this paper was presented at the study group of HK at Kangwon National University. I would like to thank the participants including Brian Fair, Ki Dang, Yae-Jee Kim and Ji-Eun Oh for the questions and their grammatical judgements. I am also grateful to the 2009 Spring Conference of the LAK participants at Dongshin University including Jung-Min Jo.

1. Introduction

From the early stages of Generative Grammar history, various properties of English causative constructions had been well investigated. Through the investigations, English causative verbs are found to belong to Object control verbs such as *persuade* (Cf. Pollard and Sag (1994), Jackendoff (1972), Chomsky (1980)). Furthermore, it is well-known that Lakoff (1965; 1966) proposed an analysis of English causative constructions under the Generative Semantics framework to account for the syntactic and semantic behavior of the causative-inchoative verbs such as *liquefy* in the sentence (1).

(1) Claude caused the paraffin to come to be liquefied

In so doing, Lakoff suggested the deep structure of (1) as shown in (2). In providing the deep structure, he specified the personal pronoun *Claude* to be the subject of the causative verb.



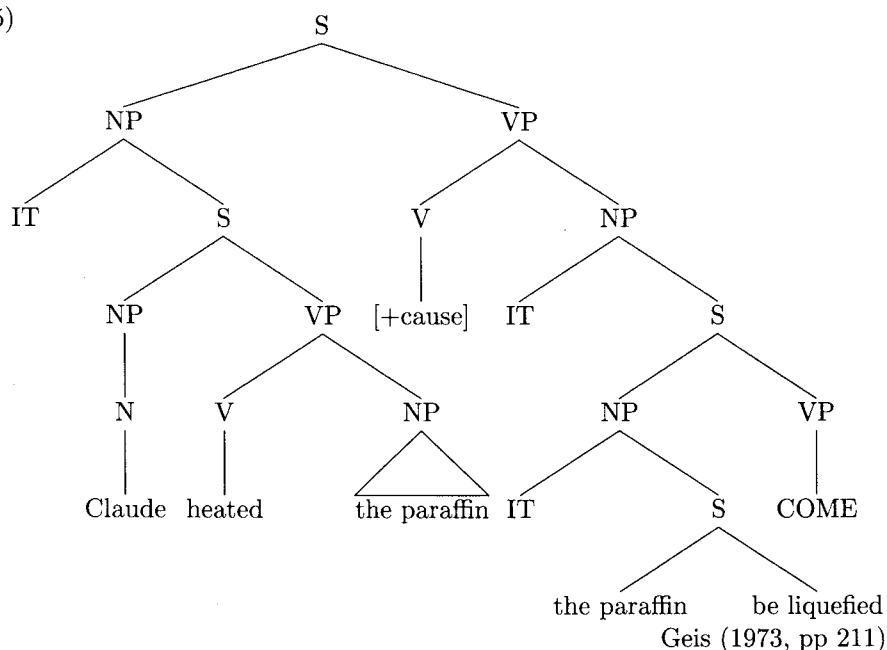
Against Lakoff's analysis that the subject of the causative verb can be proper nouns, Geis (1973) has argued that when by + Gerund Phrase (GerP) occurs in its sentence like (3), proper nouns can be the subject of that verb; otherwise the sentence is incomplete. Moreover, according to Geis's analysis, the deep-structure sentence for (1) should be the sentence (4), whose deep structure is illustrated as

in (5). Geis also has proposed that sentence (3) can be derived from the deep-structure sentence (4) in terms of the so-called Agent Creation Rule and again (1) can be derived from (3) via the *by + GerP* Ellipsis. The main point of Geis's analysis is that the subject of English causative verbs should be not persons but events. Furthermore, Geis believed that the *by + GerP* must occur especially when the subjects of the causative verbs are Proper nouns. So far, the issues related to GerP subjects and *by + GerPs* in English causative constructions have not been focused on, though they are quite significant in the linguistic field. In that sense, the research on English causative constructions appears to remain incomplete.¹

(3) Claude caused the paraffin to come to be liquefied *by heating it*.

(4) Claude's heating the paraffin caused it to come to be liquefied.

(5)



In order to provide a full picture of English causative constructions, I suggest that unlike Geis's claim, English causative verbs require either individual indexed NP subjects, *i.e.* proper nouns, or situation indexed GerP subjects and that the *by + GerP* in the constructions as a Verbal Modifier needs Gerunds, whose understood Affective-agent subject is identical to the subject of causative verbs with respect to the semantic index value. If my claim is accepted, most of the seemingly idiosyncratic properties of the English causative constructions that Geis provided do not have to be explained by constraints for a particular construction. Rather, they can be accounted for in terms of the general tools in HPSG (Sag, Wasaw, and

¹ It is hard to find recent papers mainly dealing with the properties of English causative constructions provided by Geis (Cf. Ahn (1986), Givón (1975))

Benders (2003)). It is also worthwhile noting that unlike Geis and Lakoff, the scope of the data in this paper is limited to the typical English causative verbs such as *make*, *cause*, *have* and *get*, not the causative-inchoative verbs like *liquefy*.²

This paper is organized as follows: In section 2, I introduce various linguistic properties of English causative constructions provided by Geis (1973), which are mainly related to GerP subjects and by + GerPs in the construction, and suggest some linguistically significant generalizations (LSG) from the properties. Section 3 shows how to implement the LSGs into HPSG. In so doing, I suggest that the LSGs from the properties can be reduced to either existing general grammatical tools in HPSG or some lexical information specified as feature structures. On this basis, I will demonstrate how my analysis works for English causative constructions exhibiting the properties. In conclusion, I attempt to provide a full picture of English causative constructions under the Constraint-based approach.

2. Properties of English Causative Constructions

The first issue on English causative constructions is on whether the subject of causative verbs should be persons or events: unlike Lakoff (1965; 1966) regarding the proper noun *Josh* to be the subject of (6), Geis (1973) has proposed that the Gerund Phrase *Josh's kissing Rosa* should be the subject in providing the deep structure of (6) under the Generative Semantics framework as in (7).

(6) Josh made Marcia miserable (by kissing Rosa).

(7) Josh's kissing Rosa made Marcia miserable.

According to Geis, sentence (6) is incomplete unless there is a *by + GerP* in the sentence. On the basis of this intuition, Geis analyzed it as a sort of a complement of the causative verb, whose agentive part exists in the subject position.

It is questionable, however, if the *by + GerP* is a complement or an adjunct. Semantically, the expressions delivering the information on *when*, *where*, or *how* are generally regarded as an adjunct: the *by + GerP* at issue delivers the expressions of *how* in the sense that it describes how Josh made Marcia miserable. Hence, the phrase is more likely to be an adjunct. Furthermore, though Geis provided the data such as in (8) to show that non-causative verbs such as *threw* do not take a *by + GerP* as a complement, the sentence can be understood, given an appropriate context.

(8) (*)Josh threw the ball by letting go of it.

Contrary to Geis's grammatical judgement, sentence (8) can be grammatical and acceptable if Josh let go of the ball while whirling his own arm. Similarly, (9) also can be understood as a grammatical sentence if the ball is quite heavy.

(9) (*)Josh threw the ball by heaving it.

² This paper focuses on the typical causative verbs such as *make*, *cause*, and *get*. The study on English causative-inchoative verbs such as *liquefy* is beyond the scope of this paper.

Thus, the *by* + GerP should not be a complement only for English causative verbs. Rather than that, it must be an adjunct to deliver the meaning of *how*. If so, the subject of causative verbs in English can be NPs denoting proper nouns or GerPs denoting events, regardless of the existence of the *by* + GerP.

Second, as pointed out by Geis (1973), the subject of causative verbs should not be CPs such as *that*-clause and *for NP to V* clause as shown in (10) and (11).

(10) *For Marcia to eat three pounds of peanuts made her sick.

(11) *That Marcia ate two pounds of peanuts made her sick.

The syntactic distributional behaviors of preventing CPs from the subject position of causative verbs show us that only NPs and GerPs can occur in the subject position regardless of the meaning of the subject.

Third, Geis has argued that (12) can be paraphrased by (13), which cannot be easily accounted for under Lakoff's analysis.³

(12) Josh made Marcia unhappy by kissing Rosa.

(13) Josh's kissing Rosa made Marcia unhappy.

Under Geis's analysis, (12) can be paraphrased by (13) in terms of the Agent Creation Rule because the *by* + GerP, *by kissing Rosa*, is a complement. However, if the *by* + GerP is considered to be an adjunct, it should be answered why (12) with a proper NP subject and *by* + GerP may have a similar reading with (13) only with a GerP subject. It would not be difficult for the theory regarding *by* + GerPs as being adjuncts to account for the similarity in meaning between (12) and (13) if there is a constraint as follows:⁴

(14) Subject of Causatives & By + GerP Constraint (The 1st Version)⁵
The index value of the subject of causative verbs must be identical to that of understood subject of *by* + GerP.

Further, regardless of the fact that the subject of causative verbs is Proper Nouns or GerPs, *by* + GerP can occur optionally as in (15) and (16). Unlike sentence (16) with a GerP subject and a *by* + GerP, however, sentence (17) with the same phrases is disallowed.

(15) Josh made Marcia unhappy for three hours by telling her that she looked stupid.

(16) The dean's expelling the student protestors caused a crisis to arise by increasing animosity between him and the student body.

³ A reviewer pointed out that contrary to Geis's claim, (12) may not be paraphrased by (13)

⁴ The explanation for how (12) and (13) can have a similar reading under my analysis will be provided in Section 3.

⁵ Even though the constraint in (14) is postulated only for causative constructions in this section, it would be extended to a general constraint for verbal modifiers in the next section.

(17) *Josh's teasing Marcia made her angry by kissing Rosa.

Geis (1973, pp 214-215)

The grammatical contrast between (15-16) and (17) follows from the constraint posited above. Specifically, sentence (15) is predicted to be grammatical because the index value of the understood subject of the *by + GerP*, *by telling her that she looked stupid*, is identical to that of the causative verb, *Josh*. Similarly, (16) is also correctly predicted to be grammatical since the index value of the understood subject of the *by + GerP* and that of the *GerP* subject are identical. On the other hand, (17) is ungrammatical because the index value of the understood subject of the *by + GerP* and that of the *GerP* subject are not identical. In other words, the index value of the *GerP* subject is an event *s* while that of the understood subject of the *by + GerP* requires an individual index *i*. Hence, the two index values cannot be identical.

The fourth property of English causative constructions is that when active sentences with causative verbs like (18) are passivized, they are predicted to be ungrammatical as in (19).

(18) Josh made Alice angry by kissing Rosa.

(19) *Alice was made angry by Josh by kissing Rosa.

The constraint in (14) faces difficulties in explaining the grammatical difference between (18) and (19). In other words, the constraint predicts that (19) is grammatical. But it is not the case. In fact, (19) is ungrammatical because the passivized subject, *Alice*, cannot be the understood subject of the *by + GerP*, *by kissing Rosa*. Rather, the causer *Josh* of the causative verb *make* should be the subject of the *by + GerP*. To get the right result, the constraint in (14) has to be slightly revised as follows:

(20) **Subject of Causatives & *By + GerP* Constraint** (The 2nd Version)

The index value of the subject functioning as a causer of causative verbs must be identical to that of the understood subject of *by + GerP*.

The revised constraint above enables us to correctly predict that (18) is grammatical whereas (19) is ungrammatical: (18) is grammatical since the subject functioning as a CAUSER, *Josh*, is identical to the understood subject of *by + GerP*. But (19) is ungrammatical because the subject functions as a CAUSEE, not a CAUSER.

Finally, the fifth property dealt with in this paper is that as Geis (1973) pointed out, the Gerund of the *GerP* subject in causative constructions has no special constraints on the verb types so that Passive, Perfective, and Non-active verbs can occur as in (21-23), whereas that of the *by + GerP* disallows such verbs as shown in (24-26).⁶ Furthermore, the latter even disallows verbs such as *receive* as observed in the grammatical distinction between (27b) and (28b).

⁶ Depending on the native speakers, perfective verbs in (25) or verbs like *receive* in (28b) as the Gerund of the *GerP* subject can be allowed. In this paper, I regard (24-26) and (28) as ungrammatical sentences, following Geis's grammatical judgements.

- (21) Judy's being slandered by the press made her attorney unhappy.
- (22) Ted's having studied the *Congressional Record* made his effectiveness much greater.
- (23) Stan's knowing the floorplan of the building made him indispensable to the gang.
- (24) *Judy made her attorney unhappy by being slandered by the press.
- (25) *Ted made his effectiveness much greater by having studied the *Congressional Record*. (But, *by studying...* is all right.)
- (26) *Stan made himself indispensable to the gang by knowing the floorplan of the building. (But, *by memorizing...* is all right.)
- (27) a. John's giving Marsha a dozen roses made Alice turn green.
b. John made Alice turn green by giving Marsha a dozen roses.
- (28) a. Marsha's receiving a dozen roses from John made Alice turn green.
b. *Marsha made Alice turn green by receiving a dozen roses from John.

Geis (1973, pp 217)

The verbal forms of GerP subjects in causative cases have no special constraints while the Gerunds in the *by + GerP* disallow the cases of Passive *being slandered*, Perfective *having studied*, and Non-active verbs *knowing* as in (24-26). Some might think they can capture some generalizations on the basis of the verbal forms. However, it is not on the right track because the grammatical contrasts between (27) and (28) show that the distinctions on verbal forms are insufficient. Rather, in considering that the subject functioning as a GIVER in (27b) is allowed, whereas the subject functioning as a RECEIVER in (28b) is disallowed, the grammatical differences in the above data depend heavily on whether the Gerunds in the *by + GerP* require Affective or Non-affective agents. Namely, when there are Gerunds in the *by + GerP* requiring Affective agents such as *giving*, sentences like (27b) are allowed. On the other hand, if there are Gerunds in the *by + GerP* requiring Non-affective agents such as Passive, Perfective, Non-active, and *receiving*, such sentences as (24-26) and (28b) are disallowed. This observation can be included in the constraint as follows:

- (29) **Subject of Causatives & By + GerP Constraint** (The final Version)
The index value of the subject functioning as a causer of causative verbs must be identical to that of the understood subject of *by + GerP*, whose Gerunds must be Affective-agent requiring verbs. (Where Gerunds with [Affective-agent -] mean Passive, Perfective, Non-active verbs, *receiving* etc. Otherwise, Gerunds are [Affective-agent +])

So far, I have reviewed properties of English causative data which Geis (1973) has provided and suggested linguistically significant generalizations as in (29). In addition, we could observe the distributional behaviors of the NP types of the subject and the by + GerP in causatives. This can be summarized as follows:

(30) Depending on Subject types, the Possibilities of the Existence of By+GerP in Causatives

Subject Type	Existence of By+GerP
GerP	Optional
Proper Nouns	Optional

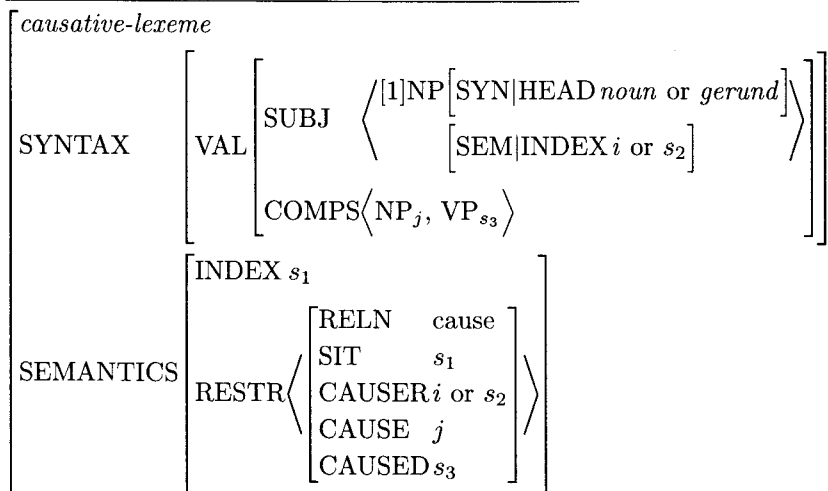
Though Geis believed that when Proper noun subjects occur in causative constructions, by + GerP must occur in the sentence or it must be construed as an elliptical sentence, I rejected that idea.⁷ Rather, I analyzed the by + GerP in causative constructions as an adjunct. On the basis of this idea, I posited the so-called Subject of causatives and By + GerP Constraint in (29). Given these, the above data related to various properties of causative constructions can be sufficiently accounted for. Before demonstrating how my analysis can explain some representative data, I will suggest how to implement my idea into HPSG (2003) in the next section.

3. A Proposal: A Constraint-based Analysis

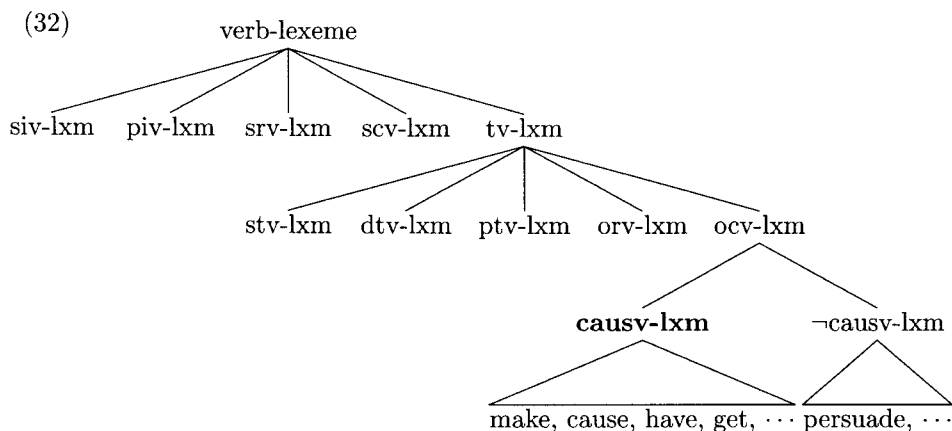
We have observed peculiar properties of English causative constructions. On the basis of the observations, I claim that unlike Geis's claim, English causative verbs require either individual indexed NP subjects or situation indexed GerP subjects and that the *by + GerP* in the constructions as a Verbal Modifier needs Gerunds, whose understood Affective-agent subject is identical to the subject of causative verbs with respect to the semantic index value. To implement my claim into a formal theory, I propose a constraint-based analysis of English causative constructions in HPSG (2003). More specifically, the constraint that the subject of causative verbs should be either an individual indexed NP or a situation indexed GerP can be represented as illustrated in (31).

⁷ If the by + GerP is regarded as a complement of causative verbs, it should be a sort of optional complements like the direct object of the verb *eat* in the sentence *John ate*. It is questionable whether the meaning of the by + GerP is definitely necessary to understand the meanings of the sentences with the phrase when it does not occur.

(31) Lexical entry: *cause* (*cause, make, have, get, etc.*)



After all, the type *causative-verb-lexeme* (*causv-lxm*) postulated above provides a lexical type hierarchy in HPSG (2003) as follows:⁸



In turn, to make sure that the Gerund in the *by + GerP* as a verbal adjunct requires understood subjects with [Affective-agent +] functioning as a CAUSER, whose semantic index value is identical to that of the subject of the modified VPs, the relevant information is specified as shown in (33). In fact, the constraints in (29), which appear to be constraints only for causative verbs in the previous section, are specified either in the *causative-verb-lexeme* as in (31) or in the *predicative-*

⁸ In the hierarchy, *siv-lxm* stands for *strict-intransitive-verb-lexeme*, *piv-lxm*, *preposition-intransitive-verb-lexeme*, *srv-lxm*, *subject-raising-verb-lexeme*, *scv-lxm*, *subject-control-verb-lexeme*, *tv-lxm*, *transitive-verb-lexeme*, *stv-lxm*, *strict-transitive-verb-lexeme*, *dtv-lxm*, *ditransitive-verb-lexeme*, *ptv-lxm*, *preposition-transitive-verb-lexeme*, *orv-lxm*, *object-raising-verb-lexeme*, *ocv-lxm*, *object-control-verb-lexeme*, and \neg *causv-lxm*, *noncausative-verb-lexeme*.

preposition-lexeme and the lexical entry *by* of the *by* + GerP as in (33a-b).⁹ Consequently, the constraint on the subject types of causative verbs in (29) is reduced to the lexical constraint in causative verbs, while the constraint on the *by* + GerP in (29) is generalized as a general constraint of adjunct PPs modifying verbal phrases as in (33a). Of course, *by* in the *by* + GerP is an example of the lexeme type as illustrated in (33b)

(33) a. Lexeme Types

<i>predicative-preposition-lexeme</i>									
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b. Lexical entry: *by*¹⁰

<i>predp-lexeme</i>																																							
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(Note: Where the Gerunds in GerP [Affective-agent -] refer to perfective, passive, verbs such as *receive* etc. and otherwise other verbs are [Affective-agent +].)

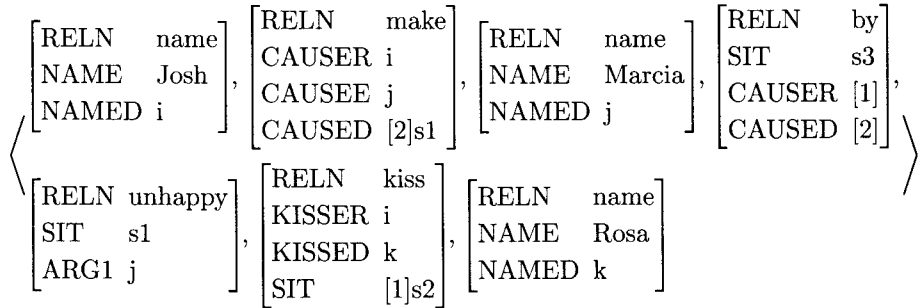
⁹ There are two lexeme types for English prepositions in HPSG (2003): *argument-marking-preposition-lexeme* and *predicative-preposition-lexeme*. The lexical entry *by* of the *by* + GerP is regarded as a subtype of *predicative-preposition-lexeme* under my analysis.

¹⁰ In (33b), the fact that the subject of the *causative-verb-lexeme* and that of the VP modifier should be identical with respect to the semantic index value can be generalized via a control theory for adjuncts as pointed out by reviewers. However, it is beyond the scope of this paper.

Given these lexical constraints, the idiosyncratic properties of English causative constructions can be easily accounted for in HPSG (2003). More specifically, not CPs but individual indexed nouns or situation indexed GerPs are only allowed as the subjects of English causative constructions in terms of the restrictions specified in the VAL information of (31). This enables us to predict the grammatical distinction between (6-7) and (10-11). In other words, the CP subjects in (10) and (11) are excluded in terms of the lexical constraints in (31). However, the individual indexed NP or situation indexed GerP subjects in (6-7) do not violate any lexical constraints and thus are allowed.

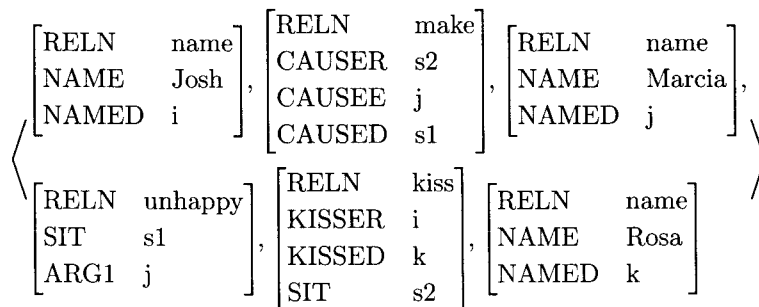
Another issue is how (12) and (13) may have a similar reading under this constraint-based analysis. The sentence (12) with a *by* + GerP subject can have the list value of Semantic Restriction in terms of the Semantic Compositionality Principle in HPSG (2003, 143) as follows:

(34=(12)) Josh made Marcia unhappy by kissing Rosa.



Similarly, (13) with a GerP subject can have a Semantic Restriction value as follows:¹¹

(35=(13)) Josh's kissing Rosa made Marcia unhappy.¹²



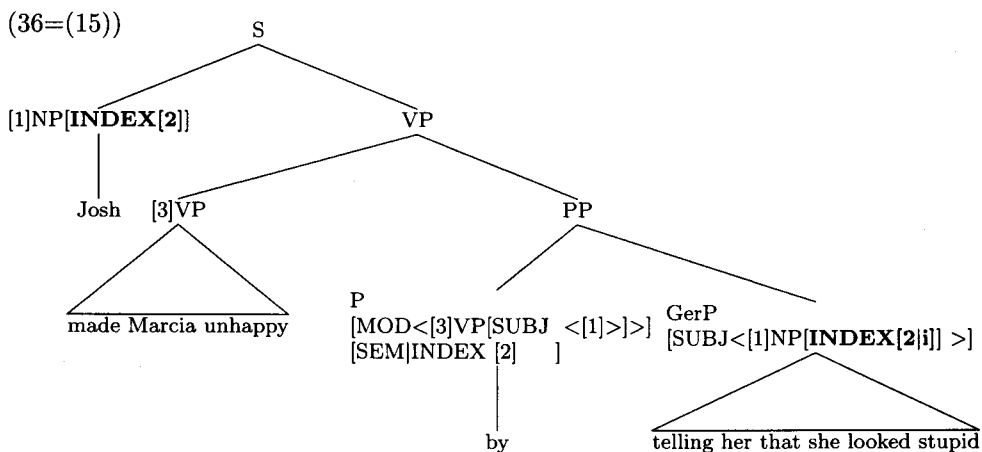
As shown above, the only difference in the Semantic Restriction value between (34) and (35) is the CAUSER value of the causative predicate *make*: more specifically, the index value of the CAUSER in (34=(12)) is an individual which is the

¹¹ The Semantic Compositionality Principle is defined as follows: In any well-formed phrase structure, the mother's RESTR value is the sum of the RESTR values of the daughters.

¹² As in (34), the Semantic Roles of all causative predicates like *make* are assumed to be uniformly called CAUSER, CAUSEE and CAUSED, instead of using fine-grained terms such as MAKER.

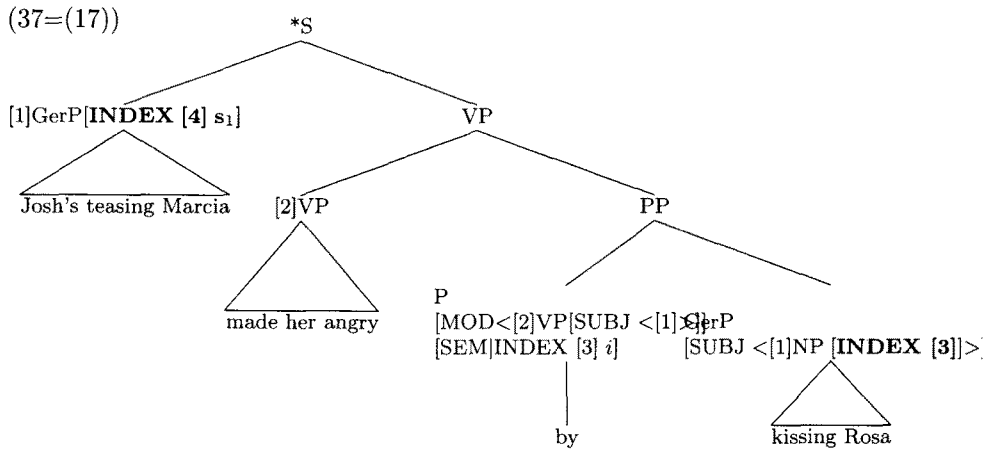
agent of the predicate *kiss* while that of the CAUSER in (35=(13)) is a kissing situation. The two sentences are predicted to be similar in meaning. Hence, (12) and (13) can have a similar reading in terms of the Semantic Compositionality Principle under the constraint-based analysis.¹³

In addition, the *predicative-preposition-lexeme* in (33) accounts for why (15) and (16) are all possible. Under my analysis, it is predicted that the *by + GerP* as a VP modifier can occur in the English causative constructions with individual indexed NP subjects such as *Josh* in (15) or GerP subjects such as *The dean's expelling the student protestors* in (16) only if the index value of the subject of the *by + GerP* and that of the subject in the causative verbs are identical in terms of the lexical constraint in (33a). For your readability, (15) can be represented under this constraint-based analysis as follows:

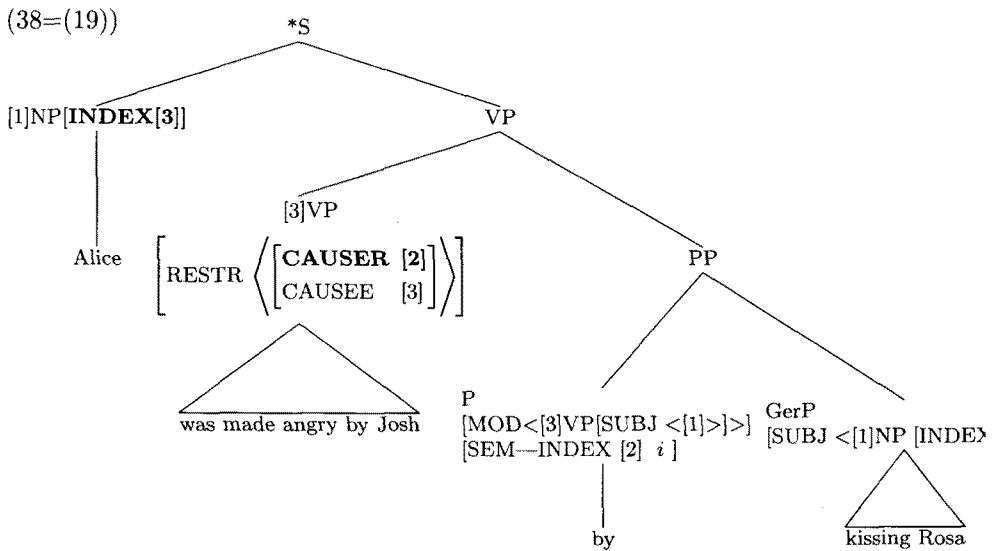


On the other hand, the *predicative-preposition-lexeme* in (33a-b) predicts that sentence (17) is impossible, because the GerP subject of the causative verb *made* is not identical to the subject of the *by + GerP* with respect to the index value. More specifically, the INDEX value of the former is a situation *s1* whereas that of the latter is an individual *i*. Hence, they are not identical. Under this analysis, (17) can be represented as follows:

¹³ Even though the sentences in (12) and (13) can have a similar reading in terms of the Semantic Compositionality Principle, it does not mean that (12) is paraphrased by (13).

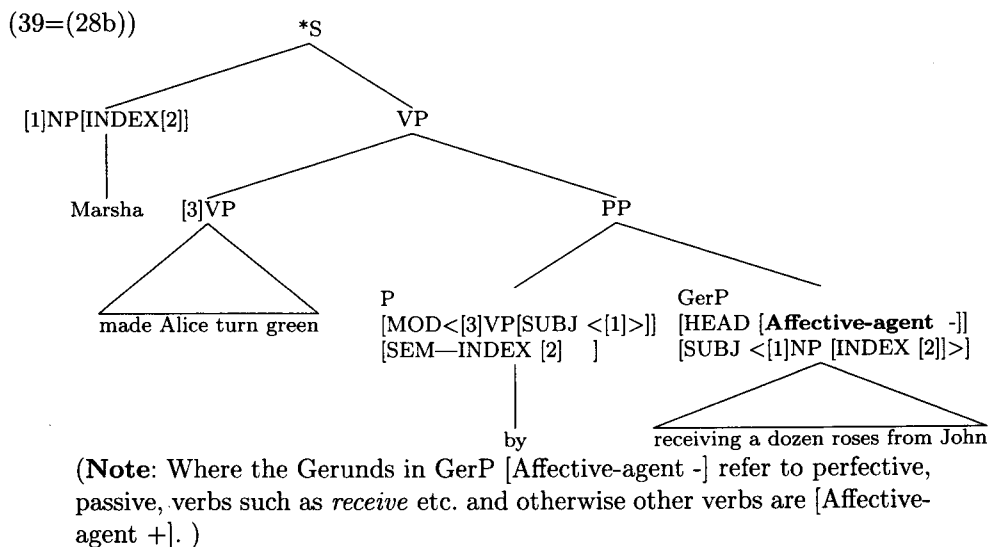


This analysis provides a simpler explanation on the idiosyncratic properties of passivized causative constructions in (18) and (19): the non-passivized causative sentence (18) is acceptable because the individual indexed NP subject, *Josh*, is identical to that of the *by* + GerP, *by kissing Rosa*, whereas the passivized sentence (19) is unacceptable since the subject of the passivized causative construction, *Alice*, is not the CAUSER of the causative verb by the definition of (31) (Cf. Burzio (1986), Kim and Sells (2008)). This can be illustrated as follows:



Furthermore, the grammatical differences in (21-26) can be predicted by the definition of the feature *Affective-agent* in (33). More specifically, sentences (21-23) are allowed because the Gerunds in the GerP subject have no constraint, whereas (24-26) are disallowed because the Gerunds in the *by* + GerP need to be the verbs requiring [Affective-agent +] and they are not such types. Similarly, the Gerund verb of the *by* + GerP in (27b), *i.e. giving*, belongs to [Affective-agent +] so that

(27b) is possible while that of the *by* + *GerP* in (28b), i.e. *receiving*, belongs to [Affective-agent -] so that (28b) is impossible. The impossibility of (28b) can be represented as follows:



Finally, it is worthwhile considering why (42) with a GerP subject of the causative verb is ungrammatical but (40) and (41) with the *by* + GerP are grammatical.

(40) Josh got Marcia drunk by downing four martinis.

(41) Josh got drunk by downing four martinis.

(42) *Josh's downing four martinis got drunk.

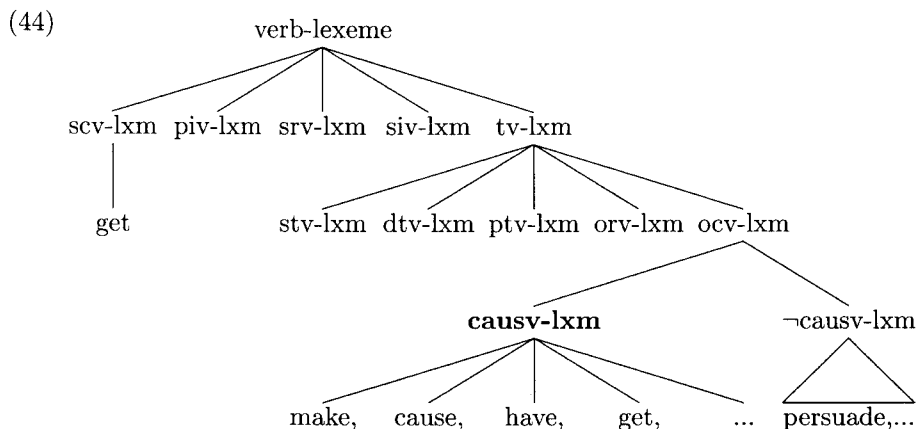
Sentence (40), headed by the causative verb *get*, is well-formed because it does not violate any constraint in HPSG (2003). In addition, (41) also can be acceptable since the verb *get* can subcategorize for VP[VForm *passive*] as a complement.¹⁴ However, (42) is somewhat odd since it does not have any object. For the same reason, sentence (43a) is excluded because English causative verbs, including *make*, always require an object.

(43) a. *Josh made angry by kissing Rosa.

b. Josh made Marcia angry by kissing Rosa.

¹⁴ It is accepted that the verb *get* can subcategorize for various complements. Among the various types of *get*, sentences like *Josh got (himself) drunk* would be interesting examples because when the reflexive expression is omitted, such sentences can be dealt with either as a causative construction or as a *get*-passive construction. This issue, however, is beyond the scope of this paper.

To distinguish (40-41) and (43b) from (42) and (43a), I propose a revised lexical hierarchy in HPSG (2003) as follows:



The newly-positd lexical hierarchy suggests that the verb *get* can be used as *subject-control-verb-lexeme* as in (41) and as *causative-verb-lexeme* as in (40). In the case of *subject-control-verb-lexeme*, the subject should be individual indexed NPs. This will give us an explanation for why (42) is odd. However, other causative verbs such as *make* are used only as *causative-verb-lexeme*, which enables us to account for the grammatical distinctions between (43a) and (43b).

4. Conclusion

Though English causative constructions are relatively well investigated, the idiosyncratic properties of the constructions with GerPs observed by Geis (1973) still remain unexplained. The properties should be accounted for to provide a full explanation of English causative constructions. To do so, I have stated that against Geis's claim, English causative verbs require either individual indexed NP subjects, *i.e.* proper nouns, or situation indexed GerP subjects and that the *by* + GerP in the constructions as a Verbal Modifier needs Gerunds, whose understood Affective-agent subject is identical to the subject of causative verbs with respect to the semantic index value. In turn, I have implemented my claim into a constraint-based formal theory. On this basis, I have demonstrated how the idiosyncratic properties of the constructions with GerPs can be accounted for. Through the demonstration and implementation, we can see that the LSGs related to the properties of the constructions at issue are reduced to a few lexical constraints and existing general tools in HPSG.

Unlike Geis (1973), who attempted to explain such properties with syntactic and semantic rules such as Agent Creation Rule, I tried to express the generalizations of the properties of the causative constructions by providing a constraint-based lexical analysis. Consequently, my analysis can provide a simpler explanation for the properties, whereas Geis (1973) requires additional tools, such as various transformational rules and rule orderings.

Of course, there remain some residual problems, like how to differentiate various causative verbs such as *make* and *have* in the lexical hierarchy postulated above. It appears clear, however, that the lexical approach suggested here can provide a simpler explanation on the idiosyncratic properties of English causative constructions with GerPs at issue.

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Submitted on: May 14, 2009

Accepted on: June 1, 2009