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Abstract

The Korean causative construction has been discussed for many years. This construction is of interest because it shows both monoclausal and biclausal properties, which are complicated by the case variation of the causee. In this paper I shall give a syntactic analysis of the causative within the Tree Adjoining Grammar (TAG hereafter) framework proposed by [Joshi, Levy & Takahashi 75], [Joshi 83] and [Kroch & Joshi 85]. This analysis captures both the syntactic biclausal and morphological monoclausal properties of the causative, and is well-attested from the comparative study with the Germanic verb-raising construction ([Kroch & Santorini 88]) and the Japanese causative construction ([Heycock 88]).

Comments

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**The Korean Causative:
A TAG Analysis**

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The Korean Causative : A TAG Analysis*

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December 29, 1988

The Korean causative construction has been discussed for many years. This construction is of interest because it shows both monoclausal and biclausal properties, which are complicated by the case variation of the causee¹. In this paper I shall give a syntactic analysis of the causative within the Tree Adjoining Grammar (TAG hereafter) framework proposed by [Joshi, Levy & Takahashi 75], [Joshi 83] and [Kroch & Joshi 85]. This analysis captures both the syntactic biclausal and morphological monoclausal properties of the causative, and is well-attested from the comparative study with the Germanic verb-raising construction ([Kroch & Santorini 88]) and the Japanese causative construction ([Heycock 88]).

(1) through (4) are examples of the Korean causative²:

(1) Suni-ka bul -i /-ul balgachi-ke ha -yet -ta.
NOM light NOM ACC lighten -CE cause PAST DEC
"Suni made the light brighter."

(2) a. Sensaengnim-un haksang-dul-i /-ul ttena-ke ha -yet -ta.
teacher TOP student -Pl -NOM -ACC leave-CE cause-PAST -DEC
"The teacher made students leave."

*This work was partly supported by NSF grant DCR-84-10413. I would like to thank to Anthony Kroch, Caroline Heycock and Beatrice Santorini for their invaluable discussions and comments on this topic. I am also grateful to Michael Niv for his comments in writing this paper, and to Jee-In Kim, Jin Park, and Ki-Young Lee for patient help with Korean data. Any mistakes are my own fault.

¹There are two causative forms in Korean. One is the lexical causative formed by infixation of *i*, *hi*, *gi*, *li* to verbs or adjectives, and the other is periphrastic causatives, signaled by *-kehata*. In this paper, I talk about the latter and call it simply 'the causative'.

²The abbreviations used in this paper are as follows:

<i>NOM</i> :	<i>nominative</i>	<i>ACC</i> :	<i>accusative</i>
<i>DAT</i> :	<i>dative</i>	<i>TOP</i> :	<i>topic</i>
<i>CE</i> :	<i>causative ending</i>	<i>PRES</i> :	<i>present</i>
<i>Pl</i> :	<i>plural</i>	<i>PASS</i> :	<i>passive</i>
<i>DEC</i> :	<i>declarative</i>	<i>NEG</i> :	<i>negative</i>
<i>PAST</i> :	<i>past</i>	<i>COMP</i> :	<i>complementizer</i>

- b. *Sensaengnim-un haksang-dul-eke(hante) ttena-ke ha -yet -ta.*
 teacher -TOP student -Pl -DAT leave-CE cause-PAST -DEC
 "The teacher had students leave."
- (3) a. *Na-nun aki -ka /-lul pap -ul meg-ke ha -yet -ta.*
 I TOP baby NOM/-ACC rice-ACC eat-CE cause-PAST DEC
 "I made the baby eat steamed-rice."
- b. *Na-nun aki -eke pap -ul meg-ke ha -yet -ta.*
 I-TOP baby-DAT rice-ACC eat-CE cause-PAST-DEC
 "I had the baby eat the rice."
- (4) a. *Emma -nun yumo -ka /-lul aki -eke ches-ul megi-ke*
 mother TOP nurse-NOM/-ACC baby-DAT milk-ACC feed-CE

ha -yet -ta.
 cause PAST-DEC
 "Mother made the nurse feed the baby milk."
- b. *Emma -nun yumo -eke aki -eke ches-ul megi-ke ha -yet -ta.*
 mother-TOP nurse-DAT baby-DAT milk-ACC feed-CE cause-PAST-DEC
 "Mother had the nurse feed the baby milk."

The causative morpheme is *ha*³ and it immediately follows the embedded predicates (i.e. verbs and adjectives) bridged by the causative ending *-ke*⁴. What is important is that the causee may be marked with the nominative, accusative or dative case markers except when the causee is inanimate. When the causee is inanimate⁵, it should be marked as either nominative or accusative but not as dative as shown in (1). Lexically causativized verbs can be re-causativized as in (4). The range of case-marking possibilities holds regardless of the kind of the embedded verbs as shown in (2) through (4).

The causative might be passivized, in which case only the causee, not the object of the embedded verb, is promoted to the subject position. Examples of the passive are in (5) through (8):

- (5) *Haksang-dul-i ttena-ke ha -yeci-ess -ta.*
 student Pl NOM leave-CE cause-PASS-PAST-DEC
 "Students were made to leave."

³This morpheme is used as either an independent word or a suffix attached to an independent morpheme to form a compound verb. In the former case, its literal translation into English is 'do', and in the latter case, it has the meaning of 'do stem', e.g. *kongbu-hata* 'study do' = do study.

⁴The grammatical status of *-ke* is controversial between a complementizer and an ending. In fact, there is no clear-cut distinction between the two categories in Korean since every complementizer-like category is attached to the end of a verbal stem. However, generally speaking, an ending has an semantic effect on the whole clause when it is considered as a complementizer, while *-ke* does not.

⁵Non-agentive would be a more precise term, but I will continue to use the term 'inanimate' for convenience.

- (6) John-i Mary-eke Nancy-lul garchi-ke ha -yet -ta.
 -NOM -DAT -ACC teach -CE cause-PAST-DEC
 "John had Mary teach Nancy."
- (7) Mary-ka Nancy-lul garchi-ke ha -yeci-ess -ta.
 -NOM -ACC teach
- (8) *Nancy-ka Mary-eke garchi-ke ha -yeci-ess -ta.
 NOM DAT
 - ungrammatical in the intended meaning specified in (6)

In accounting the causative construction, the primary concern has been focused on the case variation of the causee, and most of the analyses gave an explanation that the dative or the accusative case-marked causee is an argument of a simplex clause, which is derived from a complex structure with an embedded clause through reanalysis. This analysis assumes the following: The causative construction is biclausal at D-structure, which is responsible for the nominative causative. Reanalysis, which combines the matrix verb *hata* with the embedded verb to form a complex verbal, results in a simplex structure. If the embedded verb is intransitive, the causee becomes the accusative argument, whereas if the embedded verb is transitive, the causee becomes the dative argument.

One of the most serious problems with this analysis is that it does not explain the whole range of data. It allows the causee to be marked with either the dative or accusative case but not with both, depending on the transitivity of the embedded verb. But we saw that the causee can be marked both accusative and dative regardless of the transitivity of the embedded verb.

There are some other phenomena which reveal that the causative is different from simplex sentences. One of these is the scope phenomenon. That is, while the scope of adverbials in the embedded clause with the *ha-* causative is ambiguous, there is no such scope ambiguity in the simplex lexical causative. This contrast is shown in (9) and (10):

- (9) emeni -nun ai -eke ppalli os -ul ip -ke
 mother-TOP child-DAT quickly clothes ACC wear-CE
 ha -yet -ta.
 cause-PAST-DEC
 "Mother quickly had the child put on the clothes."
 OR
 "Mother had the child quickly put on the clothes."
- (10) emeni -nun ai -eke ppalli os -ul ip -hi-ess -ta.
 mother-TOP child-ACC quickly clothes ACC wear CS PAST DEC
 "Mother dressed the child quickly."

The same kind of scope ambiguity occurs with negation. Examples of the scope of negation are shown in (11) and (12) ⁶:

⁶When the causee is nominative, there is no scope ambiguity. That is, adverbials and negation always take a narrow scope.

(11) John-i Mary-lul/-eke an us -ke ha -yet -ta.
 NOM ACC/-DAT NEG smile-CE cause -PAST-DEC
 "John didn't make Mary smile. or John made Mary not smile."

(12) John-i Mary-lul an us -ki-ess -ta.
 NOM ACC NEG smile-CS PAST-DEC
 "John did not make Mary smile (or John did not amuse Mary)."

An entirely parallel scope phenomenon is found in the verb raising construction in German and Dutch, which is described and analyzed in [Kroch & Santorini 88]. They show that it constitutes evidence for an embedded structure that is maintained at all levels of grammar. Also the only NP that can be promoted to the matrix subject in the passive is the causee, and the complement object can not be promoted. This is different from the simplex clauses, where any accusative case-marked argument is promoted to the subject position⁷.

According to [Fodor 70], as far as clause level constituents go, each verb allows one time adverb. Thus in simplex sentences only one time adverb can show up while the causative allows two time adverbs as in (13).

(13) Ecey na-nun Inho-ka /-lul/-eke nayil hankwuk-uro
 yesterday I-TOP -NOM/-ACC/-DAT tomorrow Korea -to
 ttena-ke ha -yet -ta.
 leave-CE cause-PAST-DEC
 "Yesterday I made(or persuaded) Inho (to) leave for Korea
 tomorrow."

Until now we saw the biclausal properties of the Korean causative. But there are some phenomena which differentiate the causative structure from well-known fully biclausal structures such as control and exceptional case marking (ECM hereafter) verb structures. The first phenomenon is related to 'scrambling.' The word order in Korean is relatively free except that the verb is sentence-final. Thus scrambling of arguments of verbs does not affect the grammaticality of the sentence. Scrambling is also possible when clausal arguments are involved. Examples of scrambling involving clausal arguments are shown in (14) through (17):

(14) Nae-ka John-eke [s' chip-e kara-ko] kangyo-ha-yet -ta.
 I NOM DAT home to go COMP force do PAST DEC
 "I forced John to go home."

(15) John-eke [s' chip-e kara-ko] nae-ka kangyo-ha-yet -ta.
 DAT I NOM

(16) Nae-ka [s John-ul pabora-ko] saengkag-ha-yet -ta.
 I NOM ACC fool -COMP think do PAST DEC
 "I thought John to be a fool."

⁷In the case of double-accusative constructions such as *John-i Younghi-lul son-ul chap-ass-ta*. 'John held Mary's hand', only one of the two accusative arguments is passivised. See [MKang 87].

- (17) [s John-ul pabora-ko] nae-ka saengkag-ha-yet
I NOM

In (15) the subject *nae* of the control verb *kangyoha-* comes between the clausal argument and the verb. Also in (17), the subject *nae* of the ECM verb comes between the clausal argument and the verb. However, if an argument comes between the causative morpheme *ha* and the embedded verb in the causative, the sentence becomes ungrammatical as shown in (19) and (21).

- (18) Nae-ka John-eke/-ul chip-e ka-ke ha -yet -ta.
I TOP DAT ACC home to go CE cause PAST DEC
"I had/made John go home."

- (19) *?John-eke/-ul chip-e ka-ke nae-ka ha-yet-ta.
NOM

- (20) Nae-ka John-i us -ke ha -yet -ta.
I ,NOM NOM smile CE cause PAST DEC
"I made John smile."

- (21) *?John-i us-ke nae-ka ha-yet-ta.
NOM

The impossibility of scrambling in (19) and (21) shows that the embedded verb and the causative morpheme form a single word or, at least, are closely knit. The other phenomenon distinguishing the causative structure from fully biclausal structures is the scope phenomenon. The scope ambiguity of adverbials and the negative morpheme *an* in the causative has been discussed. However, there is no such scope ambiguity in the control structure.

- (22) na-nun John-ul chip-e ppalli kara-ko kangyo-ha-yet -ta.
I TOP ACC home to quickly go COMP force do PAST DEC
"I forced John to go home quickly."

- (23) John-un Mary-eke tambae-lul an piu -torok seltuk -ha-yet -ta.
TOP DAT tabaco ACC NE smoke COMP persuade do PAST DEC
"John persuaded Mary not to smoke."

In (22) and (23), the adverb *ppalli* and the negative morpheme placed in the embedded clause of the control verbs *kangyoha-* and *seltukha-* take only a narrow scope, indicating that the embedded clause is complete in itself.

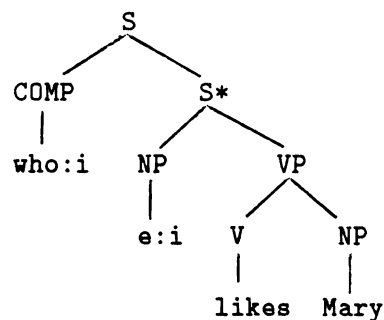
At this point, I would like to note that there is no decisive evidence indicating that the embedded verb and the causative morpheme form a single word in Korean except for what is described above. This situation is a bit unfavorable as compared with the Japanese causative, which has clear evidence such as double-o constraint, the stress fact, and the allomorphic variation of the causative morpheme, that the embedded verb and the causative

morpheme *(s)ase-* form a single word. Moreover, certain particles such as ‘to (also)’ and ‘(n)un (contrastive marker)’, and the negative morpheme *an* can intervene between the causative ending *ke* and the causative morpheme *ha-* in Korean. This is not allowed in the Japanese causative. But particle intervention can not be a real counterexample for the single wordness of the embedded verb and the causative morpheme, since even in the obvious compound verbs such as *kangyoha-* ‘force’ and *sultukha-* ‘persuade’, those particles can intervene between the stem and the suffix *ha*. Therefore we could still consider the combination of the embedded verb and the causative morpheme as a syntactically derived single word in the light of scrambling and the scope phenomenon.

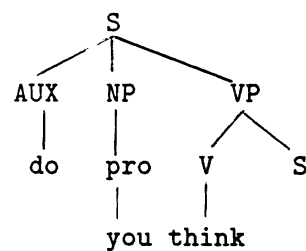
I shall now give a TAG analysis for the Korean causative, which captures the above mentioned biclausal and monoclausal properties of the causative. TAGs introduced by [Joshi, Levy, and Takahashi 75] constitute a theoretically constrained formalism. As has been demonstrated in the literature, they fall within the class of ‘mildly context-sensitive grammars’, therefore powerful enough to express many linguistically well-motivated analyses. The basic units of a TAG are trees. A TAG defines a finite set of elementary trees and an adjunction operation that produces complex structures through the combination of elementary trees. Elementary trees are of two types: initial trees and auxiliary trees. Initial trees correspond to sentences containing no recursive elements. Recursion is introduced through adjunction of auxiliary trees, which are constrained to be of a certain form: the frontier nodes of an auxiliary tree (i.e. the leaves) are all terminals except for one node, which must have the same label as the root node. Let’s look at an example of the adjunction.

(24) Who do you think e likes Mary?

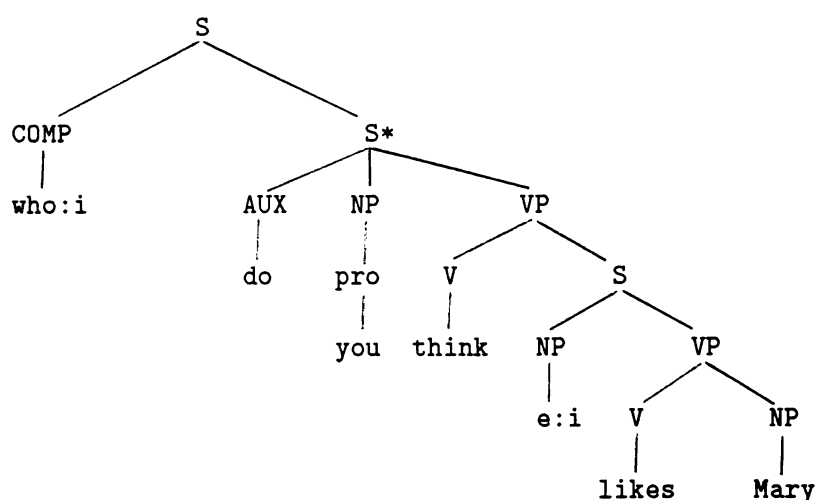
(25) (a) Initial tree



(b) Auxiliary tree



(c) Derived tree (after adjunction)

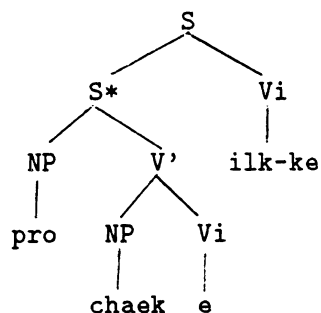


The derivation of sentence (24) is given in (25). The node where adjunction takes place is marked with an asterisk. To derive the sentence, the auxiliary tree is adjoined to the initial tree at the node marked with the asterisk. This example shows that the basic operation of adjunction can create the unbounded dependencies by inserting the tree for *do you think* (the auxiliary tree) into the one for *who likes Mary* (the elementary tree). The dependencies such as that between *who* and the extracted element (marked as 'e' here), is localized at an elementary tree level. Thus the elementary trees along with the adjunction factor recursion from local dependencies.

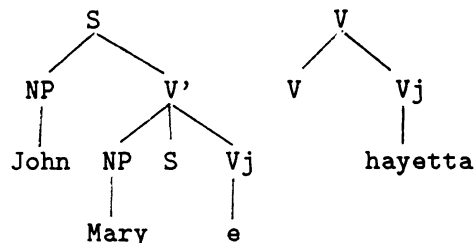
In giving the TAG analysis, I assume that the Korean causative has two separate structures. One is for the 'dative' causative, for which the causative morpheme takes one dative argument and a clausal argument; the other is for the 'accusative' and 'nominative' causative, for which the causative morpheme takes one clausal argument. The Korean causative requires the use of multi-component adjoining worked out in [Joshi, Levy & Takahashi 75] and used for the analysis of extraposition in [Kroch & Joshi 86]; instead of a single auxiliary tree, a set of trees is adjoined to a given elementary tree, and the adjunction of such a set is defined as the simultaneous adjunction of each of its component trees to a distinct node in an elementary tree. Let's look at the elementary and the derived trees for the causative. The question of case-marking is ignored for the moment.

- (26) John-un Mary-eke chaek-ul ilk -ke-ha -yet -ta.
 TOP DAT book ACC read CE cause PAST DEC
 "John had Mary read the book."

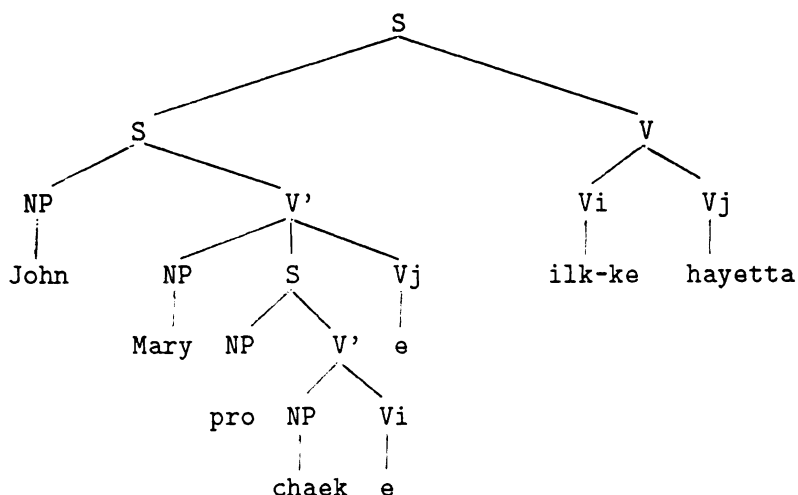
(27) (a) Initial tree



(b) Auxiliary trees



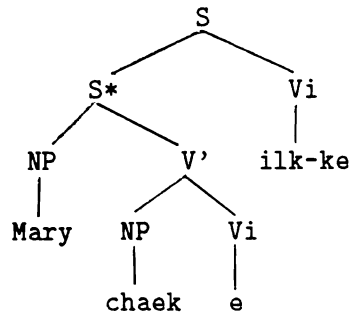
(c) Derived tree (after the adjunction)



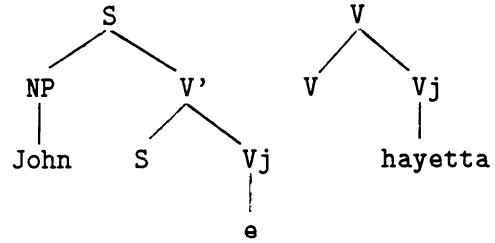
(27) is the elementary and the derived trees for the dative causative (26). In the initial tree, the infinitive verb *ilk-* is extraposed and Chomsky-adjoined to the clause containing it. This is justified and referred to as a tree with links in [Kroch & Santorini 88], where 'link' refers to the relationship between an empty category and the Chomsky-adjoined antecedent that binds it. The auxiliary tree is a tree set consisting of two subtrees, one for the verb cluster and the other for the matrix clause. In auxiliary trees, there is another link between the matrix verb *ha* and its empty trace. After the simultaneous adjunction of the auxiliary trees to the initial tree, we get the derived tree, where the embedded verb *ilk-* and the causative morpheme *ha-* form a single word. The traces are left behind, whereby the biclausal structure is maintained.

- (28) John-un Mary-ka /-lul chaek-ul ilk -ke-ha -yet -ta.
 TOP NOM ACC book ACC read CE cause PAST DEC
 "John made Mary read the book."

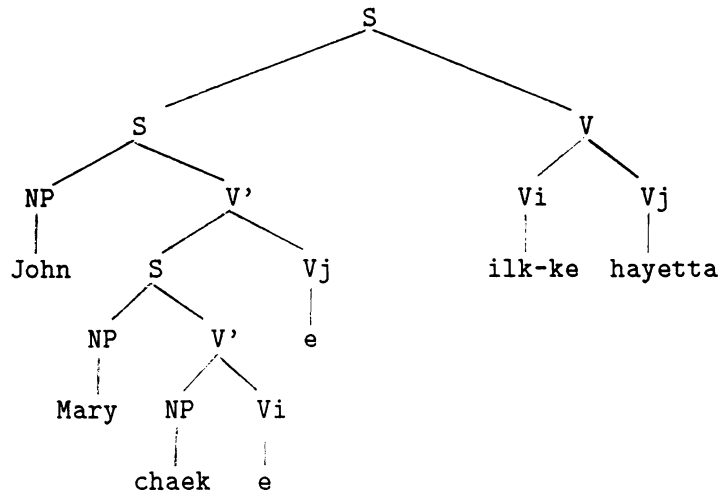
(29) (a) Initial tree



(b) Auxiliary tree



(c) Derived tree (after the adjunction)

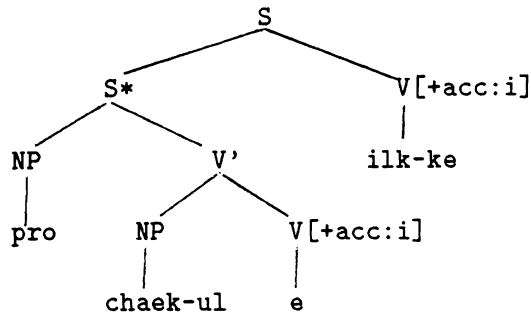


(29) is the elementary and the derived trees for the accusative/nominative causative (28). There is not much difference between the dative and the accusative causative except that in the accusative causative, the causative morpheme subcategorizes a single clausal argument. Other details of the tree sets and the adjunction operation are the same as in the dative causative.

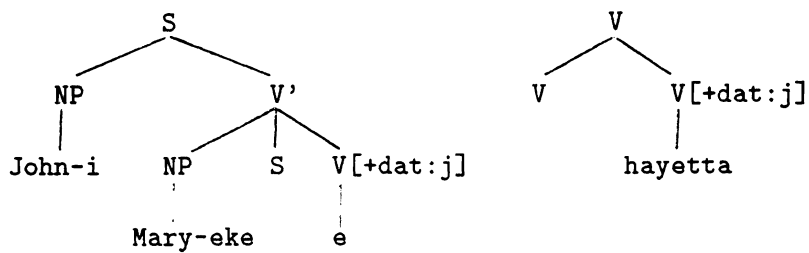
Turning to the case-marking of the causee, I assume that elementary trees contain case-markers. In the case of simplex sentences, the relationship between the case assignee and the case assigner is stated in a single tree. In complex sentences, if there is no exceptional case marking, the case-marking relationship is also stated in the same tree. This is the case for the dative causative.

(30) John-i Mary-eke chaek-ul ilk -ke-ha -yet -ta.
 NOM DAT book ACC read CE cause PAST DEC
 "John had Mary read the book."

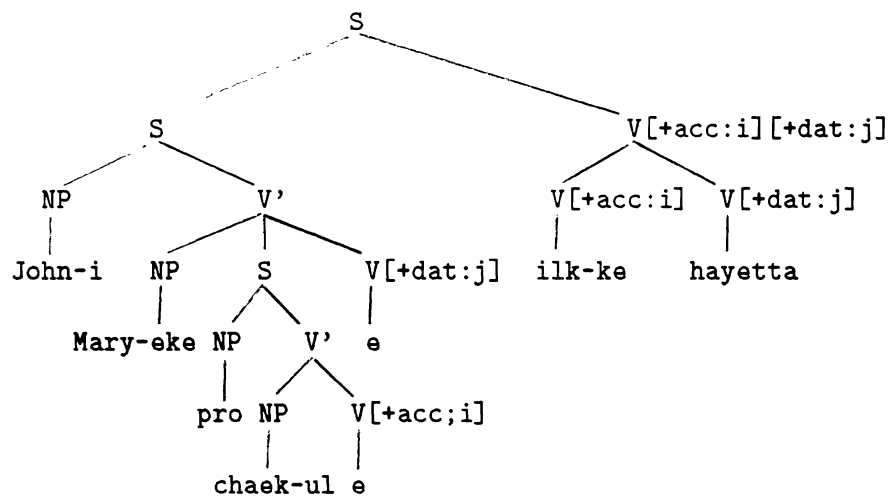
(31) (a) Initial tree



(b) Auxiliary trees



(c) Derived tree (after the adjunction)



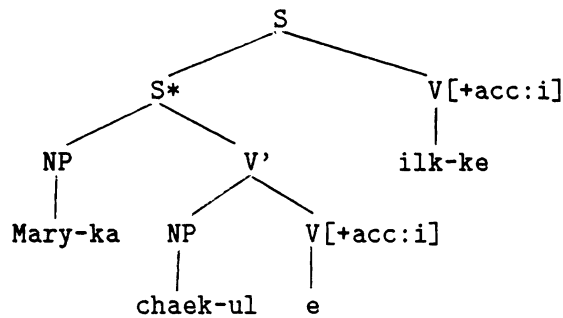
In (31b), the causative morpheme takes the dative causee as its argument, thus the case assigner (causative morpheme) and the case assignee (the causee) are stated in the same auxiliary tree. The case features specified in the elementary trees are passed up to the derived tree, resulting in two case features [+acc] and [+dat] on the derived verb *ilkkehayetta*.

The accusative and the nominative case assignment to the causee requires somewhat careful consideration. I shall assume that the nominative case marker *ka* is a marker for subjects of predication. This subject-predicate structure of the embedded clause in the

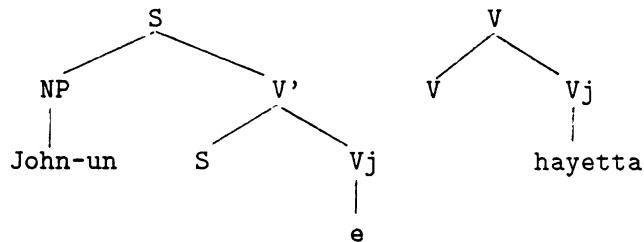
causative is optional because of its incomplete clausal status. Then the accusative causee is exceptionally case-marked by the causative morpheme *ha-*.

- (32) John-un Mary-ka chaek-ul ilk -ke-ha -yet -ta.
 TOP NOM book ACC read CE cause PAST DEC
 "John made Mary read the book."

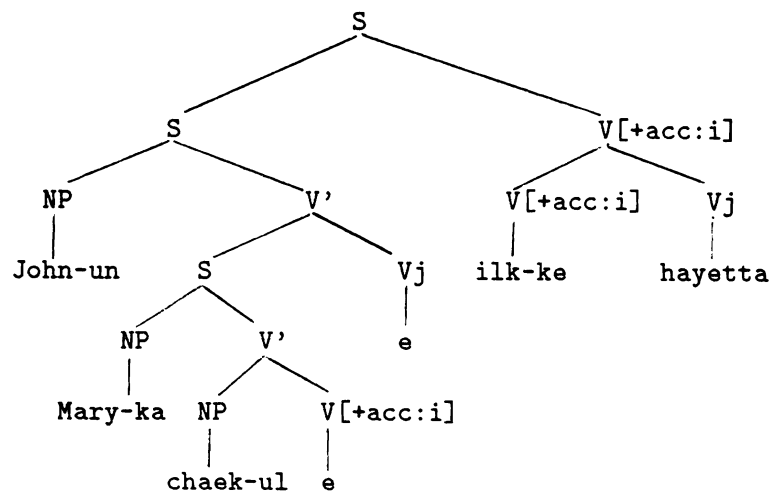
- (33) (a) Initial tree



- (b) Auxiliary trees



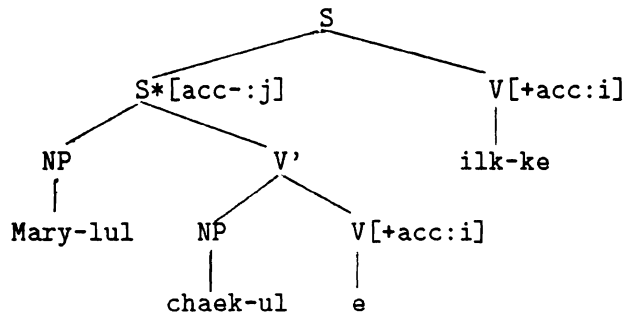
- (c) Derived tree (after the adjunction)



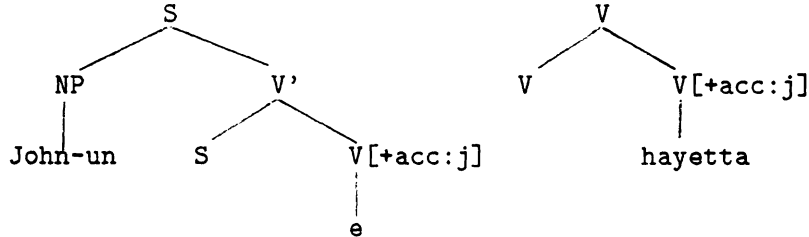
(33) is the tree set for the nominative causative (32), where predication structure is responsible for the nominative causee. We can deal with the exceptional case marking of the accusative causative by means of a constraint associated with the node where the adjunction takes place, indicating that the tree adjoined must contain some element capable of assigning the required case.

(34) John-un Mary-lul chaek-ul ilk -ke-ha -yet -ta.
 TOP ACC book ACC read CE cause PAST DEC
 "John made Mary read the book."

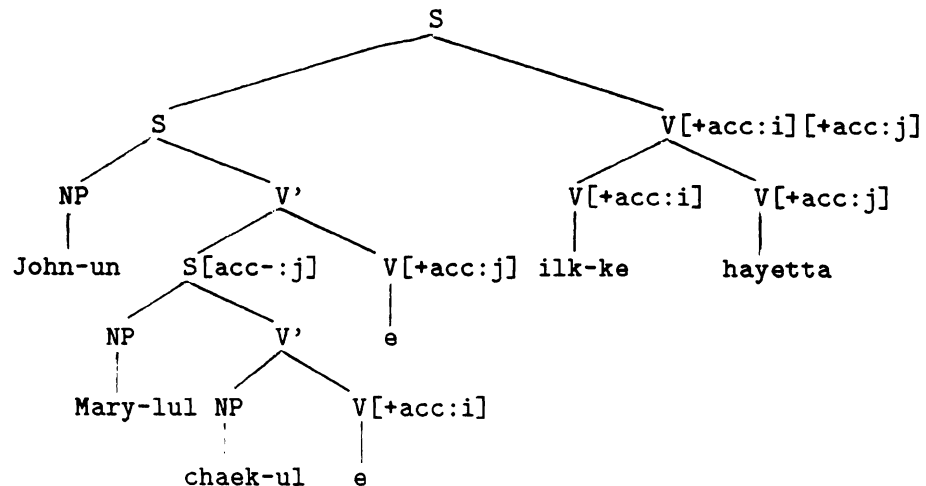
(35) (a) Initial tree



(b) Auxiliary trees



(c) Derived tree (after the adjunction)



In (35), the feature [acc-] on an S node in the initial tree represents the constraint that the tree to be adjoined must contain some element capable of assigning the accusative case; [+acc] on a V node represents the information that the V, via the trace with which it is coindexed, assigns the accusative case. After the adjunction, the derived word *ilkkehayetta* has two [+acc] features. Since in Korean there is no ‘double-(l)ul’ constraint such as Japanese ‘double-o’ constraint, the two [+acc] does not result in an ungrammatical sentence.

In conclusion, the TAG analysis captures the morpho-syntactic idiosyncracies of the Korean causative. The verb raising structure of the initial tree and the multiple adjunction of the auxiliary trees are well-attested in Germanic verb raising construction and the Japanese causative construction. However, evidence for the morphological single-wordness of the embedded verb and the causative morpheme is not indisputable, although evidence for their being separate words is weaker. Finally, the assumption that the nominative case marker *ka* is a marker for subjects of predication in Korean awaits further research.

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