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Multiple Interpretations and Constraints of Causative Serial Verb Constructions in Korean

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1 Introduction

In this paper I discuss the light verb *ha* ‘do’ in Korean, which I show forms a range of uses in various constructions (see the basic properties of light verbs in Butt and Geuder (2001), Butt (2004) and Korean light verbs in Choi and Wechsler (2001), Lee (2011), *inter alia*). In particular, I aim to elucidate what is involved in the multiple interpretations of the causative *serial verb construction* (SVC) like (1).

- (1) Mary-ka **khephi-lul ttukep-key hay mek-ess-ta.**
Mary-Nom coffee-Acc hot-Key do.Comp eat-Pst-Dec
‘Mary made the coffee_j hot, and then ate it_j/ tried to eat it_j.’
‘Mary brewed the coffee_j hot, and then ate it_j/ tried to eat it_j.’

Most research on causative constructions is only concerned with the canonical resultative reading (see Comrie 1981, Song 1996, among others). However, Korean causative constructions are in fact very ambiguous as illustrated in the English translations for (1). The light verb *hay* in (1) can have the meaning of *made* or *brewed* and the final verb *mek-ess-ta* can have the resultative reading *ate* or the purposive reading *tried to eat*, in whose event structure an unspecified causing subevent of eating necessarily occurs but the result of eating is not entailed, but just intended.

Addressing the origins and constraints of the multiple interpretations of causative SVCs, I first explore the three kinds of constructions headed by the light verb *ha*. Examples of the constructions are illustrated in (2).

- (2) a. Jane-i **khephi-lul hay-ss-ta.**
Jane-Nom coffee-Acc do-Pst-Dec
‘Jane brewed/ drank the coffee.’

- b. Jane-i **khephi-lul ttukep-key hay-ss-ta.**
 Jane-Nom coffee-Acc hot-Key do-Pst-Dec
 ‘Jane made/ brewed the coffee hot.’
- c. Mary-ka **khephi-lul hay mek-ess-ta.**
 Mary-Nom coffee-Acc do.Comp eat-Pst-Dec
 ‘Mary brewed the coffee_j, and then ate it_j.’

In (2a), the related issue is how the specific meaning (*brew* or *drink*) of the light verb *ha* gets picked up in the construction (developed from Lee (2011, 2012)). In (2b), the light verb is not just giving the standard small clause type reading for the causative, but also picking up on the predicates related to the common noun. Many scholars assume that in periphrastic causatives we have a structure like [[_{sc} NP XP] CAUSE] where the NP is not directly predicated of by the causal verb, and thus this should never happen. But in the small clause structure, the XP “transmits” the associated predicate (e.g. *brew*) of the NP (e.g. *khephi* ‘coffee’) up to CAUSE. Or, it could be that CAUSE takes directly two arguments (the NP and XP). The latter analysis appears to be more perspicuous. In the SVC (2c), an important question is why the light verb *hay* is restricted to a certain associated predicate (*brew*, but not *drink*), and how other related constraints of SVC should be reflected in explicit semantic analysis of *hay*. These issues are interconnected with each other in the causative SVCs like (1). Note that the sentences in (2) can also have their relevant purposive interpretations, which will be discussed in the sections that follow.

Based on the properties of the constructions, I then suggest a formal analysis of the constructions in the framework of Minimal Recursion Semantics (MRS) (Copestake *et al.* 2006) of Head-driven Phrase Structure Grammar (HPSG) (Pollard and Sag 1994, Sag *et al.* 2003).

2 Background: Purposive and Resultative Readings

In this section I present a puzzle about Korean resultatives, namely the fact that the putative result states need not actually obtain. The Korean equivalent of the following English sentence is acceptable: *He wiped the table clean, but the table is not clean.* The crucial question that naturally arises is what exactly the meaning of the resultative construction is, especially when the result does not necessarily obtain. I will argue that in fact these constructions are systematically ambiguous between two readings: a canonical resultative reading in which the result does obtain and an additional reading in which the result is simply intended, with a semantics much like a purposive construction.

First, in the typical purposive construction (3a), the putative result of *napcakha-key* ‘flat-Key’ is cancellable. In (3b), it shows that the construction is compatible with the modifier *intentionally*, but not with *accidentally*.

- (3) a. John-i soy-lul napcakha-key mantul-kiwihay twutulki-ess-ta.
 John-Nom metal-Acc flat-Key make-to hammer-Pst-Dec
kulena soy-ka napcakha-ci anh-ta.
 but metal-Nom flat-Comp Neg-Dec
 ‘John hammered the metal_i to make it_i flat, but the metal is not flat.’
- b. John-i soy-lul napcakha-key mantul-kiwihay
 John-Nom metal-Acc flat-Key make-to
ilpwule/ #wuyenhi twutulki-ess-ta.
 intentionally/ accidentally hammer-Pst-Dec
 ‘John intentionally/ #accidentally hammered the metal_i to make it_i flat.’

The event cancellation in (3a) indicates that the result state of the Adj-*key* phrase is not entailed in the purposive construction. In (3b), the contrast in modification shows that purposive constructions require some intentionality on the part of the subject of the matrix clause.

The typical Korean resultative construction with the secondary predicate (*napcakha-key* ‘flat-Key’) in (4a) (see more Korean resultatives in Wechsler and Noh (2001)) also allows the result cancellation like the purposive in (3a). However, in (4b), the modification of *accidentally* is permitted unlike (3b).

- (4) a. John-i soy-lul napcakha-key twutulki-ess-ta.
 John-Nom metal-Acc flat-Key hammer-Pst-Dec
kulena soy-ka napcakha-ci anh-ta.
 but metal-Nom flat-Comp Neg-Dec
 (lit.) ‘John hammered the metal flat, but the metal is not flat.’
 = ‘John hammered the metal_i to make it_i flat, but it_i is not flat.’
- b. John-i soy-lul napcakha-key **ilpwule/ wuyenhi**
 John-Nom metal-Acc flat-Key intentionally/ accidentally
 twutulki-ess-ta.
 hammer-Pst-Dec
 ‘John intentionally/ accidentally hammered the metal flat.’

The cancellation in (4a) suggests that the construction has the purposive reading; since *accidentally* is not compatible with a purposive reading, the construction in (4b) has the normal resultative reading. In these two interpretations, the main verb meaning corresponds to the causing subevent of the construction’s event structure and it must be entailed in the construction with a secondary predicate.

The two crucial differences between purposive and resultative readings in terms of event cancellation and adverb modification can be illustrated as in (5).

(5)

	Purposive reading	Resultative reading
Cancellation of relevant result state	<i>Yes</i>	<i>No</i>
Modification by ‘accidentally’	<i>No</i>	<i>Yes</i>

If a resultative reading manifests itself in the context of the modification of *wuyenhi* ‘accidentally’, then we can predict that the construction with the adverb cannot allow the result cancellation. This is confirmed in the following:

- (6) John-i soy-lul napcakha-key **wuyenhi** twutulki-ess-ta.
 John-Nom metal-Acc flat-Key accidentally hammer-Pst-Dec
#kulena soy-ka napcakha-ci anh-ta.
 but metal-Nom flat-Comp Neg-Dec
 ‘John accidentally hammered the metal flat, #but the metal is not flat.’

In sum, the Korean constructions that have generally been considered as resultatives are actually ambiguous between purposive and resultative readings. This is a common property of structures that can entail a result state in Korean, and in some constructions one or the other reading of the structure is ruled out. With this background, I now turn to Korean *light verb constructions* (LVCs).

3 Qualia Light Verb *ha* ‘do’

In this section, I show that the light verb *ha* in an LVC can have a specific meaning according to its common noun object. Then based on the properties of purposive and resultative readings discussed in the previous section, I argue that if the light verb *ha* is interpreted as having the meaning of a change-of-state verb, the change-of-state meaning of *ha* also has purposive and resultative readings.

In the following minimal pair in (7), we see that the light verb *ha* receives its specific meaning depending on its common noun object (cf. Im and Lee 2004 and see Lee 2011, 2012).

- (7) Yenghi-ka **khephi**-lul/ **#mwul**-ul hay-ss-ta.
 Yenghi-Nom coffee-Acc/ water-Acc do-Pst-Dec
 ‘Yenghi brewed/ drank the coffee.’

In (7), when the object is *khephi* ‘coffee’, *ha* is interpreted as having the meaning of *brew* or *drink*. However, the unacceptability with *mwul* ‘water’ shows that it is not that every common noun can appear as the object of the construction.

If the light verb can have the meanings of associated predicates, we can predict that the different interpretations of *ha* should behave differently regarding aspect. This is verified in the following sentences with *maney* ‘in’:

- (8) Yenghi-ka pap-ul/ khemphuthe-lul **han sikan maney** hay-ss-ta.
 Yenghi-Nom rice-Acc/ computer-Acc one hour in do-Pst-Dec
 ‘Yenghi cooked the rice in an hour.’ (telic or ingressive reading)
 ‘Yenghi used the computer in an hour.’ (ingressive reading)

Thus certain common nouns have information about their related predicates. Pustejovsky (1991) refers to this relation as cospecification; just like a verb can select for its argument type (e.g. *kick* selects its argument like *ball*, but not *happiness*), an argument also can select its particular associated predicates (e.g. *ball* may select its predicate like *kick*, but not *read*). The associated predicate information is then included in the Qualia Structure of a lexical item (Pustejovsky 1991). In the Qualia Structure, the Telic Role has values about purpose and function of object (e.g. *read* for novel), and the Agentive Role has values on factors involved in the origin of an object (e.g. *write* for novel).

Building on qualia structure, I suggest that Korean common nouns have the dual semantic components, the first of which is the meaning of the common noun itself (e.g. rice relation for *pap* ‘rice’) and the second of which is the associated predicate meanings (e.g. cook relation for *pap* ‘rice’) (see Copestake and Briscoe (1995) for qualia roles in feature structure). However, the common nouns like *mwul* ‘water’ have no value for their qualia roles. Although the predicate *masi-* ‘drink’ appears to be a good candidate for the telic role of *mwul* ‘water’, there seems to be no grammatical evidence to verify if *masi-* ‘drink’ is really used in grammar as a telic role for *mwul* ‘water’; *masi-* ‘drink’ seems to not yet be conventionalized as an associated predicate of *mwul* ‘water’.

When the light verb *ha* is interpreted as having an associated predicate (e.g. *brew*), it can have the relevant purposive reading as in (9a) in addition to the usual resultative reading as in (9b).

- (9) a. Yenghi-ka achim-ey **khephi**-lul hay-ss-ta.
 Yenghi-Nom morning-in coffee-Acc do-Pst-Dec
kulena khephi-ka mantul-e ci-ci anh-ass-ta.
 but coffee-Nom make-Comp Pass-Comp Neg-Pst-Dec
 ‘Yenghi tried to brew a coffee, but a coffee was not made.’
- b. Yenghi-ka achim-ey **wuyenhi** **khephi**-lul hay-ss-ta.
 Yenghi-Nom morning-in accidentally coffee-Acc do-Pst-Dec
 #**kulena** khephi-ka mantul-e ci-ci anh-ass-ta.
 but coffee-Nom make-Comp Pass-Comp Neg-Pst-Dec
 ‘Yenghi accidentally brewed a coffee, #but a coffee was not made.’

In syntax, an adverb can appear in between the common noun object and the light verb as shown in (8), which indicates that the verb phrases of the qualia-*ha* constructions should be analyzed syntactically rather than lexically.

4 Causative Light Verb *ha* ‘do’

In this section, I discuss a use of *ha* ‘do’ as marking causative constructions like the use of *make* in English causative constructions, and the ambiguity of the secondary predicate in the causative constructions.

Causative constructions are normally classified into two types: lexical causative and periphrastic (syntactic) causative (see Comrie 1981, Song 1996, among others). For instance, the Korean lexical causative in (10) (where the causative dependent morpheme *-i* is attached to the verb stem) describes an event of direct causation: i.e. the subject is necessarily the agent who dried the clothes by e.g. operating a drying machine or hanging the clothes on a drying rack. In contrast, the periphrastic causative with the result XP in (10) does not entail a direct causation, although the interpretation of a direction causation is possible; Tom can make someone else dry the clothes (i.e. an indirect causation). In this paper, I focus on the direct causation reading of the Korean periphrastic causative construction.

- (10) Tom-i caki os-ul **mal-i-ess-ta/ malu-key** **hay-ss-ta.**
 Tom-Nom self clothes-Acc dry-Caus-Pst-Dec/ dry-Key do-Pst-Dec
 ‘Tom_i dried his_i clothes.’/
 (lit.) ‘Tom_i did his_i clothes dry.’ = ‘Tom_i made his_i clothes dry.’

If the periphrastic causative sentence in (10) can be interpreted as its purposive reading, we can predict that the construction should allow the relevant result state cancellation. Also if it is interpreted as its resultative reading with the modification of *accidentally*, it is predicted that the cancellation is not allowed. These two predictions are borne out in (11a) and (11b), respectively.

- (11) a. Tom-i caki os-ul **malu-key hay-ss-ta.**
 Tom-Nom self clothes-Acc dry-Key do-Pst-Dec
kulena os-i malu-ci anh-ass-ta.
 but clothes-Nom dry-Comp Neg-Pst-Dec
 ‘Tom_i tried to make his_i clothes dry, but they were not dry.’
 b. Tom-i **wuyenhi** caki os-ul **malu-key hay-ss-ta.**
 Tom-Nom accidentally self clothes-Acc dry-Key do-Pst-Dec
#kulena os-i malu-ci anh-ass-ta.
 but clothes-Nom dry-Comp Neg-Pst-Dec
 ‘Tom_i accidentally made his_i clothes dry, #but they were not dry.’

One interesting similarity of the light verb *ha* in the periphrastic causative construction to the light verb *ha* in the qualia-*ha* construction is that they get their meaning from their complement. As already shown in section 3, the specific meaning of *ha* of qualia-*ha* construction is determined by the common noun object (e.g. *cook* from rice object). The meaning of *ha* of periphrastic causative construction (i.e. use as *make*) is determined by the existence of a secondary predicate (e.g. *malu-key* ‘dry-Key’); while the exact meaning of *ha* cannot be identified unless it can be inferred from the wider context in which the construction appears, *ha* here corresponds to the unspecified causing subevent in the event structure of the construction. In the event structure, the unspecified

causing subevent necessarily occurs; what contributes to the ambiguity of the construction is the ambiguity of the secondary predicate between realized result state (in resultative reading) and intended result state (in purposive reading).

5 Qualia-Causative Light verb *ha* ‘do’

The Korean light verb *ha* is very ambiguous, as shown above. It can be either qualia light verb, as discussed in section 3, or causative light verb, as shown in section 4, each of which then has its purposive and resultative readings. In this section, I discuss a sort of mixed use of the light verb (namely, qualia-causative light verb *ha*) in a single construction, and then its theoretical implication for the syntactic analysis of the construction in question.

In (12), the light verb *ha* ‘do’ can be the normal causative light verb or the qualia-causative light verb (the quasi-deictive reading with the telic role *drink* ‘Jane drank the coffee hot’ is not discussed in this paper).

- (12) Jane-i **khephi-lul ttukep-key hay-ss-ta.**
Jane-Nom coffee-Acc hot-Key do-Pst-Dec.
‘Jane made the coffee hot/ tried to make the coffee hot.’
‘Jane brewed a coffee hot/ tried to brew a coffee hot.’

In the normal causative reading of (12), the only relevant result is that the coffee becomes hot. However, in the qualia-causative reading, two results are involved (i.e. the creation of a coffee and creation of the property of being hot). Here the qualia-causative light verb *ha* gets its meaning from both the common noun object and the XP; the light verb *ha* corresponds to the combination of the event of brewing a coffee and the unspecified causing subevent of making the object hot. In the event structure of the construction, if the associated results are all realized, then the sentence has the resultative reading, but if some result is not realized, but only intended, the sentence has the purposive reading (roughly corresponding to ‘Jane tried to brew a coffee hot’) with the following three possible situations: i) a cold coffee was made, ii) a hot tea was made, and iii) a cold tea was made. In any case, the result of the construction (i.e. a hot coffee) is not realized.

According to small clause analysis of periphrastic causative construction, the object and the secondary predicate are syntactically grouped together to form a small clause (i.e. a predication), and then the causative verb combines with the small clause. This analysis seems to have no problem for the normal causative reading of the sentence (12).

However, for the sentence (12) with the qualia-causative interpretation, the small clause analysis appears to be not perspicuous relatively (although it is not impossible) since the XP (i.e. the head of the small clause) should “transmit” the qualia meaning from the common noun object (i.e. the complement of XP) up to the light verb *ha* when the light verb *ha* combines with the small clause in syntax. Rather than this transmission mechanism of the small clause analysis, it is more

perspicuous for the light verb *ha* to combine directly with the NP and XP in syntax, and thus gets its qualia meaning directly from the NP. For the sake of a theoretical consistency, it is also better to analyze the construction (12) with the normal causative interpretation in much the same way.

In the next section, the causative construction (12) is then combined with an SVC (resulting in causative SVC). This combination creates an interesting restriction on the possible interpretations of the light verb in the causative SVC.

6 Causative SVC

The core concept of an SVC is to serialize the events of component verbs of the construction and thus to conceptualize the component events as a single, unified event, as exemplified in (13a) (see more e.g. in Collins (1997), Aikhenvald (2006), Kim (2010)). SVCs are generally under the iconicity constraint: i.e. the subevent of the first verb (V1) must occur before the subevent of the second verb (V2). So, the sequential order of the component verbs and their corresponding subevents are basically parallel. The iconicity constraint leads (13b) to be ungrammatical.

- (13) a. kunye-ka kheik-ul **cip-e** **mek-ess-ta.**
 she-Nom cake-Acc pick.up-Comp eat-Pst-Dec
 ‘She picked up the cake_j, and then ate it_j/ tried to eat it_j.’
 b. *kunye-ka kheik-ul **mek-e** **cip-ess-ta.**
 she-Nom cake-Acc eat-Comp pick.up-Pst-Dec
 (int.) ‘She picked up the cake_j, and then ate it_j/ tried to eat it_j.’

The meaning of picking up a cake which is already eaten is implausible. The world knowledge is, however, based on the assumption that the SVC in (13b) is iconic-constrained. If the iconicity constraint is not relevant (so it is possible for the first verb to represent the subevent that happens after the subevent of the second verb), the SVC should be fine, and must have the intended reading; but it cannot. Thus the iconicity constraint is an underlying property of SVCs; by contrast coordinations are not under the iconicity constraint.

Another important fact of SVC is that although the usual change-of-state verbs in Korean do not necessarily entail their relevant result states (or result objects), Korean SVCs do not allow the cancellation of the result state(s) related to the first verb event (more generally, non-final verb events); but the event of the final verb of an SVC can be cancelled just like the normal change-of-state verbs.

The following two constructions in (14) have the two fundamental properties of SVC (iconicity constraint and no cancellation of result state(s) associated with V1), which strongly indicate that they are really a type of SVC in Korean. The result state of the secondary predicate related to V1 is not cancellable, either. Moreover, only the agentive role *brew* is appropriate for the meaning of the V1 light verb *hay* suggesting that a light V1 in an SVC can only take on the agentive reading (not telic reading) for its object (see Lee 2011, 2012):

- (14) a. Mary-ka **khephi-lul hay mek-ess-ta.**
 Mary-Nom coffee-Acc do.Comp eat-Pst-Dec
 ‘Mary brewed the coffee_j, and then ate it_j/ tried to eat it_j.’
- b. Mary-ka **khephi-lul ttukep-key hay mek-ess-ta.**
 Mary-Nom coffee-Acc hot-Key do.Comp eat-Pst-Dec
 ‘Mary made/brewed the coffee_j hot, and then ate it_j/ tried to eat it_j.’

The SVC (14b) is the causative SVC which is the combination of the causative construction in (12) and the SVC in (14a) (cf. Aikhenvald, 2006: 16). In the next section, I formalize the semantic analysis of the multiple interpretations of the causative SVC.

7 A formal analysis

First, resultative and purposive meanings (i.e. CONTENTs) of the change-of-state verb *tha-* ‘brew’ can be declared like the following:

- (15) a. Resultative CONTENT of ‘brew’:

$$\left[\begin{array}{l} \textit{resultative} \\ \text{RELS} < \left[\begin{array}{l} \textit{cause_rel} \\ \text{LBL h1} \\ \text{ARG0 e1} \\ \text{ARG1 h2} \\ \text{ARG2 h3} \end{array} \right], \left[\begin{array}{l} \textit{action_of_brewing_rel} \\ \text{LBL h4} \\ \text{ARG0 e2} \\ \text{ARG1 i} \\ \text{ARG2 j} \end{array} \right] >, \\ \left[\begin{array}{l} \textit{become_rel} \\ \text{LBL h5} \\ \text{ARG0 e3} \\ \text{ARG1 h6} \end{array} \right], \left[\begin{array}{l} \textit{brewed_rel} \\ \text{LBL h7} \\ \text{ARG0 e4} \\ \text{ARG1 j} \end{array} \right] > \\ \text{HCONS} < \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG h2} \\ \text{LARG h4} \end{array} \right], \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG h3} \\ \text{LARG h5} \end{array} \right], \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG h6} \\ \text{LARG h7} \end{array} \right] > \end{array} \right]$$

- b. Purposive CONTENT of ‘brew’:

$$\left[\begin{array}{l} \textit{purposive} \\ \text{RELS} < \left[\begin{array}{l} \textit{cause_rel} \\ \text{LBL h1} \\ \text{ARG0 e1} \\ \text{ARG1 h2} \\ \text{ARG2 h3} \end{array} \right], \left[\begin{array}{l} \textit{action_of_brewing_rel} \\ \text{LBL h4} \\ \text{ARG0 e2} \\ \text{ARG1 i} \\ \text{ARG2 j} \end{array} \right] >, \\ \left[\begin{array}{l} \textit{purpose_rel} \\ \text{LBL h5} \\ \text{ARG0 e3} \\ \text{ARG1 h6} \end{array} \right], \left[\begin{array}{l} \textit{become_rel} \\ \text{LBL h7} \\ \text{ARG0 e4} \\ \text{ARG1 h8} \end{array} \right], \left[\begin{array}{l} \textit{brewed_rel} \\ \text{LBL h9} \\ \text{ARG0 e5} \\ \text{ARG1 j} \end{array} \right] > \\ \text{HCONS} < \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG h2} \\ \text{LARG h4} \end{array} \right], \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG h3} \\ \text{LARG h5} \end{array} \right], \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG h6} \\ \text{LARG h7} \end{array} \right], \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG h8} \\ \text{LARG h9} \end{array} \right] > \end{array} \right]$$

The purposive CONTENT (15b) is specified as having [*purpose_rel*] in its REL(ATION)S.

As for common nouns, it is claimed that they include the QUALIA-ST(RUCTURE) in CONT(ENT), which in turn has the AGENTIVE and TELIC attributes, and the QUALIA list is also posited whose value is the sum of the values of the AGENTIVE and TELIC attributes (see Lee 2011, 2012). For instance, the common noun *khephi* ‘coffee’ can have the following feature structure:

(16) *khephi* ‘coffee’:

$$\left[\begin{array}{l} \text{cn} \\ \text{PHON} \langle \textit{khephi} \rangle \\ \\ \text{CONT} \left[\begin{array}{l} \text{HOOK} \langle \left[\begin{array}{l} \text{LTOP } h_1 \\ \text{INDEX } j \end{array} \right] \rangle \\ \text{RELS} \langle \left[\begin{array}{l} \textit{coffee_rel} \\ \text{LBL } h_1 \\ \text{ARG0 } j \end{array} \right] \rangle \\ \text{HCONS} \langle \quad \rangle \\ \text{QUALIA-ST} \left[\begin{array}{l} \text{AGENTIVE } \boxed{A} \langle [\text{RELS} \langle [\textit{cause_rel}], [\textit{action_of_brewing_rel}], \dots \rangle] \rangle \\ \text{TELIC } \boxed{B} \langle [\text{RELS} \langle [\textit{cause_rel}], [\textit{action_of_drinking_rel}], \dots \rangle] \rangle \\ \text{QUALIA } \boxed{A} \oplus \boxed{B} \end{array} \right] \end{array} \right] \end{array} \right]$$

In (16), *khephi* ‘coffee’ has one agentive role (i.e. [RELS <[*cause_rel*], [*action_of_brewing_rel*],...>]), and one telic role (i.e. [RELS <[*cause_rel*], [*action_of_drinking_rel*],...>]). These two qualia roles are underspecified with respect to resultative or purposive CONTENT; thus for example either of (15) can be the value of the AGENTIVE attribute.

The core meaning of the light verb *ha* in a qualia-*ha* construction comes from a qualia role of the common noun object as represented in (17a). The qualia light verb *ha* in (17a) should have the corresponding V1 form in (17b), which is used in an SVC.

(17) a. The qualia *ha*-1 in non-SVC:

$$\left[\begin{array}{l} \textit{tr-light-v} \\ \text{PHON} \langle \textit{ha-1} \rangle \\ \text{ARG-ST} \langle \text{NP}_i, \text{NP}_j \left[\text{QUALIA-ST} \left[\text{QUALIA} \langle \dots, \boxed{1}, \dots \rangle \right] \right] \rangle \\ \text{CONTENT } \boxed{1} \end{array} \right]$$

b. The qualia *hay*-1 in SVC:

$$\left[\begin{array}{l} \text{PHON} \langle \textit{hay-1} \rangle \\ \text{FORM } -e \\ \text{SUBJ} \langle \text{NP}_i \rangle \\ \text{COMPS} \langle \text{NP}_j \left[\text{QUALIA-ST} \left[\text{AGENTIVE} \langle \boxed{1} [\textit{resultative}] \rangle \right] \right] \rangle \\ \text{CONTENT } \boxed{1} \end{array} \right]$$

In (17a), a value of the QUALIA of the object NP_j is structure-shared with the value of the CONTENT of the light verb *ha*. In other words, the light verb requires an object that has at least one value for QUALIA. This requirement prevents common nouns like *mwul* ‘water’ from appearing as an object of the light verb. Since the non-final light verb in SVC should have a resultative agentive role, *hay-1* in (17b) requires a common noun object that has a resultative value for the AGENTIVE of the QUALIA-ST.

Also secondary predicates can have purposive or resultative reading, which is reflected in the two feature structures below:

(18) a. *ttukep-key-1* ‘hot-Key’:

$$\left[\begin{array}{l} \text{PHON} < \textit{ttukep-key-1} > \\ \text{CONT} \left[\begin{array}{l} \text{HOOK} < \left[\begin{array}{l} \text{LTOP h1} \\ \text{INDEX e1} \\ \text{XARG j} \end{array} \right] > \\ \text{RELS} < \left[\begin{array}{l} \textit{become_rel} \\ \text{LBL h1} \\ \text{ARG0 e1} \\ \text{ARG1 h2} \end{array} \right], \left[\begin{array}{l} \textit{hot_rel} \\ \text{LBL h3} \\ \text{ARG0 e2} \\ \text{ARG1 j} \end{array} \right] > \\ \text{HCONS} < \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG0 h2} \\ \text{LARG1 h3} \end{array} \right] > \end{array} \right] \end{array} \right]$$

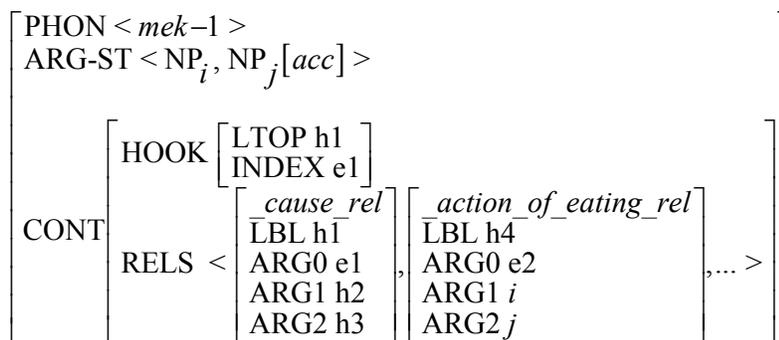
b. *ttukep-key-2* ‘hot-Key’:

$$\left[\begin{array}{l} \text{PHON} < \textit{ttukep-key-2} > \\ \text{CONT} \left[\begin{array}{l} \text{HOOK} < \left[\begin{array}{l} \text{LTOP h1} \\ \text{INDEX e1} \\ \text{XARG j} \end{array} \right] > \\ \text{RELS} < \left[\begin{array}{l} \textit{purpose_rel} \\ \text{LBL h1} \\ \text{ARG0 e1} \\ \text{ARG1 h2} \end{array} \right], \left[\begin{array}{l} \textit{become_rel} \\ \text{LBL h3} \\ \text{ARG0 e2} \\ \text{ARG1 h4} \end{array} \right], \left[\begin{array}{l} \textit{hot_rel} \\ \text{LBL h5} \\ \text{ARG0 e3} \\ \text{ARG1 j} \end{array} \right] > \\ \text{HCONS} < \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG0 h2} \\ \text{LARG1 h3} \end{array} \right], \left[\begin{array}{l} \textit{qeq_rel} \\ \text{HARG0 h4} \\ \text{LARG1 h5} \end{array} \right] > \end{array} \right] \end{array} \right]$$

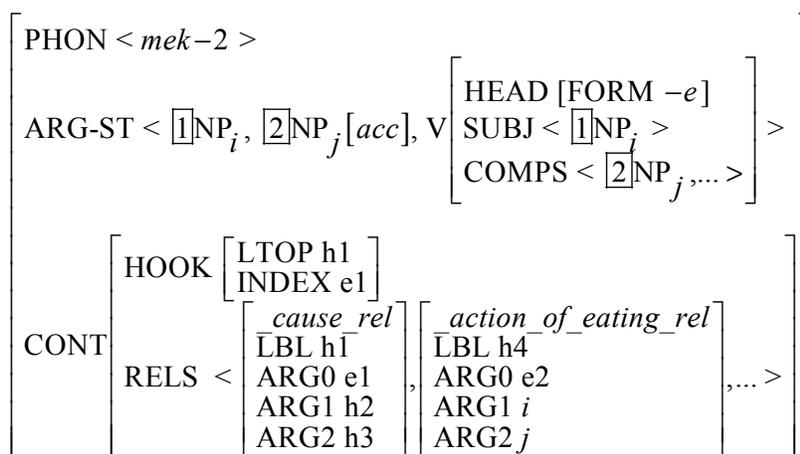
A lexical rule can be posited to license (18b) from (18a), which can also be derived by another lexical rule taking *ttukep* ‘hot’ as the input.

The heavy verbs used as V2 (generally, the final verb) of an SVC should have different lexical items from those used in non-SVCs:

(19) a. lexeme *mek-1* ‘eat’ in non-SVC:



b. lexeme *mek-2* ‘eat’ as V2 in SVC:

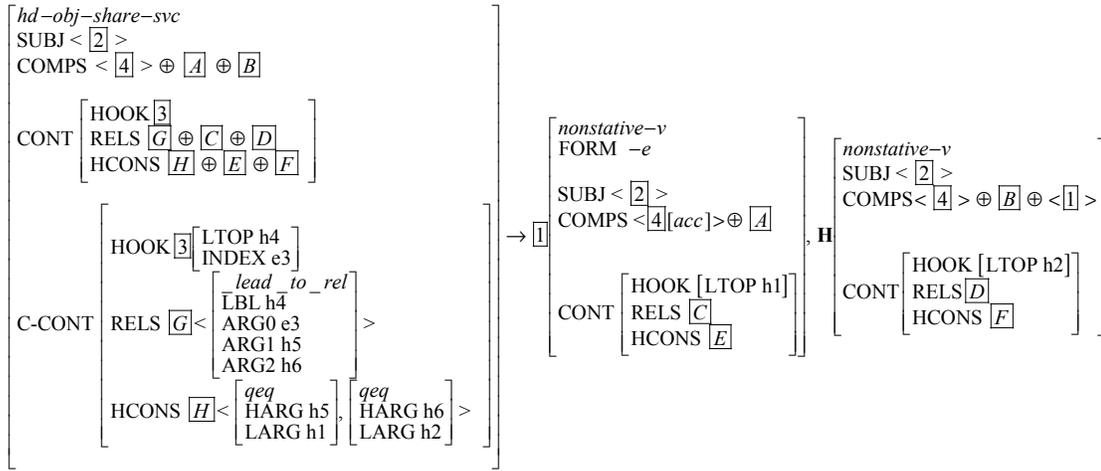


Both the verbs in (19) can have resultative or purposive meaning, as represented with the underspecified feature [RELS<[_*cause_rel*], [_*action_of_eating_rel*],...>]. A main difference is that the accusative object of the V2 in (19b) is shared by the V1 which is in the ARG(UMENT)-ST(RUCTURE) of the V2.

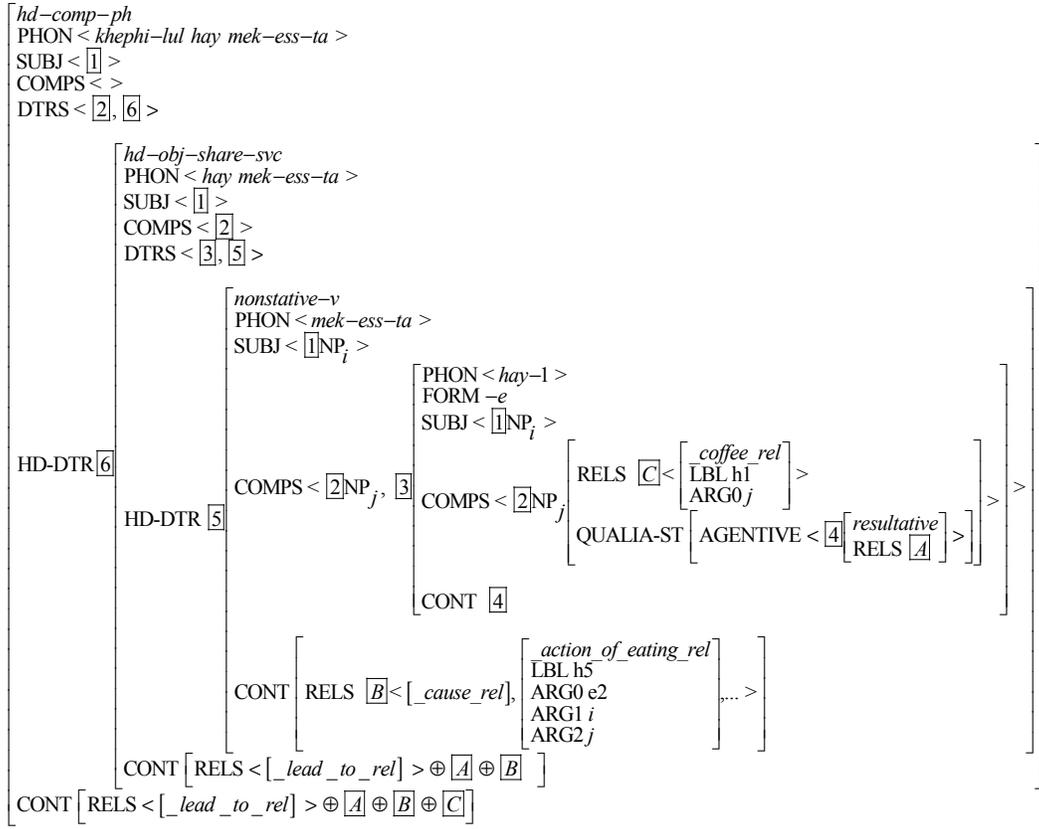
The following phrase structure rule for the combination of component verbs of SVC is proposed (see Lee 2011, 2012). In (20), the V1 is one of the complements of the V2, and accusative object is shared by the V1 and V2. This shared object and the possible non-shared complements (i.e. \boxed{A} and \boxed{B}) are passed up to the resulting combination, where the constructional meaning (C-CONT) is added. Now the VP (i.e. [NP [*hay* V2]]) of (14a) can be analyzed like (21).

*Multiple Interpretations and Constraints of Causative Serial Verb Constructions
in Korean*

(20) Head-Obj-Share-SVC:



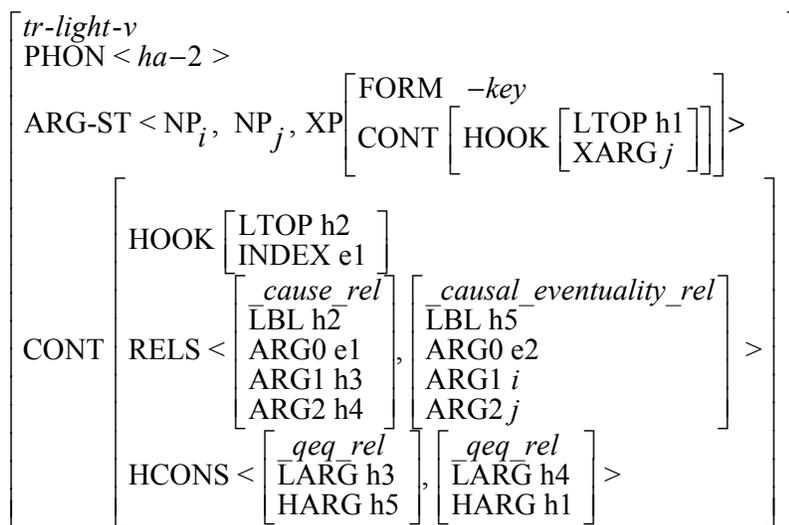
(21) $[[\text{khephi-lul}]_{\text{NP}} [\text{hay mek-ess-ta}]_{\text{Head-Obj-Share-SVC}}]_{\text{hd-comp-ph}}$



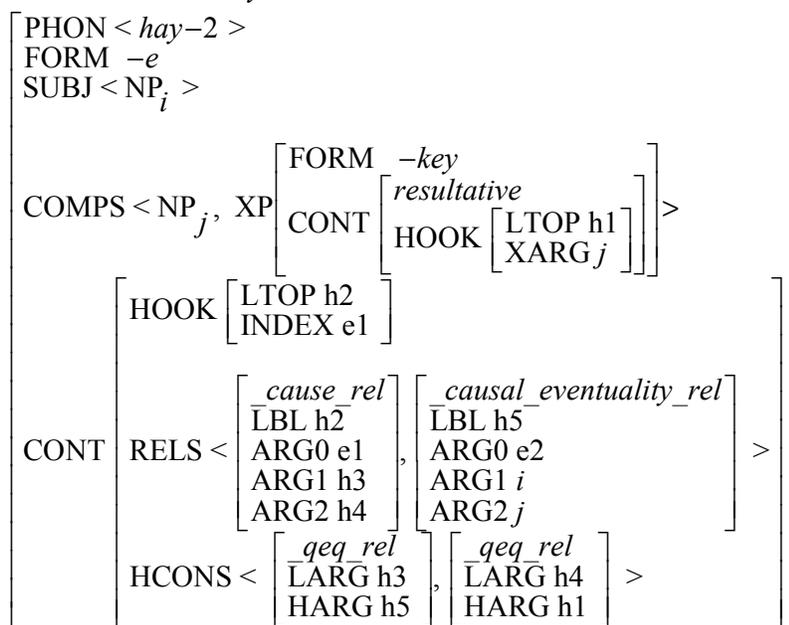
The final CONTENT of the VP in (21) means that the subject's action of brewing a coffee caused the creation of a coffee (i.e. the subject brewed a coffee), and then ate the coffee (i.e. resultative reading) or tried to eat the coffee (i.e. purposive reading).

Now, in addition to the normal causative light verb *ha-2* in (22a) for the VP (i.e. [NP [XP [*ha*]]]) of the non-SVC causative construction, the causative V1 light verb *hay-2* in (22b) is required for the VP (i.e. [NP [XP [*hay* V2]]]) of the causative SVC having the normal causative interpretation.

(22) a. The causative *ha-2* in non-SVC:

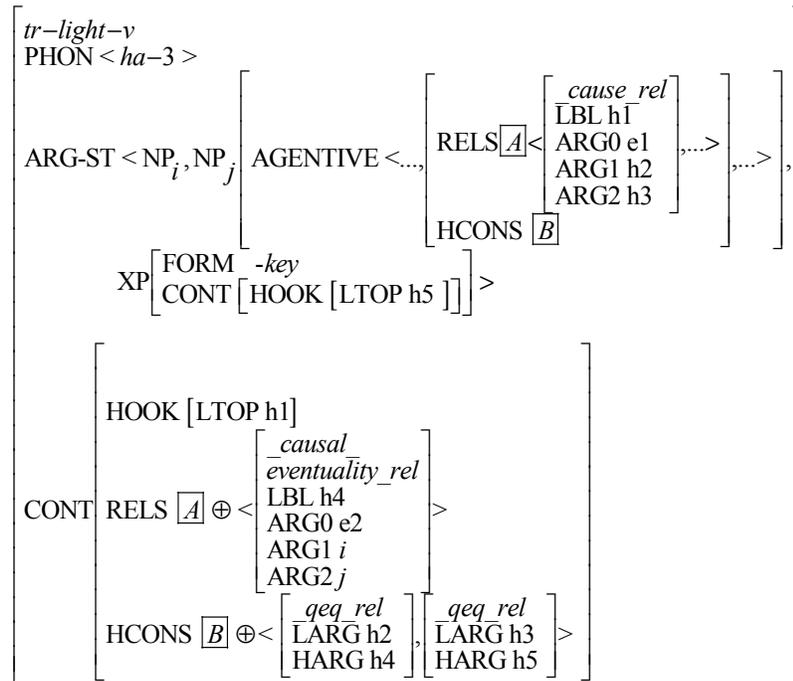


b. The causative *hay-2* in SVC:

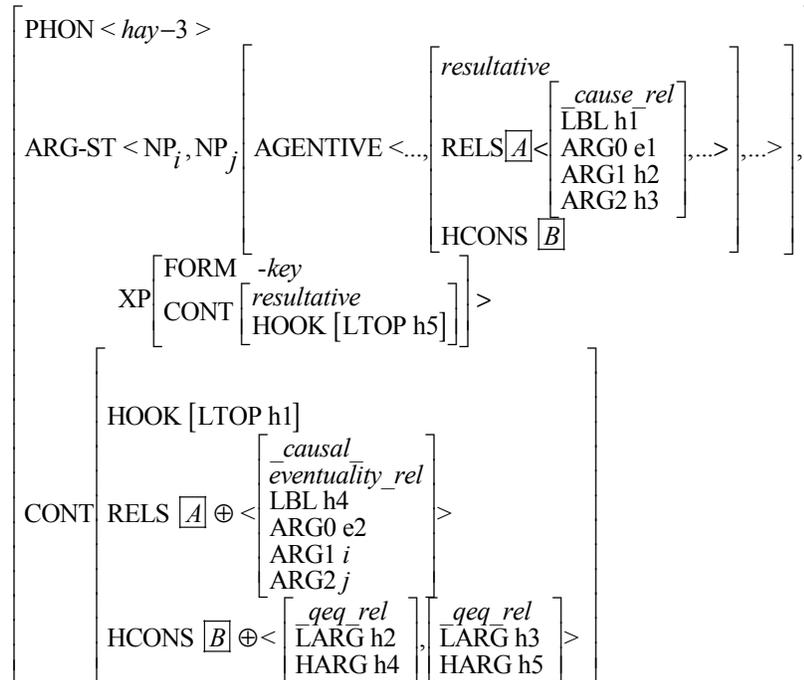


Also in (23a), the qualia-causative light verb for [NP [XP [ha]]] is presented, and in (23b) the V1 qualia-causative light verb for [NP [XP [hay V2]]] is posited.

(23) a. The qualia-causative *ha-3*:

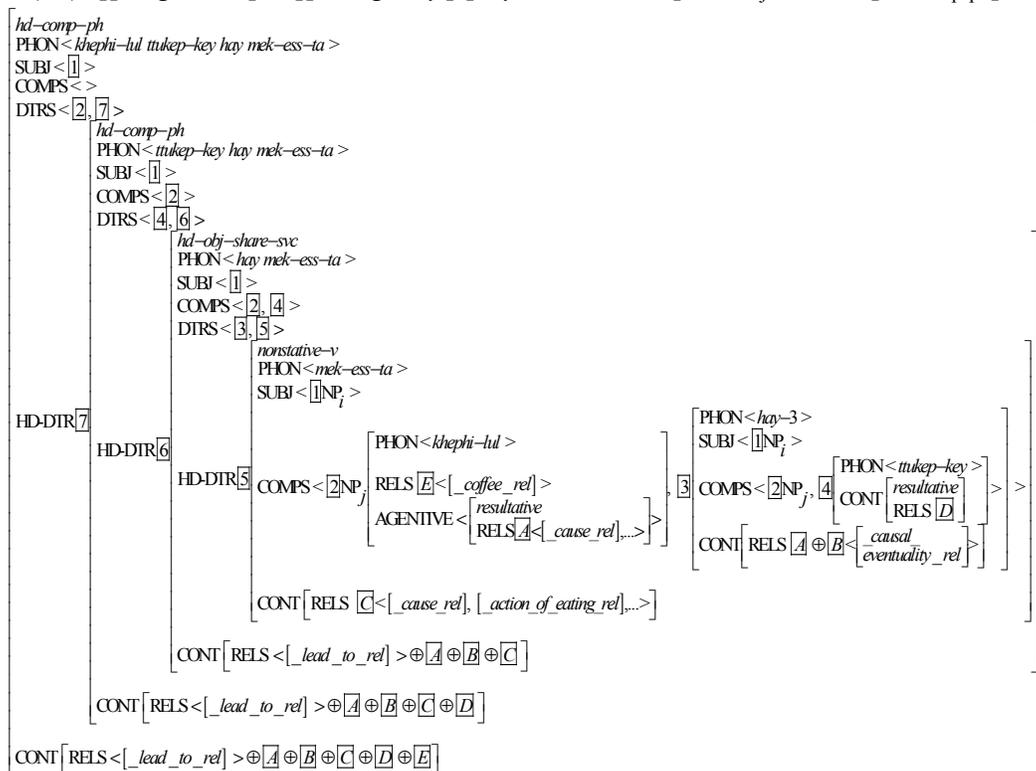


b. The qualia-causative *hay-3*:



In (23a), each of the agentive role and the XP can have either purposive or resultative meaning, but in (23b), the agentive role and the XP are restricted to resultative meanings. Equipped with the lexical items and the phrase rule (20), we can analyze the VP (i.e. [NP [XP [hay V2]]]) of the causative SVC with the qualia-causative reading, as in the following:

(24) [[*khephi-lul*]_{NP} [[*ttukep-key*] [*hay mek-ess-ta*]_{Head-Obj-Share-SVC}] _{hd-comp-ph}]



The final CONTENT in (24) means that the subject's action of brewing a coffee and making it hot caused the creation of a hot coffee (i.e. the subject brewed the coffee hot), and then the subject's action of eating the hot coffee caused the result that the coffee became eaten (i.e. the resultative reading of the V2) or the result of eating the coffee is simply intended (i.e. the purposive reading of the V2).

8 Conclusion

The specific meaning of the qualia light verb *ha* in qualia-*ha* construction comes from a qualia role (e.g. *brew* or *drink*) of common noun object. In the causative construction, the qualia-causative light verb *ha* has the mixed meaning of a qualia role and the causative light verb (whose meaning is influenced by the XP); the common noun object of the causative construction can be directly predicated of by the causal verb. In the context of SVC, the meaning of the qualia light verb *hay* is restricted to the resultative meaning of an agentive role. Finally, in the

causative SVC, the qualia-causative light verb *hay* has the mixed meaning of the causative light verb and the resultative interpretation of an agentive role. The semantic analysis provided here may be applied to other complex predicates in Korean and other languages (e.g. Tamil, Japanese, and Chinese) that allow some kinds of event cancellation.

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