

Abstract

In this paper I present an account for the lexical passive Serial Verb Constructions (SVCs) in Korean. Regarding the issue of how the arguments of an SVC are realized, I propose two hypotheses: i) Korean SVCs are broadly classified into two types, subject-sharing SVCs where the subject is structure-shared by the verbs and index-sharing SVCs where only indices of semantic arguments are structure-shared by the verbs, and ii) a semantic argument sharing is a general requirement of SVCs in Korean. I also argue that an argument composition analysis can accommodate such the new data as the lexical passive SVCs in a simple manner compared to other alternative derivational analyses.

1. Introduction

Serial verb construction (SVC) is a structure consisting of more than two component verbs but denotes what is conceptualized as a single event, and it is an important part of the study of complex predicates. A central issue of SVC is how the arguments of the component verbs of an SVC are realized in a sentence. In the literature, it is generally assumed that the constituent verbs of an SVC share the subject (Foley and Olson 1985, Sebba 1987, Lee 1992, Andrews 1997, Chung and Kim 2008, Müller and Lipenkova 2009, Kim 2010, Lee 2011, among others) or they share the object (Baker 1989) or an internal argument (e.g. themes, instruments, goals) (Collins 1997). In the Korean SVC (1a), for instance, both the subject *akma-ka* ‘demon-Nom’ and the object *wenswungi-lul* ‘monkey-Acc’ are shared by the constituent verbs, but in (1b) only the subject *Jane-i* ‘Jane-Nom’ is shared by the first verb (V1) *chac-a* ‘search.for-Comp’ and the second verb (V2) *ka-ss-ta* ‘go-Pst-Dec’ (contra Baker 1989, Collins 1997).

(1) a. *akma-ka wenswungi-lul cap-a mek-ess-ta.*

demon-Nom monkey-Acc catch-Comp eat-Pst-Dec¹

‘The demon caught the monkey_j and then ate it_j.’

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¹ Abbreviations: Acc = Accusative, Comp = Complementizer, Conj = Conjunction, Dec = Declarative, Gen = Genitive, Neg = Negative, Nom = Nominative, Pass = Passive, Plu = Plural, Pres = Present, Pst = Past

- b. Jane-i hakkyo-ey Tom-ul **chac**-a **ka**-ss-ta.
 Jane-Nom school-To Tom-Acc search.for-Comp go-Pst-Dec
 ‘Jane went to the school searching for Tom.’

Interestingly, if we examine the canonical SVC (1a) more carefully, we can find that it has its passive counterparts in (2) below which violate the subject- and object-sharing, and the argument saturation. Only the passive verb with *hi* (a passive affix in Korean) in (2) can take the NPs as its subject and complement, whose CASE values are compatible only with it; the other active form of the verb doesn’t share them in the sentences. That is, in (1a), the V1 *cap-a* ‘catch’ shares the nominative subject and accusative object with the V2 *mek-ess-ta* ‘eat-Pst-Dec’, but in (2a), the same V1 *cap-a* ‘catch’ does not have in the sentence its nominative subject and accusative object (which should be *akma-ka* ‘demon-Nom’ and *wenswungi-lul* ‘monkey-Acc’, respectively). This entails no subject and complement sharing and no argument saturation in the SVC. The same kind of problems applies to the V2 *mek-ess-eyo* ‘eat-Pst-Dec’ in (2b).

- (2) a. wenswungi-ka akma-eykey cap-a mek-**hi**-ess-ta.
 monkey-Nom demon-By catch-Comp eat-Pass-Pst-Dec
 ‘The monkey was caught and then eaten by the demon.’
 b. wenswungi-ka akma-eykey cap-**hi**-e mek-ess-eyo.
 monkey-Nom demon-By catch-Pass-Comp eat-Pst-Dec
 ‘The monkey was caught and then eaten by the demon.’

Note that the SVCs in (2) are largely compositional, since the lexical semantics of the verbs compose the basic meanings of the verbal serializations (with the constructional meaning of the SVCs, a sequence of the subevents denoted by the verbs). They are not idiomatic or metaphorical: the verb *mek-* ‘eat’ has many metaphorical uses in Korean as shown in (3), but the SVCs in (2) denote the event of the monkey being caught and then literally eaten by the demon.

- (3) ku-ka noymwul-ul/ ton-ul **mek**-ess-ta.
 he-Nom bribe-Acc/ money-Acc eat-Pst-Dec
 ‘He received the bribe/ money.’

Due to the lack of the subject and complement required for the V1 in (2a) and the V2 in (2b), the SVCs are predicted to be ill-formed in the literature.

However, they are well-formed SVCs in Korean. For some native speakers of Korean, the SVC (2b) may sound somewhat awkward, but in the next section I present the empirical grounds of the SVCs like (2b).

The question that naturally arises is then how to account for the lexical passive SVCs in (2).² I propose two hypotheses: i) Korean SVCs are broadly classified into two types, subject-sharing SVCs like (1) where the subject is structure-shared by the verbs and index-sharing SVCs such as (2) where only indices of semantic arguments are structure-shared by the verbs, and ii) an argument index sharing is a general requirement of SVCs in Korean. I also argue that an argument composition analysis can accommodate the novel data like (2b) straightforwardly compared to other alternative derivational analyses.

2. The existence of index-sharing SVCs

In this section I explicitly show that the sentence (2b) is a real SVC; it doesn't belong to other constructions like coordination, subordination, resultative or auxiliary construction.

2.1 Basic properties of SVCs

It seems not easy to precisely define SVC of all serializing languages, and scholars may have different ideas about what is SVC and what is not. Van Valin (2005) classifies English resultative (construction type: serial verb and juncture: core) and English obligatory control constructions (construction type: serial verb and juncture: nuclear) as a type of serial verb. Resultative constructions in Thai can be arguably a kind of SVC (Thepkanjana and Uehara 2009). Coordination, subordination and auxiliary constructions share some grammatical properties with typical SVCs.

So all these related constructions can be plausible candidates for the identity of the sentence (2b). I here discuss three main properties of canonical Korean SVCs based on which I argue that the sentences like (2b) are genuine SVCs in Korean.

First, the negative marker *an* that immediately precedes V1 can have wide scope over V1 and V2 as shown in (4a). In the SVC (4b), where the same form of the verbal serialization has the idiomatic interpretation of 'forget', the negative marker *an* also has wide scope over V1 and V2.

2 There are two types of passives in Korean, lexical passives using a passive affix (*-i*, *-hi*, *-li*, *-ki*) as in (2) and syntactic passives using the passive auxiliary *ci-* as shown in the following:

i) wenswungi-ka akma-eykey cap-a mek-e ci-ess-ta.
 monkey-Nom demon-By catch-Comp eat-Comp become-Pst-Dec
 'The monkey became caught and then eaten by the demon.'

In this paper I focus on the lexical passive constructions.

- (4) a. Tom-i sakwa-lul **an** kka mek-ess-ta.
 Tom-Nom apple-Acc Neg peel.Comp eat-Pst-Dec
 ‘It is not the case that Tom peeled the apple_j and then ate it_j.’
- b. Ryan-i yaksok-ul **an** kka mek-ess-ta.
 Ryan-Nom promise-Acc Neg peel.Comp eat-Pst-Dec
 ‘Ryan did not forget his promise.’

By contrast, the negative marker *an* cannot have wide scope in the coordination (5a), subordination (5b), and resultative construction (5c). But the auxiliary construction (5d) allows wide scope of *an*.

- (5) a. Tom-i sakwa-lul **an** kka-ko mek-ess-ta.
 Tom-Nom apple-Acc Neg peel-and eat-Pst-Dec
 ‘Tom did not peel the apple_j and ate it_j.’
- b. Jane-i Mary-lul **an** yeyppu-ta-ko sayngkakhay-ss-ta.
 Jane-Nom Mary-Acc Neg pretty-Dec-Comp think-Pst-Dec
 ‘Jane thought that Mary was not pretty.’
- c. Hank-ka soy-lul **an** pyengpyengha-key twutulki-ess-ta.
 Hank-Nom metal-Acc Neg flat-Key hammer-Pst-Dec
 ‘Hank hammered the metal not flat.’
- d. Bob-i mwul-lul **an** masi-ko siph-ess-ta.
 Bob-Nom water-Acc Neg drink-Comp want-Pst-Dec
 ‘It is not the case that Bob wanted to drink water.’

Second, a separate tense marking on V1 is not permitted in SVC, whether it be non-idiomatic as in (6a) or idiomatic as in (6b).

- (6) a. Tom-i koki-lul kwu(*-ess)-e mek-ess-ta.
 Tom-Nom meat-Acc bake-Pst-Comp eat-Pst-Dec
 ‘Tom baked the meat_j and then ate it_j.’
- b. Tom-i Jane-ul kwu(*-ess)-e salm-ass-ta.
 Tom-Nom Jane-Acc bake-Pst-Comp boil-Pst-Dec
 ‘Tom coaxed Jane.’

The first verb *kwu-* ‘bake’ in coordination (7a) and the adjective *yeypp-* ‘beautiful’ in the embedded clause of the subordination (7b) can also have the separate tense marking *-ess* ‘-Pst’. But the secondary predicate *pyengpyengha-* ‘flat’, which appears before the verb in the resultative (7c), and the main verb *masi-* ‘drink’ in the auxiliary construction (7d) cannot have a separate tense marking.

- (7) a. Tom-i koki-lul kwu-**ess-ko** mek-**ess-ta**.
 Tom-Nom meat-Acc bake-Pst-and eat-Pst-Dec
 ‘Tom baked the meat_j and ate it_j.’
- b. Tom-i aki-ka yeypp-**ess-ta-ko** sayngkakhay-**ss-ta**.
 Tom-Nom baby-Acc beautiful-Pst-Comp think-Pst-Dec
 ‘Tom thought that the baby was beautiful.’
- c. Hank-ka soy-lul pyengpyengha(***-yess**)-key twutulki-**ess-ta**.
 Hank-Nom metal-Acc flat-Pst-Key hammer-Pst-Dec
 ‘Hank hammered the metal flat.’
- d. Jane-i mwul-lul masi(***-ess**)-ko siph-**ess-ta**.
 Jane-Nom water-Acc drink-Pst-Comp want-Pst-Dec
 ‘Jane wanted to drink water.’

Third, the delimiter *-man* ‘only’ can be attached to the first verb in the non-idiomatic SVC (8a), but not in the idiomatic SVC (8b). Another delimiter *-to* ‘also’ has the same distributions as *-man* ‘only’ in SVCs.

- (8) a. Tom-i hakkyo-ey kel-e-**man** ka-ss-ta.
 Tom-Nom school-to walk-Comp-only go-Pst-Dec
 ‘Tom went to school only by walking.’
- b. Ryan-i yaksok-ul kka(***-man**) mek-ess-ta.
 Ryan-Nom promise-Acc peel.Comp-only eat-Pst-Dec
 ‘Ryan forgot his promise.’

The first verb of coordination (9a), the adjective in the embedded clause of the subordination (9b), the secondary predicate of the resultative (9c) and the main verb of the auxiliary construction (9d) can also have the delimiter *-man* ‘only’. Note that it can be replaced with *-to* ‘also’ in those sentences.

- (9) a. Tom-i pica-lul sa-ko-**man** ka-ss-ta.
 Tom-Nom pizza-Acc buy-and-only go-Pst-Dec
 ‘Tom only bought a pizza, and went.’
- b. Tom-i aki-ka yeypu-ta-ko-**man** sayngkakhay-ss-ta.
 Tom-Nom baby-Acc beautiful-Dec-Comp-only think-Pst-Dec
 ‘Tom thought that the baby was only beautiful.’
- c. Hank-ka soy-lul pyengpyengha-key-**man** twutulki-ess-ta.
 Hank-Nom metal-Acc flat-Key-only hammer-Pst-Dec
 ‘Hank hammered the metal only flat.’
- d. Jane-i mwul-lul masi-ko-**man** siph-ess-ta.
 Jane-Nom water-Acc drink-Comp-only want-Pst-Dec
 ‘Jane wanted only to drink water.’

The three properties of the constructions are summarized in the following table (1 = Yes, 0 = No):

(10) Three properties of the constructions:

	Wide negation scope	Separate tense marking	Delimiter
SVC (non-idiomatic)	1	0	1
SVC (idiomatic)	1	0	0
Coordination/Subordination	0	1	1
Resultative construction	0	0	1
Auxiliary construction	1	0	1

In (10), we can see that some properties are shared by some constructions; there is no single unique property of SVCs. Particularly, the auxiliary constructions are the same as non-idiomatic SVCs in terms of the three properties. So the auxiliary constructions can arguably be a type of SVC. However, I assume here that they are a type of complex predicate, but not SVC, since another important property of SVCs is that the component verbs can be used on its own with its lexical meaning in other sentences, but the final verb of auxiliary construction is simply a dependent auxiliary verb (see Zwicky 1990, Aikhenvald 2006, Kim 2010).

Excluding auxiliary construction, the wide scope of *an* is a unique property of SVCs in the table. The combinations of the three properties (codified as 101 or 100) are also unique to SVCs, which can be used as diagnostics to test whether the sentences such as (2) are SVC or not.

2.2 Index-sharing SVCs

Before the combination of the properties of SVCs are applied to the sentence (2b), I discuss the empirical grounds of it. The sentences like (2b) and (11) below are found in the Web. Of course, the appearances in the Web do not guarantee themselves that they are grammatical. However, if the findings from the Web are associated with a survey result, then we can have a combined support for well-formedness of the sentences. In the survey I have conducted³, most participants judged (2b) acceptable (mean: 1.73, standard deviation: 1.10), and about half the participants judged the sentences in (11a) (mean: 2.45, standard deviation: 1.21) and (11b) (mean: 2.73, standard deviation: 1.19) acceptable. But another serialization in (11c) was judged unacceptable by most participants (mean: 3.09, standard deviation: 1.22).

- (11) a. ?wenswungi-ka akma-eykey ssip-**hi**-e mek-ess-eyo.
 monkey-Nom demon-By chew-Pass-Comp eat-Pst-Dec
 ‘The monkey was chewed and then eaten by the demon.’
- b. ?ku-uy phi-ka akma-eykey ppal-**li**-e mek-ess-eyo.
 he-Gen blood-Nom demon-By suck-Pass-Comp eat-Pst-Dec
 (lit.) ‘His blood was sucked and then eaten by the demon.’
- c. *sasum-i akma-eykey ccic-**ki**-e mek-ess-eyo.
 sasum-Nom demon-By tear-Pass-Comp eat-Pst-Dec
 (int.) ‘The deer was torn and then eaten by the demon.’

3 The 11 participants of the survey were native speakers of Korean living in Korea. The survey was to collect their acceptability judgments of stimulus sentences. For example, a participant should choose one of the four acceptability grades regarding a given sentence (instructions and stimulus sentences were given to participants in Korean):

i) wenswungi-ka akma-eykey cap-**hi**-e mek-ess-eyo.

1. Clearly acceptable
2. Seems acceptable
3. Seems unacceptable
4. Clearly unacceptable

Even though it was a small informal survey, the results indicate that some sentences like (2b) are fairly acceptable for some speakers.

So it seems not implausible to assume that some sentences like (2b) are grammatical.

I show now that the sentences such as (2b) are genuine SVCs which have only an argument index sharing in the system of Korean SVCs. For instance, the sentence (2b) has the unique combination of the non-idiomatic SVC properties that other non-SVCs do not have: the negation immediately preceding the first verb can scope over the whole verbal serialization, as shown in (12a),⁴ the first verb cannot have a separate tense marking, as in (12b), and it seems that the delimiter *-man* ‘only’ can be attached to the first verb, as in (12c).

- (12) a. wenswungi-ka akma-eykey **an** cap-**hi**-e mek-ess-eyo.
 monkey-Nom demon-By Neg catch-Pass-Comp eat-Pst-Dec
 ‘It is not the case that the monkey was caught and then eaten by the demon.’
- b. wenswungi-ka akma-eykey cap-**hi**(*-ess)-e mek-ess-eyo.
 monkey-Nom demon-By catch-Pass-Pst-Comp eat-Pst-Dec
 ‘The monkey was caught and then eaten by the demon.’
- c. ?wenswungi-tul-i akma-eykey cap-**hi**-e-**man** mek-ess-eyo.
 monkey-Plu-Nom demon-By catch-Pass-Comp-only eat-Pst-Dec
 ‘The monkeys were only caught and then eaten by the demon.’

This combination of the properties strongly indicates that the sentence (2b) is a genuine SVC in Korean.

SVCs can have more than two verbs. We can predict that SVCs like (2) involving more than two verbs systematically have at least one argument index sharing (i.e. one semantic argument sharing). This is verified below:

- (13) a. wenswungi-ka akma-eykey cap-a mek-**hi**-e
 monkey-Nom demon-By catch-Comp eat-Pass-Comp
 cwuk-ess-eyo.
 die-Pst-Dec
 ‘The monkey was caught and then eaten by the demon and then died.’

4 One may think that the reason why the negation cannot have narrow scope over the V1 in (12a) is that it is infelicitous for the monkey being eaten even without it being caught first. But this is not actually implausible pragmatically: we can imagine a situation where the monkey was not caught, but just found dead and then eaten by the demon.

- b. wenswungi-ka akma-eykey cap-**hi**-e mek-e
 monkey-Nom demon-By catch-Pass-Comp eat-Comp
 cwuk-ess-eyo.
 die-Pst-Dec
 ‘The monkey was caught and then eaten by the demon and then died.’

In (13), the semantic argument (i.e. the referent of the monkey) is shared by all the three verbs. In the next section, I further discuss the requirement of the semantic argument sharing in SVCs.

3. Requirement of an index sharing in SVCs

The lexical passive SVCs lead us to posit the hypothesis that a semantic argument sharing is necessary for SVCs in Korean.

The coordination construction in (14a) and the subordination constructions in (14b) and (14c) (without e.g. a pronoun and its antecedent) do not have an argument index sharing. So generally, they do not necessarily have a semantic argument sharing.

- (14) a. Jenny-ka mwul-ul sa-ss-ko,
 Jenny-Nom water-Acc buy-Pst-Conj
 Tom-i cusu-lul sa-ss-ta.
 Tom-Nom juice-Acc buy-Pst-Dec
 ‘Jenny bought the water, and Tom bought the juice.’
- b. Mary-ka Tom-i ttokttokhata-ko sayngkakhay-ss-ta.
 Mary-Nom Tom-Nom smart-Comp think-Pst-Dec
 ‘Mary thought that Tom was smart.’
- c. Mary-ka tolawa-se Bill-i kippe-ss-ta.
 Mary-Nom return.Comp-since Bill-Nom happy-Pst-Dec
 ‘Since Mary returned, Bill was happy.’

So it seems to hold that if a construction doesn’t have an argument index sharing, then it is not an SVC.

However, some constructions that have an argument index sharing like resultative, auxiliary construction, and typical subject or object control

constructions don't belong to SVCs in Korean: SVCs have the unique combination of the properties that distinguishes them from other constructions like resultative, auxiliary construction (as already discussed above), and control. For example, the negative marker *an* cannot have wide scope in control constructions as follows:

- (15) a. ku-ka **an** o-n-ta-ko yaksokhay-ss-ta.
 he-Nom Neg come-Pres-Dec-Comp promise-Pst-Dec
 'He promised not to come.'
- b. ku-ka Mary-lul **an** o-tolok kangyohay-ss-ta.
 he-Nom Mary-Acc Neg come-Tolok force-Pst-Dec
 'He forced Mary not to come.'

No wide scope of the negation in controls should be enough to falsify the classification of controls as a kind of SVCs. Hence it follows that a semantic argument sharing does not entail SVCs.

In sum, no argument index sharing seems to entail non-SVCs in Korean, which supports the necessity of an argument index sharing (not the subject, an object or an internal argument) in SVCs.

4. Previous approaches

In this section I show that some previous analyses are not appropriate for an account of the lexical passive SVCs in question.

First, it may be argued that two different underlying sentences are combined to derive an SVC (e.g. Stewart 1963, Bamgose 1974). If this is true, in order to generate the lexical passive SVCs, *cap-ass-ta* in (16a) must be changed to *cap-a* and *cap-hi-ess-ta* in (17a) to *cap-hi-e* through some kind of complex derivational operations (i.e. replacing *-ass-ta* with *-a* or *-ess-ta* with *-e* in syntax). The more serious problem of this kind of analysis is that an ill-formed sentence like (16a) or (17b) should be licensed first in order to generate the relevant lexical passive SVCs. In (16a) and (17b), the NP *akma-eykey* 'demon-By' is the complement which is not required by the active forms of the verbs. In addition, the subject *wenswungi-ka* 'monkey-Nom' must be the agent in (16a) and (17b), but in the lexical passive SVCs, it is the patient.

- (16) a. wenswungi-ka (*akma-eykey) cap-ass-ta.
 monkey-Nom demon-By catch-Pst-Dec
 'The monkey caught something.'

- b. wenswungi-ka akma-eykey mek-**hi**-ess-ta.
 monkey-Nom demon-By catch-Pass-Pst-Dec
 ‘The monkey was eaten by the demon.’

- (17) a. wenswungi-ka akma-eykey cap-**hi**-ess-ta.
 monkey-Nom demon-By catch-Pass-Pst-Dec
 ‘The monkey was caught by the demon.’
 b. wenswungi-ka (*akma-eykey) mek-ess-ta.
 monkey-Nom demon-By eat-Pst-Dec
 ‘The monkey ate something.’

In order to circumvent these problems, the analysis should invent a much more complex derivational system.

Baker (1989) argues that SVCs require the object sharing, and the component verbs co-head the shared object. However, as already shown in the SVC in (1b) and the lexical passive SVCs in (2), there is no shared object, and thus the object sharing is not necessary in Korean SVCs. Similarly, Collins (1997) argues that the internal argument sharing is the requirement of SVCs in Ewe, and V2 combines with an empty category coindexed with the explicit object of V1. However, in SVCs like (2a), *akma-eykey* ‘demon-By’ is not the object of the V1, and also it is not immediately clear how the passive V2 assigns its CASE values to the subject and complement. If we assume that V2 somehow assigns its CASE values to the subject and complement to account for (2a), then we also need to explain why in (2b) V2 does not assign its CASE values to the subject and complement.

Choi (2003) assumes that the index-sharing SVCs like (2b) are ill-formed. However, it seems plausible to consider them genuine SVCs (at least for some speakers), as illustrated above. According to Choi (2003), the subject in [Spec *v*1] and object in [Spec V1] are moved to [Spec *v*2] and [Spec V2], respectively. Then this analysis seems to need to explain how in (2a) the subject and object of V1 should be moved to the complement and subject of V2, respectively, and how the CASE values of V1 are changed to the CASE values of V2. It should also account for how in (2b) V2 may not assign its CASE values to the moved arguments unlike V2 in (2a).

Sohn and Ko (2010) categorize Korean SVCs into two types: H(igh)-SVC where passive *v* head is merged to a verbal stem before it is serialized with another verb, and L(ow)-SVC where the verbal serialization occurs prior to the merger of the *v* head. Then they argue for Distributed Morphology. For instance, the lexical passive SVCs like (2a) can be analyzed as L(ow)-SVCs involving the passive form of the verbal serialization (i.e. [*cap-a mek*]-**hi**).

However, the data like (2b) seem to be a considerable theoretical problem for their analysis, since the passive affix *hi* is inside the V1 (i.e. [*cap-hi-e mek-ess-ta*]), which makes a bit more difficult to derive in syntax the serialization with the appropriate meaning. In addition, they didn't talk about the CASE assignments in SVCs.

Although I do not prove that a new derivational analysis accommodating the lexical passive SVCs like (2b) is impossible, I believe that an argument composition analysis (e.g. Andrews 1997, Chung 1998, Chung and Kim 2008, Kim 2010, Lee 2011) is able to account for the phenomenon of the lexical passive SVCs with ease. We can simply add a new SVC type of lexical passive SVCs requiring that the arguments of active verb be coindexed with those of passive verb and only the subject and complement of the passive verb be passed up, respectively, to the subject and complement of the resulting combination in a similar manner of controls.

5. HPSG formalization

I present a formal analysis of the lexical passive SVCs, focusing on those SVCs that have only two component verbs, in Head-Driven Phrase Structure Grammar (Pollard and Sag 1994, Sag *et al.* 2003).

5.1 Lexical rule and lexical items

A VP- or S-complement analysis violates the locality constraint of CASE assignment of, say, the passive V2 to its arguments:

- (18) a. wenswungi-ka [_{VP} akma-eykey cap-a] mek-**hi**-ess-ta.
 monkey-Nom demon-By catch-Comp eat-Pass-Pst-Dec
 'The monkey was caught and then eaten by the demon.'
- b. [_S wenswungi-ka akma-eykey cap-a] mek-**hi**-ess-ta.
 monkey-Nom demon-By catch-Comp eat-Pass-Pst-Dec
 'The monkey was caught and then eaten by the demon.'

Rather, I adopt and adapt the argument composition analysis (e.g. Andrews 1997, Chung 1998, Chung and Kim 2008, Kim 2010, Lee 2011) which captures the generalizations and idiosyncrasies via the type hierarchy of SVCs. Passive lexemes with active form (e.g. *mek-1* 'eat' vs. *mek-2* 'be eaten') may be posited in the lexicon or generated by a lexical rule, but it seems very unintuitive that the active form of a verb has a passive meaning and this also appears to lack independent motivation in Korean. Note also that the passive meaning of the active form of a verb is created in the context

of the SVCs, rather than in isolation. So I assume that the passive lexeme (19b) is licensed from (19a) by the general Passive Lexical Rule in (20) adopted from Sag *et al.* (2003) and Kim (2004).

(19) a. *cap-* ‘catch’:

$$\left[\begin{array}{l} \text{PHON } cap- \\ \text{PASSIVE } - \\ \text{ARG-ST } \langle NP_i, NP_j \rangle \\ \text{RELS} < \left[\begin{array}{l} \text{catch_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right]$$

b. *cap-hi-* ‘caught’:

$$\left[\begin{array}{l} \text{PHON } cap-hi- \\ \text{PASSIVE } + \\ \text{ARG-ST } \langle NP_j, NP_i \rangle \\ \text{RELS} < \left[\begin{array}{l} \text{catch_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right]$$

(20) Passive Lexical Rule:

$$\left[\begin{array}{l} \text{INPUT } \left\langle \left[\begin{array}{l} \text{v-tr} \\ \text{ARG-ST } \langle NP_i, NP_j, \dots \rangle \\ \text{CONT } 2 \end{array} \right] \right\rangle \\ \text{OUTPUT } \left\langle F_{PASS}(\left[\begin{array}{l} \text{v-pass} \\ \text{PASSIVE } + \\ \text{ARG-ST } \langle NP_j, NP_i, \dots \rangle \\ \text{CONT } 2 \end{array} \right]), \right\rangle \end{array} \right]$$

When the Passive Lexical Rule in (20) is applied to the verb lexeme *cap-* ‘catch’ in (19a) as an input, then the verb lexeme *cap-hi-* ‘caught’ attached with the passive affix *hi* and with the semantics unchanged is generated as the output. The arguments arrangement of *cap-hi-* ‘caught’ is different from that of *cap-* ‘catch’; the NP_j , which should be the patient of the verb, comes now first (leftmost) in the ARG(UMENT)-ST(RUCTURE) list of *cap-hi-* ‘caught’.⁵

Some lexemes relevant to the SVCs under discussion are presented below. (21b) is licensed from (21a) by the Passive Lexical Rule. The verb lexemes in (22) are listed in the lexicon.

(21) a. *mek-* ‘eat’

$$\left[\begin{array}{l} \text{PHON } mek- \\ \text{PASSIVE } - \\ \text{ARG-ST } \langle NP_i, NP_j \rangle \\ \text{RELS} < \left[\begin{array}{l} \text{eat_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right]$$

b. *mek-hi-* ‘eaten’:

$$\left[\begin{array}{l} \text{PHON } mek-hi- \\ \text{PASSIVE } + \\ \text{ARG-ST } \langle NP_j, NP_i \rangle \\ \text{RELS} < \left[\begin{array}{l} \text{eat_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right]$$

⁵ If we want to make the arguments arrangement unchanged in a passive lexeme since it may sound odd that the patient comes first in the ARG-ST list, then we may need a different type of Argument Realization Principle (see Sag *et al.* 2003) that can apply only to passive words. Rather, I choose not to make multiple types of Argument Realization Principle.

(22) a. *chac-* ‘search for’:

$$\left[\begin{array}{l} \text{PHON } \textit{chac-} \\ \text{PASSIVE } - \\ \text{ARG-ST } \langle \text{NP}_i, \text{NP}_j \rangle \\ \text{RELS} < \left[\begin{array}{l} \textit{search_for_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right]$$

b. *ka-* ‘go’:

$$\left[\begin{array}{l} \text{PHON } \textit{ka-} \\ \text{PASSIVE } - \\ \text{ARG-ST } \langle \text{NP}_i, \text{NP}_j \rangle \\ \text{RELS} < \left[\begin{array}{l} \textit{go_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right]$$

I propose below the relevant constructional rules of SVCs stated in a type-hierarchy for combinations of the given lexical items.

5.2 Type hierarchy of SVCs

In the type hierarchy of SVCs described in (23), I state the generalization of a semantic argument sharing (the structure-shared index of ARG1) as constraint on the type *hd-svc* with the final verb as the morphosyntactic head. I claim this type has two subtypes, *hd-subj-sharing-svc* and *hd-index-sharing-svc*.

(23) *hd-svc*:

$$\left[\begin{array}{l} \textit{hd-svc} \\ \text{HD-DTR} < \boxed{1} > \\ \text{DTRS} < \left[\begin{array}{l} \textit{nonstative-v} \\ \text{RELS} < \left[\text{ARG1 } \boxed{2} \right] > \end{array} \right], \boxed{1} \left[\begin{array}{l} \textit{nonstative-v} \\ \text{RELS} < \left[\text{ARG1 } \boxed{2} \right] > \end{array} \right] > \\ \text{C-CONT} \left[\text{RELS} < \left[\textit{svc_rel} \right] > \right] \end{array} \right]$$

$$\left[\begin{array}{l} \textit{hd-subj-sharing-svc} \\ \text{SUBJ} < \boxed{1} > \\ \text{DTRS} < \left[\text{SUBJ} < \boxed{1} > \right], \left[\text{SUBJ} < \boxed{1} > \right] > \end{array} \right]$$

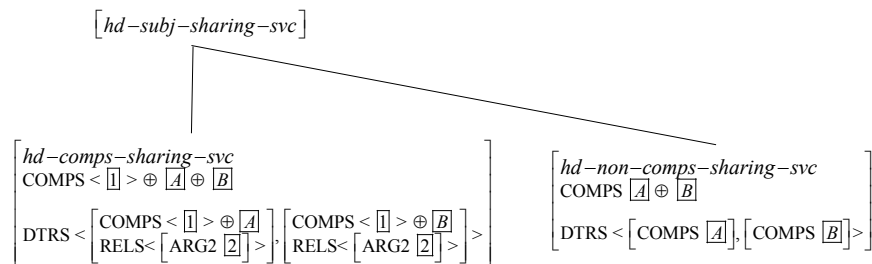
$$\left[\begin{array}{l} \textit{hd-index-sharing-svc} \\ \text{SUBJ} < \boxed{1} > \\ \text{COMPS} < \boxed{2} > \\ \text{DTRS} < \dots, \left[\begin{array}{l} \text{HEAD} \mid \text{PASSIVE } + \\ \text{SUBJ} < \boxed{1} \text{NP}[\textit{nom}] \boxed{4} > \\ \text{COMPS} < \boxed{2} \text{NP}[\textit{by}] \boxed{3} > \end{array} \right], \dots > \\ \text{RELS} < \left[\text{ARG1 } \boxed{3} \right], \left[\text{ARG1 } \boxed{3} \right], \left[\text{ARG2 } \boxed{4} \right], \left[\text{ARG2 } \boxed{4} \right] > \end{array} \right]$$

Since subject-sharing SVCs basically require the subject sharing, in the first subtype *hd-subj-sharing-svc* the SUBJ values (tagged 1) of the two component verbs are structure-shared, and they are then identified with the SUBJ value of the resulting combination. In the other subtype *hd-index-sharing-svc*, one component verb is passive (marked with PASSIVE +) and one more semantic argument (ARG2) is structure-shared in addition to the structure-shared argument (ARG1) inherited from its supertype *hd-svc*. Besides, the SUBJ value and COMPS value of the passive verb are

identified with the SUBJ value and COMPS value of the resulting construction, respectively. Note that the index of the SUBJ value is the same as that of ARG2 in both verbs, and the index of the COMPS value is the same as that of ARG1 of both verbs. These co-indexations have the effect that the other verb contributes its semantics to the verbal serialization.

The type *hd-subj-sharing-svc* in turn has two subtypes, *hd-comps-sharing-svc* and *hd-non-comps-sharing-svc*, as shown in (24) (see a similar analysis in Müller and Lipenkova 2009).

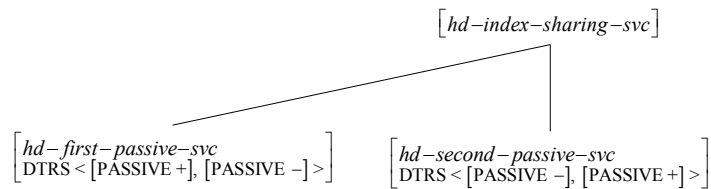
(24) *hd-subject-sharing-svc*:



The two subtypes in (24) has the structure-shared SUBJ value inherited from their supertype *hd-subj-sharing-svc*. The first subtype *hd-comps-sharing-svc* has one complement that is structure-shared (tagged 1). So in addition to this structure-shared COMPS value, the unshared COMPS values (boxed A and B) are added to the COMPS list of the resulting combination via the list append operation. However, the other subtype *hd-non-comps-sharing-svc* does not have a structure-shared complement, and so it is the unshared COMPS values that compose the COMPS list of the combination.

The type *hd-index-sharing-svc*, which is the sister of *hd-subj-sharing-svc*, also has two subtypes, *hd-first-passive-svc* whose first verb is passive and *hd-second-passive-svc* whose second verb is passive:

(25) *hd-index-sharing-svc*:



The type *hd-index-sharing-svc* requires the index sharing of ARG2 (the structure-shared 4) as declared on it in (23); and thus in both *hd-first-passive-svc* and *hd-second-passive-svc*, the unrealized SUBJ value and COMPS value of the other active verb (marked with PASSIVE −) are coindexed with the

realized COMPS value and SUBJ value of the passive verb, respectively. In other words, the active form of the other verb contributes its semantics to the verbal serialization via the co-indexations.

Summarizing, I added the new type of *hd-index-sharing-svc* and its two subtypes to the system of Korean SVCs employing the previous mechanism of argument composition of SVCs.

5.3 Analyses of verbal serializations

Equipped with the lexical items and combination rules, we can derive the verbal serializations under discussion in a straightforward way. First, the active sentence in (1a), *akma-ka wenswungi-lul cap-a mek-ess-ta*. ‘The demon caught the monkey_j and then ate it,’ is a typical form of SVC, whose verbs share both the subject and object. This verbal serialization is licensed by the construction rule *hd-comps-sharing-svc*:

(26) [*cap-a mek-ess-ta*] in (1a)

$$\left[\begin{array}{l} \text{hd-comps-sharing-svc} \\ \text{SUBJ} < \boxed{2} > \\ \text{COMPS} < \boxed{3} > \\ \text{HD-DTR} < \boxed{1} > \\ \\ \text{DTRS} < \left[\begin{array}{l} \text{PHON } \textit{cap-a} \\ \text{PASSIVE } - \\ \text{SUBJ} < \boxed{2} \text{NP}[\textit{nom}]_i > \\ \text{COMPS} < \boxed{3} \text{NP}[\textit{acc}]_j > \\ \\ \text{RELS} < \left[\begin{array}{l} \textit{catch_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right], \boxed{1} \left[\begin{array}{l} \text{PHON } \textit{mek-ess-ta} \\ \text{PASSIVE } - \\ \text{SUBJ} < \boxed{2} > \\ \text{COMPS} < \boxed{3} > \\ \\ \text{RELS} < \left[\begin{array}{l} \textit{eat_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right] > \\ \\ \text{C-CONT} [\text{RELS} < [\textit{svc_rel}] >] \end{array} \right]$$

In the active SVC (1b), *Jane-i hakkyo-ey Tom-ul chac-a ka-ss-ta*. ‘Jane went to the school searching for Tom,’ only the subject is shared by the verbs. So it is an instance of the type *hd-non-comps-sharing-svc*:

(27) [*chac-a ka-ss-ta*] in (1b)

$$\left[\begin{array}{l} \text{hd-non-comps-sharing-svc} \\ \text{SUBJ} < \boxed{2} > \\ \text{COMPS} < \boxed{3}, \boxed{4} > \\ \text{HD-DTR} < \boxed{1} > \\ \\ \text{DTRS} < \left[\begin{array}{l} \text{PHON } \textit{chac-a} \\ \text{PASSIVE } - \\ \text{SUBJ} < \boxed{2} \text{NP}[\textit{nom}]_i > \\ \text{COMPS} < \boxed{3} \text{NP}[\textit{acc}]_j > \\ \\ \text{RELS} < \left[\begin{array}{l} \textit{search_for_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right], \boxed{1} \left[\begin{array}{l} \text{PHON } \textit{ka-ss-ta} \\ \text{PASSIVE } - \\ \text{SUBJ} < \boxed{2} > \\ \text{COMPS} < \boxed{4} \text{NP}[\textit{to}]_k > \\ \\ \text{RELS} < \left[\begin{array}{l} \textit{go_rel} \\ \text{ARG1 } i \\ \text{ARG2 } k \end{array} \right] > \end{array} \right] > \\ \\ \text{C-CONT} [\text{RELS} < [\textit{svc_rel}] >] \end{array} \right]$$

In the lexical passive SVC (2a), *wenswungi-ka akma-eykey cap-a mek-hi-ess-ta*. ‘The monkey was caught and then eaten by the demon,’ only the second passive verb takes the NPs as its subject and complement, which is an instantiation of *hd-second-passive-svc*:

(28) [*cap-a mek-hi-ess-ta*] in (2a)

$$\left[\begin{array}{l} \text{hd-second-passive-svc} \\ \text{SUBJ} < \boxed{2} > \\ \text{COMPS} < \boxed{3} > \\ \text{HD-DTR} < \boxed{1} > \\ \\ \text{DTRS} < \left[\begin{array}{l} \text{PHON } \textit{cap-a} \\ \text{PASSIVE } - \\ \text{SUBJ} < \text{NP}[\textit{nom}]_i > \\ \text{COMPS} < \text{NP}[\textit{acc}]_j > \\ \\ \text{RELS} < \begin{bmatrix} \textit{catch_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{bmatrix} > \end{array} \right], \boxed{1} \left[\begin{array}{l} \text{PHON } \textit{mek-hi-ess-ta} \\ \text{PASSIVE } + \\ \text{SUBJ} < \boxed{2} \text{NP}[\textit{nom}]_j > \\ \text{COMPS} < \boxed{3} \text{NP}[\textit{by}]_i > \\ \\ \text{RELS} < \begin{bmatrix} \textit{eat_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{bmatrix} > \end{array} \right] > \\ \\ \text{C-CONT} [\text{RELS} < [\textit{svc_rel}] >] \end{array} \right]$$

Now the lexical passive SVC in (2b), *wenswungi-ka akma-eykey cap-hi-e mek-ess-eyo*. ‘The monkey was caught and then eaten by the demon,’ is analyzed as an example of the type *hd-first-passive-svc*:

(29) [*cap-hi-e mek-ess-eyo*] in (2b)

$$\left[\begin{array}{l} \text{hd-first-passive-svc} \\ \text{SUBJ} < \boxed{2} > \\ \text{COMPS} < \boxed{3} > \\ \text{HD-DTR} < \boxed{1} > \\ \\ \text{DTRS} < \left[\begin{array}{l} \text{PHON } \textit{cap-hi-e} \\ \text{PASSIVE } + \\ \text{SUBJ} < \boxed{2} \text{NP}[\textit{nom}]_j > \\ \text{COMPS} < \boxed{3} \text{NP}[\textit{by}]_i > \\ \\ \text{RELS} < \begin{bmatrix} \textit{catch_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{bmatrix} > \end{array} \right], \boxed{1} \left[\begin{array}{l} \text{PHON } \textit{mek-ess-eyo} \\ \text{PASSIVE } - \\ \text{SUBJ} < \text{NP}[\textit{nom}]_i > \\ \text{COMPS} < \text{NP}[\textit{acc}]_j > \\ \\ \text{RELS} < \begin{bmatrix} \textit{eat_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{bmatrix} > \end{array} \right] > \\ \\ \text{C-CONT} [\text{RELS} < [\textit{svc_rel}] >] \end{array} \right]$$

In (29), it is the first passive verb that takes the NPs as its subject and complement. The second active verb contributes its semantics to the SVC through the argument index sharings.

If the two verbs of an SVC are all passive, as exemplified in (30), it is licensed by the type *hd-comps-sharing-svc*, as in (31), just like (1a) is.

- (30) sasum-i saca-eykey cap-hi-e mek-hi-ess-ta.
 deer-Nom lion-By catch-Pass-Comp eat-Pass-Pst-Dec
 ‘The deer was caught and then eaten by the lion.’

(31) [*cap-hi-e mek-hi-ess-ta*]

<i>hd-comps-sharing-svc</i>		
SUBJ < [2] >		
COMPS < [3] >		
HD-DTR < [1] >		
DTRS <	$\left[\begin{array}{l} \text{PHON } \textit{cap-hi-e} \\ \text{PASSIVE } + \\ \text{SUBJ} < [\text{2NP}[\textit{nom}]_j] > \\ \text{COMPS} < [\text{3NP}[\textit{by}]_i] > \end{array} \right]$	$\left[\begin{array}{l} \text{PHON } \textit{mek-hi-ess-ta} \\ \text{PASSIVE } + \\ \text{SUBJ} < [\text{2}] > \\ \text{COMPS} < [\text{3}] > \end{array} \right]$
	[1]	>
	$\left[\begin{array}{l} \text{RELS} < \left[\begin{array}{l} \textit{catch_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right]$	$\left[\begin{array}{l} \text{RELS} < \left[\begin{array}{l} \textit{eat_rel} \\ \text{ARG1 } i \\ \text{ARG2 } j \end{array} \right] > \end{array} \right]$
C-CONT [RELS < [<i>svc_rel</i>] >]		

The current system of Korean SVCs proposed in this paper can interact with pragmatic theories to restrict what specific verb combinations can appear in SVCs (see cultural factors noted in Durie 1997, Kroeger 2004). This interaction may be related to why some lexical passive SVCs like (2b) are quite acceptable, but some other lexical passive SVCs such as (11c) are highly unacceptable.

6. Conclusion

I presented an argument composition analysis of the lexical passive SVCs in Korean by adding the new construction type of index-sharing SVCs, *hd-index-sharing-svc*, and its two subtypes, *hd-first-passive-svc* and *hd-second-passive-svc*, to the grammar of Korean SVCs. I also showed that in a Korean SVC, V1 and V2 must share a semantic argument (i.e. an argument index) rather than the subject, an object, or an internal argument.

I believe the conclusion has promise, and the prediction (the existence of such an index-sharing SVCs) would be cross-linguistically valid. I leave to future research examining this prediction and a formalization of the interaction between the current SVC system and pragmatic theories.

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