Semantic Underspecification and Case Alternations with Verbs of Transitive Motion in Korean

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1. Introduction

This paper gives syntactic and semantic accounts of case alternations with some Korean verbs of transitive motion such as chaywu- ‘to fill/to pour into’, tam- ‘to put into’, noh- ‘to put on’, and puthi- ‘to paste onto’, applying and extending the concepts and mechanisms of the Generative Lexicon Theory (Pustejovsky 1995). This is part of an ongoing project on the semantic structure of Korean predicates. In section 2, we set the stage of analysis by summarizing case alternations in question into four different patterns and grouping Korean verbs of transitive motion into four different types according as they allow for a particular pattern or patterns of alternation. In section 3, we try to explain the case alternation patterns on the basis of event headedness property in the semantic structure of verbs as utilized in the Generative Lexicon Theory. In section 4, cross-linguistic facts like the English cases are discussed in light of the analysis given in section 3. In section 5, case alternations of corresponding passive and intransitive verbs will be discussed and an analysis will be given which comprises both the same and different properties of active and corresponding passive/intransitive verbs. Section 5 concludes our discussion.

1 We wish to thank Manfred Krifka and James Pustejovsky for their comments and questions at the Texas Argument Structure Conference. We are grateful to James Yoon for his participation in an earlier stage of our research. This research has been supported in part by a Soft Science grant from the Ministry of Science and Technology, Korea.
2. Types of Case Alternations

In terms of Case alternations, there are at least three or four types of Korean verbs of transitive motion which include as their semantic arguments Agent, moving-Theme, and Goal. Let us postulate the following four kinds of Case alternations, assuming that x is the Agent, y is the Theme, and z is the Goal. Korean, as a verb-final language, takes the default order of Subject-Object-Locative-Verb and scrambling creates scrambled orders, with default nucleus focus on pre-verbal position. For example, x can be ‘a boy’, y ‘an apple’ or ‘water’, and z ‘a bottle’, ‘a basket’, ‘a box’ or ‘a table’ (-ka: Nominative-Nom, -lul: Accusative-Acc, -ey: Locative-Loc, and -lo: Instrumental-Inst.) and the following case patterns occur:

(1) Pattern 1: x-ka y-lul z-ey V.
    - Nom   - Acc   - Loc
Pattern 2: x-ka z-lul y-lo V.
    - Nom   - Acc   - Loc
Pattern 3: y-ka z-lul V.
    - Nom   - Acc
Pattern 4: z-ka y-lul V.
    - Nom   - Acc

Some verbs like *chaywu- ‘to fill/to pour (into)’ allow for patterns 1, 2, and 3 but not pattern 4, while other verbs like *tam- ‘to put (into)’ allow for patterns 1 and 4 but not patterns 2 and 3. For example,

(2) chaywu- ‘fill/pour into’
   a. Yumi-ka sakwa-lul pakwuni-ey chaywu-ess-ta. (Pattern 1)
      Y-Nom apple-Acc basket-Loc fill-Past-Dec
      Lit. ‘Yumi filled apples into a basket.’ (Not OK in English, cf. (9))
   b. Yumi-ka sakwa-lo pakwuni-lul chaywu-ess-ta. (Pattern 2)
      Y-Nom apple-Inst basket-Acc fill-Past-Dec
      ‘Yumi filled a basket with apples.’ (OK in English, too)
   c. (?)*sakwa-ka pakwuni-lul chaywu-ess-ta / chaywu-ko-iss-ta. (Pattern 3)
      apple-Nom basket-Acc fill-Past-Dec / fill-Asp-Dec
      ‘Apples filled/are filling the basket.’ (OK in English, too)
   d. *pakwuni-ka sakwa-lul chaywu-ess-ta / chaywu-ko-iss-ta. (Pattern 4)
      basket -Nom apple-Acc fill-Past-Dec / fill-Asp-Dec
      Lit. ‘A basket contains apples.’ (not OK in English, either)

(3) tam- ‘put into’
      Y-Nom apple-Acc basket-Loc put-Past-Dec
      ‘Yumi put apples into a basket.’
   b. *Yumi-ka sakwa-lo pakwuni-lul tam-ess-ta
      Y-Nom apple-Inst basket-Acc put-Past-Dec
      Lit. ‘Yumi put a basket with apples.’ (not OK in English, either)
      apple-Nom basket-Acc put-Past-Dec / put-Asp-Dec
      Lit. ‘Apples put (contain) a basket.’ (not OK in English, either)
   d. (?)*pakwuni-ka sakwa-lul tam-ess-ta / tam-ko-iss-ta.
      basket -Nom apple-Acc put-Past-Dec(Perfective)/put-Asp-Dec (Resultative)
      ‘A basket contains apples.’
Another type of verbs such as noh- ‘to put (on)’ allow for only one pattern, i.e. pattern 1, and still another type of verbs such as puthi- ‘to paste (onto)’ allow for patterns 1 and 2, while pattern 3 might be loosely allowed, which renders this type a variant of the type of chaywu- (Type C).\(^2\)

To sum up, the following types emerge.

(4) Patterns of Case Alternations [Nom=N, Acc=A, Loc=L, Inst=I]

<table>
<thead>
<tr>
<th>Type A</th>
<th>Type B</th>
<th>Type C</th>
<th>Type D</th>
</tr>
</thead>
<tbody>
<tr>
<td>noh-</td>
<td>tam-</td>
<td>chaywu-</td>
<td>puthi-</td>
</tr>
</tbody>
</table>

Pattern 1: x-ka [N] y-lul[A] z-ey[L] V o o o o
Pattern 2: x-ka[N] z-lul[L] y-lo[I] V x x o o
Pattern 3: y-ka[N] z-lul[A] V x x o x/o
Pattern 4: z-ka[N] y-lul[A] V x (?)o x x

Some instances of each type are as follows.

(5) Types of Verbs
Type B: tam- ‘put (into)’, sit- ‘load (onto)’, pokwanha- ‘store’, cecangha- ‘store’ ...
Type D: puthi- ‘attach, paste’, palu- ‘paste’, chilha- ‘paint’, sekk- ‘mix’, ...

3. Event Headedness and Case Realization

One way to capture the above-mentioned case alternation patterns in Korean is utilizing the notions of event composition and event headedness as presented in the Generative Lexicon Theory (Pustejovsky 1995). When we represent the meanings of verbs in terms of the Generative Lexicon Theory, the transitive motion verbs in question can be decomposed as having two subevents and three arguments.

(6) V (transitive motion)

EVENTSTR = E1 = e1: process
E2 = e2: state
HEAD =

ARGSTR = ARG1 = x: human (Agent)
ARG2 = y: physical_obj (moving-Theme)
ARG3 = z: space (Goal)

QUALIA = FORMAL = R(e2, y, z)
AGENTIVE = V_act(e1, x, y, z)

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\(^2\) In this paper, we do not provide an analysis that distinguishes between type C and Type D verbs, assuming that type D is a variant of type C. In section 2, we try to explain the case alternation of type C verbs by stipulating that the head subevent is not specified for this type of verbs so that subevent e1, e2, or the combined event e1+e2 may surface as the head event. One way to distinguish type C and type D verbs may be to adopt a more sophisticated method of specifying the head event so that we can make only e1 and e1+e2, but not e2, surface as the head.
Let us concentrate on types A, B, and C, while assuming that type D is a variant of type C. By event headedness and the assumption that cases are determined by the head event, we can expect the above case alternation patterns. The verbs of Type A (noh- ‘put (onto)’) are marked as having only e1 as the head, then only AGENTIVE role specification is relevant to their case assignment. The first and the second arguments are assigned Nominative and Accusative cases respectively so that the pattern of [x-Nom y-Acc] emerges and no other case patterns are allowed. But notice that this verb and the first three verbs in the group of type A require the –ey Loc/Dat phrase as argument/complement. Verbs such as mil- ‘push’ does not have the same Goal (Loc/Dat) phrase as argument and therefore have no QUALIA FORMAL specification of R(e2, y, z), i.e., ‘y being at z.’ This shows a sharp difference between the Korean verbs of directional motion such as mil- ‘push’ and kkul- ‘pull’ and their corresponding English group of verbs. The non-telic Loc –lo ‘toward’ or the telic Loc –kkaci ‘up to’ can be associated as an adjunct. Verbs such as olmki- ‘move’ normally take the directional Loc –lo ‘toward’ but when it is compounded with noh- ‘put (on)’ as a complex verb olmki-e noh- ‘move and put,’ it can take the –ey Loc/Dat because the second verb noh- functions as the head verb and its argument structure wins. If the verb olmki- ‘move’ takes a noun which means location such as cari ‘place’ as an object it becomes just like a cognate verb and the Loc PP with –lo ‘toward’ becomes a telic complement. In Korean, the verb tenci- ‘throw’ is another locomotive manner verb that takes the –ey Loc/Dat PP. The target may be missed but hitting at least its jurisdiction and neighborhood seem to be implied. The nominal of the PP cannot be accusativized, differently from the PPs of dative verbs (like cu- ‘give’), which can be accusativized with the effect of global affectedness.

To explain other types of verbs, we can follow Pustejovsky’s (1995) advice that the head event may not be specified, namely “underspecified,” and when it is not specified either one of the component events can surface as the head event. For the verbs of Type B (tam- ‘put (into)’) and Type C (chaywu- ‘fill’), underspecification of headedness can be interpreted as follows. When e1 is interpreted as the head event the same case pattern as Type A, i.e. case pattern 1, emerges, while when e2 is interpreted as the head, case pattern 3 (for Type C verbs) or case pattern 4 (for Type B verbs) emerges. Then what is the difference between verbs of Type B and verbs of Type C that predicts the different case patterns?

The difference resides in the different conceptualization of the FORMAL role of each type of verbs. For both types of verbs, the FORMAL role represents the result state of

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3 The same Loc -lo is nontelic with intransitive verbs of motion like ka- ‘go’ but telic with transitive motion verbs. Observe the following contrasts in time adverbials:

a. *Mary-nun hakkkyo -lo 30 pun man-ey ka -ass -ta
   -Top school -toward minutes in go -Past -Dec
   ‘Mary went toward school in 30 minutes.’

b. ku pwuate -nun han sikan man -ey wichi- lul kwanhwamun -ulo olmki -ess -ta
   move -Past -Dec
   The troops moved to Kwanghwamun in an hour.’

c. Yumi -nun sam pun man -ey table -ul pwuek -ulo olmki -ess -ta
   -Top 3 minutes in -Acc kitchen -to move -Past -Dec
   ‘Yumi moved the table to the kitchen in three minutes.’
the moved object being in the new position related to the Goal argument. For example, moved apples (Theme) are in a box (Goal). Although the described situation is one and the same it can be conceptualized in two different ways, depending upon which is considered as Figure and which is Background (Talmy 1985), or depending upon which gains more weight. A moving object as Figure (moving-Theme or Figure-Theme here) is distinct from an affected Incremental (or Quantized, Krifka 1989) Theme and a globally affected Thematized argument coming from Goal. The different ways of conceptualization can be represented by the order of arguments for the relation R in the FORMAL role specification of QUALIA. For verbs of type B and type C, the following specifications hold:

(7)  a. Type B (tam- ‘put (into)’): FORMAL = R(e2, z, y)
     b. Type C (chaywu- ‘fill’): FORMAL = R'(e2, y, z)

The R of Type B verbs can be understood as something like "contain" or "have in". The denotation of Goal/Loc here is spacious enough as to contain things and is salient and at the same time is devoid of agentive role (the default Agent not showing up), showing some result state relation analogous to Unaccusativization (cf. "Mary resembles her mother"). The R’ for Type C verbs can be viewed as "be in/at/on" or "exist in/at/on," of which the central essential concept is ‘contact.’ This contact is realized as an endpoint of change of location involved in all the different types of verbs under discussion. Therefore, the perfective (realized by the past tense in Korean) of sentences with those verbs of Type A, B and D also entail the original moving-Theme (or Figure-Theme) being at the expressed location (except a few cases of initial act-oriented verbs such as ‘aim’ and ‘shoot’). This is how all these events denoted by the verbs constitute accomplishments. The case realization convention would be to make the first argument of R or R’ be realized as Nominative and the second argument as Accusative, so that the following case patterns result. (Reminder: y is the moving-Theme, and z the Goal.)

(8)  a. z-Nom y-Acc tam-/*chaywu- (Pattern 4)  tam- Type B
     b. y-Nom z-Acc *tam/chaywu- (Pattern 3)  chaywu- Type C

The final problem is the one regarding case pattern 2, [x-Nom y-Inst z-Acc]. This pattern is possible only for Type C verbs (chaywu- ‘fill’) but not for Type B verbs (tam- ‘put into’), for which the following mechanism may be presented for an explanation.

For the purpose of case realization, e1 and e2 contribute in such a way that e1 is more responsible for the Nominative case assignment and e2 is more responsible for the Accusative case assignment. This assumption is not unmotivated because Agent prototypically surfaces as Nominative (Dowty 1991) and AGENTIVE is related to the Agent role anyway. For type C verbs such as chaywu- ‘fill’, x (Agent) is assigned Nominative case because it is the first argument of AGENTIVE and z (Goal) is assigned Accusative case since it is the second argument of FORMAL. This is in our theory the effect of Thematization of Goal. Argument relations for verbs are re-established. Here y (moving-Theme) cannot be assigned Accusative case, as expected by AGENTIVE, or Nominative case, as expected by FORMAL, because both cases have already been assigned, and as a consequence y results in an oblique, Instrumental case, the final result being [x-Nom z-Acc y-Inst]. The case Instrumental is chosen because it is conceptualized as being causally related to the agentive causation. An exactly identical mechanism is employed for the English verb fill. Note, however, that the adult English verb fill cannot have case Pattern 1. Consider:
This fact about the verb *fill* in English suggests that e1 (agentive process) has weight in child English just as in the action/manner-oriented verb *pour* and then it comes to lose its weight as the speaker grows up (Lee, 1997).

Alternatively, we may adopt Lee, Nam and Kang’s (1998) suggestion that when the head event is not specified, there is a third way of getting the head event besides getting a sole event of e1 or e2. Namely, as the head event we might get e1+e2, both of the component events being interpreted as part of the head event. This alternative, however, is intuitively less plausible, though its motivations and mechanisms are different from those of the current analysis.

Regarding type B verbs such as *tan-* ‘put (into)*, x is assigned Nominative case because it is the first argument of AGENTIVE and y is assigned Accusative case because it is the second argument of FORMAL. Here z cannot be assigned Nominative since -Nom has already been assigned to x so that it can only get Dative/Locative case, which is expected by being the third argument of AGENTIVE. The final result is [x-Nom y-Acc z-Dat/Loc], which cannot be distinguished from the case assignment when only e1 is specified as the head. (We need to assume that case pattern [x-Nom y-Acc z-Inst] blocks case pattern [x-Nom y-Acc z-Inst].)

4. Further Cross-linguistic Considerations

We assume that our classification of verb types based on underspecified event-headedness and variant specification of QUALIA-FORMAL largely applies to English and other languages. English verbs such as *put* and *pour* behave like Type A verbs, verbs such as *keep* and *store* like Type B verbs, and verbs such as *fill* and *hit* like type C verbs, respectively. Compare:

     b. John kept the apples in the refrigerator. / The refrigerator kept the apples.
     c. John hit the stick on the wall / John hit the wall with the stick. / The stick hit the wall.

But there are some interesting differences depending on which part of the sub-events of verbs in different languages is assigned weight and as a result what kinds of case alternation patterns via linking are possible. For instance, the verb *load* in English shows Goal Thematization, showing case Pattern 2, whereas its equivalent verb *sit-* ‘load’ in Korean does not. In consequence, the Korean verb *sit-* ‘load’ belongs to Type B, while the English verb may belong to Type C. Indeed, our classification can predict correct case alternation patterns. Consider:

(11)  *The truck loaded the hay.
     cf. Store-rooms store things and containers contain things.
     ---type B [Pattern 4]

(12)  thurek-i capcho-rul sil-ess-6a. (type B in Korean) [Pattern 4]
     truck-Nom hay-Acc load-Past-Dec
Lit. ‘The truck loaded the hay.’

This important difference shows that the English verb *load* gives weight to the agentive act of e1, whereas the Korean counterpart gives weight to e2, its result state, and in particular the Goal (container) gets salient to become the subject. In English, the Goal is Thematized, being globally affected, resulting in a sentence such as *Pat loaded the truck with hay* (analogous to case Pattern 2). Verbs such as *shoot* and *aim* both in English and Korean also show case Pattern 2 via Thematization of Goal and the newly created Themes are fully affected (in the case of *aim*, the consequence is rather mental than physical), but in the case of *shoot* and *ssou ‘shoot,* because they are initial act oriented (and there is a substantial distance from the place of the act and the Goal), their case Pattern 1 with Loc/Goal (*at/-ey NP*) does not entail the Theme’s contacting the Loc/Goal. This fact is cross-linguistically (e.g., in Hausa, R. Schuh p.c.) witnessed. Type C verbs denote events more global in which the moving-Theme can be prominent to become the subject both in English and Korean than Type D verbs. The so-called ‘swarm’ verbs show case alternations analogous to the alternation between Pattern 1 and Pattern 2 above both in English and Korean, unlike in Hindi. But as in Hindi (as shown by Narasimhan at the TLS99 conference), Korean does not use manner verbs such as *run* and *walk* as Goal-reaching telic intransitive locomotive verbs. For such Goal-reaching locomotive verbs, only a few verbs corresponding to ‘go,’ ‘come,’ and ‘arrive’ can be used in Korean and Hindi. For instance, three different verbs are employed for ‘float into’ in Korean (*hule-tule-ka* ‘go by entering by flowing’). Therefore, it is striking to see the general alternation patterns in transitive motion verbs.

### 5. Case Alternations of Passive and Intransitive Verbs

In light of the analysis given above, we may consider case alternations of transitive motion verbs in passive forms. In Korean, a passive verb is derived from an active verb by attaching the passive morpheme *I* (variants: *-i*, *-hi*, *-di*, *-ki*) or an auxiliary formative *-eci*, and *-ke-toi* to the stem. The latter is analogous to the English *get* passive.

As in English, the object of an active verb, whether Thematized or not, can become the subject of the passive verb in Korean, case alternation patterns being largely preserved. Observe the following examples of verbs of types A, B and C:

(13) Type A
a. sakwa-ka (Jay-ey.uhyay) pakwuni-ey neh-eci-ess-ta. (from Pattern 1)
   apple-Nom (J-by)     basket-Loc   put (into)-Passive-Past-Dec
   ‘Apples got/were put into a basket (by Jay).

b. *pakuwni-ka (Jay-ey.uhyay) sakwa-lo neh-eci-ess-ta. (from Pattern 2)
   basket-Nom (apple-by)    apple-Inst   put (into)-Passive-Past-Dec
   ‘The basket was put into with apples (by Jay).’

c. *pakuwni-ka (sakwa-ey.uhyay) neh-eci-ess-ta. (from Pattern 3)
   basket-Nom (apple-by)     put (into)-Passive-Past-Dec
   ‘The basket was put into (by apples).’

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4 We see the typological distinction between the type of languages (Korean and Hindi) in which the same Loc preposition/postposition for verbs of existence is used for basic telic motion verbs such as ‘come,’ ‘go,’ and ‘arrive’ and not for manner verbs like *run* and *walk* and the type of languages in which the existential Loc marker cannot be used for motion verbs.
d. *sakwa-ka (pakwuni-ey.uyhay) neh-eci-ess-ta. (from Pattern 4)
   apple-Nom (basket-by) put (into)-Passive-Past-Dec
   ‘Apples were put into (by the basket).’

(14) Type B
a. sakwa-ka pakwuni-ey tam-ki-ess-ta. (from Pattern 1)
   apple-Nom basket-Loc put-Passive-Past-Dec
   Lit. ‘Apples were put into a basket (by Jay).’

b. *pakuwni-ka (Jay-ey.uyhay) sakwa-lo tam-ki-ess-ta. (from Pattern 2)
   basket-Nom (J-by) apple-Inst put-Passive-Past-Dec
   ‘The basket was put into with apples (by Jay).’

c. *pakuwni-ka (sakwa-ey.uyhay) tam-ki-ess-ta. (from Pattern 3)
   basket-Nom (apple-by) put-Passive-Past-Dec
   ‘The basket was put into (by apples).’

d. ?sakwa-ka (*pakwuni-ey.uyhay) tam-ki-ess-ta. (from Pattern 4)
   apple-Nom (basket-by) put-Passive-Past-Dec
   ‘Apples were put into (by the basket).’

(15) Type C
a. sakwa-ka(Jay-ey.uyhay) pakwuni-ey chaywu-eci-ess-ta. (from Pattern 1)
   apple-Nom (J-by) basket-Loc fill-Passive-Past-Dec
   Lit. ‘The apple was filled in a basket (by Jay).’

b. pakuwni-ka(Jay-ey.uyhay) sakwa-lo chaywu-eci-ess-ta. (from Pattern 2)
   basket-Nom (J-by) apple-Inst fill-Passive-Past-Dec
   ‘The basket was filled with apples (by Jay).’

c. pakuwni-ka (*sakwa-ey.uyhay) chaywu-eci-ess-ta. (from Pattern 3)
   basket-Nom (apple-by) fill-Passive-Past-Dec
   ‘The basket was filled (by the basket).’

d. sakwa-ka (*pakwuni-ey.uyhay) chaywu-eci-ess-ta. (from Pattern 4)
   apple-Nom (basket-by) fill-Passive-Past-Dec
   ‘Apples were filled (by the basket).’

One striking fact about passivization of Type A verbs is that they cannot have the
form of passive morpheme I. They can only have the agentive-oriented auxiliary formative
- e-ci-. Type A verbs and type B verbs cannot have a Thematized Accusative-marked
Goal in the active, and thus the Goal argument in (13) or (14) can be the subject of the
passive. In (14), the subject Goal cannot be agentive-marked in the passive because it
lacks any volitional agentive force.5

In Korean, passive verbs behave like intransitive verbs in some ways. In particular,
some passive verbs of type C have a close relation to the related intransitive verb. For
example, chaywu- ‘fill’ is related to the passive verb chaywu-eci- ‘be filled’, and is related
to the inchoative intransitive cha- ‘become full’, from which chay-wu- ‘fill’ is derived by
attaching ‘–wu-', the causative morpheme. The passive verb chay-wu-eci- ‘be filled’ and
the intransitive verb cha- ‘become full’ have the same arguments and reveal the same
surface case alternation patterns. Consider:

5 This condition on the use of - ey.uyhay may be too strong since this expression sounds not as
much bad with chay-wu-eci- as in (15c).
(16) a. sakwa-ka pakwuni-ey cha-ess-ta.
   apple-Nom basket-Loc become full-Past-Dec
   Lit. ‘Apples became full in a basket.’

b. pakuwni-ka sakwa-lo cha-ess-ta.
   basket-Nom apple-Inst become full-Past-Dec
   Lit. ‘The basket became full with(of) apples.’

c. pakuwni-ka (sakwa-lo) chay-wu-e-ci ss-ta.
   basket-Nom (apple-Inst) fill-Passive-Past-Dec
   ‘The basket was filled with apples.’

d. *sakwa-ka cha-ess-ta. (OK in the Loc deletion interpretation)
   apple-Nom become full-Past-Dec
   Lit. ‘Apples became full.’

However, there is an aspectual difference between the inchoative verbs and passive verbs. The progressive process form -ko iss- can be attached to the causative-passive form chaywu-eci- ‘be filled’ easily, but it cannot easily be attached to the inchoative verb cha- ‘become full’. This is because the inchoative verb form is more frequently used in the perfective result reading and the causative-passive verb form chaywu-eci- ‘be filled’ can be used in the agentive motion interpretation, therefore, in the process + result or accomplishment reading. Even the Thematized Goal subject can be in the passive in this reading, as in (17b). Observe:

(17) a. sakwa-ka (Jay-ey.uhay) pakwuni-ey chaywu-eci-ko iss-ta.
    apple-Nom (J-by) basket-Loc fill-Passive-Asp-Dec
    ‘Apples are being filled (by Jay) in the basket.’

b. pakuwni-ka (Jay-ey.uhay) sakwa-lo chaywu-eci-ko iss-ta.
    basket-Nom (J-by) apple-Inst fill-Passive-Asp-Dec
    ‘The basket is being filled with apples (by Jay).’

(18) a. ?? sakwa-ka pakwuni-ey cha-ko iss-ta.
    apple-Nom basket-Loc become full-Past-Dec
    ‘Apples are becoming full in the basket.’

b. ?* pakuwni-ka sakwa-lo cha-ko iss-ta.
    basket-Nom apple-Inst become full-Past-Dec
    ‘The basket is becoming full with apples.’

c. pakuwni-ka kyesok chaywu-eci-ko iss-ta.
    basket-Nom continuously fill-Passive-Asp-Dec
    ‘The basket is being continuously filled.’

The causative-passive verb form chaywu-e-ci- ‘get filled’ can be process-oriented, partly revealing even some atelic nature. Sentences in (19) and (20) are ambiguous between the repetitive reading and the process reading. The past form is predominantly in the repetitive reading. Observe:

(19) a. sakwa-ka pakwuni-ey kyesok chaywu-eci-ko iss-ta.
    apple-Nom basket-Loc continuously fill-Passive-Asp-Dec
    ‘Apples are being continuously filled by apples.’

b. pakuwni-ka sakwa-lo kyesok chaywu-eci-ko iss-ta.
    basket-Nom apple-Inst continuously fill-Passive-Asp-Dec
    ‘The basket is being continuously filled with apples.’

c. pakuwni-ka kyesok chaywu-eci-ko iss-ta.
    basket-Nom continuously fill-Passive-Asp-Dec
    ‘The basket is being continuously filled.’
a. sakwa-ka pakwuni-ey kyesok chaywu-eci-ess-ta.
   apple-Nom  basket-Loc   continuously  fill-Passive-Past-Dec
   ‘Apples were continuously filled in the basket.’

b. pakuwni-ka sakwa-lo kyesok chaywu-eci-ess-ta.
   basket-Nom  apple-Inst  continuously fill-Passive-Past-Dec
   ‘The basket was continuously filled with apples.’

c. pakuwni-ka kyesok chaywu-eci-ess-ta.
   basket-Nom  continuously  fill-Passive-Past-Dec.
   ‘The basket was continuously filled.’

In the semantic structure of type C verbs, like chaywu- ‘fill’, the head event is not specified. So, when the case realization like (8b) occurs, the head event is e2, which is a state. In this case, the surface structure is similar to that of the related passive verb and the related intransitive verb, although the case patterns are not realized in the same way. For example:

(21) a. sakwa-ka pakwuni-lul chaywu-ess-ta.
    apple-Nom basket-Acc   fill-Past-Dec
    ‘Apples filled the basket.’

b. sakwa-ka pakwuni-ey chaywu-eci-ess-ta.
    apple-Nom basket-Loc fill-Passive-Past-Dec
    ‘Apples were filled in the basket.’

c. sakwa-ka pakwuni-ey cha-ess-ta.
    apple-Nom basket-Loc become full-Past-Dec
    ‘Apples became full in the basket.’

Based on these facts, we can attempt to explain the semantic structure of type C verbs, their related passive verbs, and the corresponding verbs uniformly.

Lee, C., S. Nam and B. Kang (1998) explain the semantic structural correlation between an active verb cap- ‘catch-’ and its passive counterpart cap-hi- ‘be caught’. First, the AGENTIVITY of the passive is assigned its value in terms of the active verb, so that it can properly represent the semantic relation between the active and the passive. Second, the HEAD of the whole event falls on the second sub-event (e2: state) of the passive, while the HEAD of the active falls on the first subevent (e1: process). Third, an active/passive pair shares two arguments, but the passive takes a default argument which corresponds to the first argument (ARG1) of the active verb. The HEAD of a type C verb does not fall on any sub-event, which is a case of underspecification. In the passive, the headedness of the active verb is preserved; therefore, the semantic structure of the passive counterpart of a Type C verb is as follows:

(22) The passive verb corresponding to type C: Vp = V-ci-
   EVENTSTR = E1 = e1: process
    E2 = e2: state
    HEAD =
   ARGSTR = ARG1 = y: physical_obj (moving-Theme)
    ARG2 = z: space (Goal)
    D-ARG3 = x: human (Agent)
   CASESTR = CASEFR1 = y-Nom z-Loc  (y-Nom from Figure-Theme)
    CASEFR2 = z-Nom y-Inst  (z-Nom from derived Theme)
QUALIA = change-of-(locomotive)-state-lcp  
FORMAL = R'(c2, y, z)  
AGENTIVE = V_act(e1, x, y, z)  

Here, we introduce a new element in the semantic structure of verbs, namely the case structure (CASESTR), which shows possible case frames. CASESTR is needed since we cannot predict the exact case alternation patterns for passive verbs. The difference between the active verb of type C and its passive counterpart lies in the argument structure and case structure. For active verbs, we can fully predict case alternation patterns, but for passive verbs it does not seem possible, hence a new CASESTR. The Event Structure and Qualia are the same.

In contrast, the HEAD of the intransitive lies in the sub-event e2 (state) in the event structure, and the intransitive does not have any default argument in the argument structure. The FORMAL of this semantic structure is similar to that of the semantic structure of type C verbs and their corresponding passive verbs.

The following illustrates the semantic structure of related inchoative intransitive verbs:

(23)  the intransitive verb: Vi  
EVENTSTR = E1 = e1: process  
E2 = e2: state  
HEAD = e2  
ARGSTR = ARG1 = y: physical_obj (moving-Theme)  
ARG2 = z: space (Goal)  
QUALIA = change-of-state-lcp  
FORMAL = R'(e2, y, z)  
AGENTIVE = K (e1, x, y, z)  

Here, K is some unspecified act of transitive motion. However, there is little sense of agentive motion. What really matters is the later process of state change which involves the Figure-Theme and the Goal, not the Agent.

To sum up, the passive verbs corresponding to the verbs of type C and type D allow similar case alternations of their active counterparts and the case alternation is caused by Thematization and the consequent object to subject shift. Further, it is noted that passive verbs behave like their corresponding inchoative intransitive verbs in case alternations, but the latter does not involve any agentive process. It can constitute an independent unaccusative sentence or it can be a terminal aspectual part of the whole agentive causative event.

6. Concluding Remarks

We have shown interesting case alternation patterns with transitive locomotive verbs in Korean and grouped those verbs into different types according to their case alternation patterns. We tried to justify our grouping by some formal devices in the generative lexicon theory. We used under-specification of headedness for different case realizations from the basic argument structure and the formal features of qualia structure. In sum, Type A: process-headed; Type B: Goal-salient; Type C: Figure-Theme-salient. We noted that Thematization is an important operation by which the original Goal
becomes a quantized Theme. By extending some concepts and incorporating the case structure into the generative lexicon AVM (attributive value matrix) specification, we have shown that case alternations in the passive verbs as well as active transitive motion verbs may well be accounted for and fully specified for linking from the underlying argument structure to case realizations.

References