1. Introduction

- The past decade has seen an explosion of research on the interface between lexico-semantics and syntax, and it has gone a long way in further refining the type of questions that we should be addressing. It has gone beyond the general question in (1.1), the answer to which is overwhelmingly YES, and has turned its attention to the questions in (1.2)-(1.5):

(1.1) Should we separate meaning that is contributed by the grammar from meaning that is contributed by general conceptual structure and knowledge of the world?
(1.2) What is the contribution of the syntactic construction (if any)?
(1.3) What is the contribution of the grammatical formatives (if any)?
(1.4) What is the contribution of substantial lexical items (if any)?
(1.5) What are the loci of cross-linguistic variation? Only the lexicon, or also the syntactic composition?

- Three main views have emerged (regarding 1.2-1.4):

  - The lexical view:
    - The contribution of syntax is minimal
    - Grammatical meaning is mostly dictated by lexical-conceptual structure;
      Jackendoff (1990), Levin and Rappaport Hovav (1995), among others
  
  - The syntactic view:
    - The contribution of substantial lexical items is minimal
    - The brunt of grammatical meaning comes from the syntax and its associated functional;
      Borer (2005a, 2005b), among others
  
  - The mixed view:  (although with important variations across authors)
    - The syntax with its associated grammatical items as well as some aspects of the substantive lexicon contribute to grammatical meaning.

- The Mixed View, Our View:

  - Following Hale and Keyser (2002), we assume that there is a small set of lexico-syntactic structures (or l-structures) consisting of a combination of functional categories and lexical categories that capture the general meaning of causation, result, activity, change of state or location, as well as stativity, and possession
  
  - Substantive lexical items (due to their inherent conceptual meaning) gravitate toward one or more l-syntactic structures, information that is assumed to be part of our mental grammatical lexicon.
  
  - While there is a matching between properties of the lexical-semantics and the syntax, the independence of the syntactic construction is shown by the fact that certain (semi)close class items can license the appearance of lexical items in syntactic contexts that they would not otherwise appear in.
• **Our View (regarding 1.5):** Parameters is not confined to the lexicon. In the area of the lexicon-syntax interface, there is fine-grained variation in the syntactic composition of l-structures, which gives rise to important cross-linguistic differences.

• **Goal of the present paper:**
  - To argue that the Korean resultatives in comparison to English resultatives provide evidence in favor of the above view.
  - To further our understanding of Korean “directed motion constructions” more generally.

2. **English directed motion constructions and AP resultatives: a syntactic compounding analysis.**

• Consider the verb *laugh*. This verb denotes an activity, and therefore cannot readily appear in a directed motion construction (DMC):

(2.1) *Johnny laughed to Mexico.*

• However, in English, a language with a prolific resultative construction, *laugh* can appear in a DMC with the aid of the grammatical formative *his way*:

(2.2) Johnny laughed his way to Mexico.

(Grossly paraphrased as *Johnny went all the way to Mexico laughing*)

• Following insights of Jackendoff (1990), Mateu (2002, 2005), Mateu and Rigau (2002), and McIntyre (2004), Zubizarreta and Oh (2007) analyze examples such as (2.2) in terms of a directed motion construction, considered to be a sub-species of resultatives:

(2.3) \[[vp DP1 \[v \[vp DP2 \[V \[PDIR to \[PLOC \[DP3]\]]]]]]\]

• Zubizarreta & Oh (2007): example (2.2) has the structure in (2.4), obtained by adjoining *laugh* to little *v* via a “syntactic-compounding process (adapting Snyder 2001’s insight of semantic compounding):

(2.4) \[[vp Johnnyi \[v \[laughed-v \[vp his \[way \[V \[PDIR to \[PLOC \[DP Mexico]]]]]]]]]]\]

• Contrast *laugh* with *dance*:
  - This verb does not denote directed motion (unlike *arrive, escape*, etc.), but it does denote motion, namely a *manner of bodily motion*.
  - Hence, it can readily appear in a resultative construction without the help of any grammatical formative, as illustrated in (2.5a) & (2.5b) and their corresponding structures in (2.6) & (2.7):

(2.5) a. Johnny danced to the other side of the room.
b. Johnny danced Mary to the other side of the room.

(2.6) \[[vp Johnny \[danced-V \[PDIR to \[PLOC \[DP the other side of the room]]]]]]\]
(2.7) \[ \text{VP Johnny VP danced-v VP Mary VP to VPLOC \emptyset [the other side of the room]} \]

- *Ph-identification* of empty verbal heads: an overt lexical item (in this case *dance*) identify the empty verbal heads (*v* and *V*). *Domain of ph-identification* is the spell-put domain: the phase itself (*vP*) or *VP* in the absence of *vP*. (Fox and Pesetsky 2005).

- The above analysis could be extended to AP resultatives. For example, (2.8) would have the structure in (2.9). The activity verb *pound*, which does not denote any change of state, modifies a resultative *I*-structure, by adjoining to *v* via the syntactic “compounding” process.

(2.8) Johnny pounded the metal flat.

(2.9) \[ \text{[VP Johnny AP the metal L a AP e flat [I]]} \]

- Cross-linguistic parametrization: neither Romance nor Korean generate resultative structure via syntactic compounding; Zubizarreta and Oh (2007)

- Comparison English and Korean: in our view the two differ in the syntactic composition of resultatives.
  - English and other Germanic languages use lexical compounding mechanism.
  - Korean uses the “Serial Verb” construction mechanism.
  - The two mechanisms assemble syntactic structures in a different way, giving rise to important output differences.


3.1. *ka- ‘go’ as the head of the directed motion construction*

- Consider the examples below. Verbs of manner-of-motion, such as *talli ‘run’*, cannot give rise to directed motion by themselves. They must be combined with the light verb *ka-.*

(3.1) *John-i kongwen-ey talli-ess-ta
  John-Nom park-Loc run-Past-Decl
  ‘John ran to the park’

(3.2) *John-i kongwen-ey talli-e ka-ess-ta
  John-Nom park-Loc run-L go-Past-Decl
  ‘John ran to the park’

- Zubizarreta and Oh (2007) argue that:
  - Serial verbs in Korean are not compounds.
  - *ka-* is the spell-out of the verbal head in an *I*-structure that denote directed motion along a path (what corresponds to the empty *V* in (2.7)).
Serial verbs are formed via a Generalized Transformation (GT): the l-structure of a verb is adjoined to the head of the l-structure of another verb, prior to merging with little v. Thus, the one- subject and one-Tense property of SVCs.

In examples such as (3.2), the l-structure of the activity-denoting intransitive talli- 'run' (3.3.a) is adjoined to the head of the resultative l-structure headed by ka- (3.3b), giving rise to (3.3c).

The semi-functional verb ka- and the lexical verb define different verbal projections and therefore different domain of spell-out, which contrasts with the English compounding mechanism.

(3.3) a. l-structure of the intransitive activity verb prior to merge with little v (à la Hale and Keyser, as a branching VP):

```
V
...... talli-
```

b. l-structure of a directed motion construction (PP-ey is a short notation for the stacked PP of directional PPs, which encodes both path and goal)

```
V
D
P-ey V
| ka-
```

c. Adjunction of the l-structure in (a) to the head of the l-structure in (b): a case of Simultaneous SVC.

```
V
D
P-ey V
 V
 ...... talli- ka-
```

• The fact that Korean builds its directed motion construction via a different syntactic mechanism than English can be seen by looking at directed motion constructions with transitive contact verbs like kick, push, pull, etc.

• English examples, such as (3.4), have an analysis comparable to (2.7), as shown in (3.5).

(3.4) John kicked the ball to the garden.
Meaning: John causes the ball to go to the garden by kicking it.
(3.5) \[ [\text{t}_{vp} \text{Johnny} \text{v} \text{kicked-v} [\text{VP the ball} [\text{V} [\text{PD} \text{to} [\text{PL} \text{[the garden]}]]]]]]

- Counterpart of (3.5) is ungrammatical in Korean (Z&Oh 2007, section 2.2.4):

(3.6) *\text{John-un ku kong-ul cengwen-ey cha-ess-ta.}
\begin{tabular}{l}
\text{John-Top that ball-Acc garden-Loc kick-Past-Decl}
\end{tabular}

- If we add \text{ka-} to “kick”, (3.6) becomes grammatical, as shown in (3.7), but it does not have a causative meaning, unlike English (3.4).

- Z&O (2007) analyze (3.7) as a case of Simultaneous SVC, like (3.3): the VP “go to the garden” is modified by “kick the ball”. Importantly, the “kicking” event is simultaneous to the “directed motion” event (they share a trajectory with the same sub-intervals).

(3.7) \text{John-un cengwen-ey kong-ul cha ka-ess-ta}
\begin{tabular}{l}
\text{John-Top garden-ey ball-Acc kick go-Past-Decl}
\end{tabular}
Meaning: John goes to the garden, repeatedly kicking the ball.

- To express the English-like (causative) meaning, \text{ka-} ‘go’ has to be causatived, the output lexical form being \text{ponay-} ‘send/cause-to-go’ (Sohn 2001).

(3.7) \text{John-i cengwen-ey kong-ul cha ponay-ss-ta}
\begin{tabular}{l}
\text{John-Nom garden-Loc ball-Acc kick send-Past-Decl}
\end{tabular}
Meaning: John caused the ball to go to the garden by kicking it.

(3.8) [\text{John-i [ [[kongul [cengwen-ey [[(kongul) cha] ka ]] v ]]}, \text{ ka-v --> ponay}

### 3.2. Extending the SVC analysis to COS: (e)ci- as another head of Korean directed motion construction

- As suggested earlier, the meaning of COS may be analyzed in terms of directed motion (along an abstract path).

- An example is given in (3.9), where the l-structure of directed motion (headed by ‘go’) takes an AP \text{sour} as its path (the internal structure of AP is left unspecified):

(3.9) The milk went/became sour.

\[ \begin{array}{c}
\text{DP} \\
\text{V} \\
\text{The milk} \\
\text{V} \\
\text{AP} \\
\text{go} \\
\text{sour}
\end{array} \]

- Zubizarreta & Oh 2007, Lim and Zubizarreta (2010, in press) propose that Korean deadjectival inchoatives headed by the morpheme (e)ci- should also be analyzed in terms of a directed motion construction:
(3.10) Ku kang-i 3m kiph-e ci-ess-ta.
That river-Nom 3m deep-L ci-Past-Decl
‘That river became 3m deeper’

• A very simplified structure of (3.10): (for a detailed analysis, especially regarding the internal structure of AP, see Lim & Zubizarreta in press):

(3.11)

```
          VP
         /   \   \
        D     V
       /\     /\  \\
      ku kang AP  V
     MeasP A  ci-
      3m  kiph-
```

• Compare (3.11), with an (e)ci-headed structure, and (3.12), with a ka-headed structure:

John-Gen sorrow-Nom deep-L go-Past-Decl
‘John’s sorrow was getting deep’

```
          v
         /   \   \
        D     v
       /\     /\  \\
      John-uy A  v
     sulphum  \  /  \\
        kiph- ka-
```

• Lim and Zubizarreta (L&Z) (in press) argue that both structures encode directed motion with an abstract path.

• L&Z attribute the difference between ka- and ci- to the properties of their path arguments: V is spelled-out as ka- when the path argument is not delimited, whereas it is spelled-out as (e)ci- when it is delimited. (This requires further refinement; we return to this in section 7).

• (e)ci- also appears with intransitive verbs (3.13a) that have a causative transitive counterpart (3.13b). L&Z proposed that (e)ci- is not a passivizer in such cases (as is commonly assumed), but a semi-functional head that takes an abstract path as its argument, as in deadjectival cases like (3.10).

House three CL-Nom build-L ci-Past-Decl
‘Three houses were built’

   John-Nom house three CI-Acc build-Past-Decl
   ‘John built three houses’

- In section 4, we will pay close attention to the relation between (e)ci- and resultative secondary predicates, such as (3.14).

   metal-Nom flat-key pound-L ci-Past-Decl
   ‘The metal was pounded flat’

b. Pyeng-ka cal-key kkay-e ci-ess-ta.
   bottle-Nom tiny-key break-L ci-Past-Decl
   ‘The bottle broke into tiny pieces’

- Verbs that appear in such resultative structures are not aspectually uniform:

(3.15) Three subclasses:


4. Extending the SVC analysis to Korean AP resultatives.

4.1. Differences between ‘pound’-type verbs and ‘break’-type verbs.

i) Lexical semantics of the verb & COS entailments: pound-type verbs do not entail the COS of the theme argument, but break-type verbs do:

   pyenha-cianh-ass-ta.
   change-Neg-Past-Decl
   ‘John pounded that chunk of metal. But its shape did not change’

(4.2) John-i ku yulichang-ul kkay-ess-ta. #Haciman kukes-uy moyang-un
   J.-Nomthat window-Acc break-Past-Decl But it-Gen shape-Top

---

1 Chilha- ‘paint (the wall)’ should be distinguished from kuli- ‘draw/paint (a picture)’: the former is an activity but the latter is a verb of creation (and therefore a verb of change of state).
pyenha-cianh-ass-ta.  
change-Neg-Past-Decl  
‘John broke that window. #But its shape did not change’

ii) *Pound*-type verbs are compatible with *for* adverbial (they are atelic activity verbs), whereas *break*-type verbs are compatible with *in* adverbial (they are telic COS verbs).

John-Nom that chunk.of.metal-Acc 10 min. for / 10 min. in pound-Past-Decl  
‘John pounded that chunk of metal for 10 minutes / ?in 10 minutes’

(4.4) John-i ku yulichang-ul 10 pwun tongan / 10 pwun maney kay-ess-ta.  
John-Nom that window-Acc 10 min. for / 10 min. in break-Past-Decl  
‘John broke that window ?for 10 minutes / in 10 minutes.’

iii) Differences in combining with *(e)ci*:- ‘pound’-type verbs need a secondary predicate to combine with *(e)ci*-(4.5), whereas ‘break’-type verbs do not (4.6).

(4.5) Ku soystengeli-ka #(yalp-key) twutulki-e ci-ess-ta.  
That chunk.of.metal-Nom thin-key pound-L ci-Past-Decl  
‘That chunk of metal was pounded thin’

(4.6) Ku yulichang-i (cal-key) kay-e ci-ess-ta.  
That window-Nom tiny-key break-L ci-Past-Decl  
‘That window was broken tiny’

iv) Semantic restriction on secondary predicate: *pound*-type verbs are compatible with various types of APs (4.7), whereas *break*-type verbs are compatible only with a limited class of APs (4.8).

(4.7) John-i kumsok-ul napcakha-key / tantanha-key / yalp-key / ?kil-key …  
J.-Nom metal-Acc flat-key / solid-key / thin-key / long-key …  
twutulki-ess-ta.  
pound-Past-Decl  
‘John pounded the metal flat / solid / thin / long…’

(4.8) John-i sangca-lul cal-key / ?kop-key / #yalp-key / #napcakha-key …  
J.-Nom box-Acc tiny-key / cute-key / thin-key / flat-key …  
pwuswu-ess-ta.  
destroy-Past-Decl  
‘John destroyed the box tiny / ?cute / #thin / #flat …’

4.2. Proposal.

1. Resultative structures with secondary predicates are composed differently with the two-subclasses of verbs:

(4.9) a. Kumsok-i (napcakha-key) twutulki-e ci-ess-ta.  
metal-Nom flat-key pound-L ci-Past-Decl  
‘The metal was pounded flat’
b. Pyeng-i cal-key kKay-e ci-ess-ta.
   bottle-Nom tiny-key break-L ci-Past-Decl
   ‘The bottle broke into tiny pieces’

- **Pound-type verbs** denote activities and not a result, so it cannot function as the path complement in a COS construction (a sub-type of directed motion). In this case the Adj (flat) functions as the path complement of the directed motion construction and the lexical verb (pound) functions as a modifier of the construction (it specifies the means by which the COS come about).
- **Break-type verbs** denote a result state, so the lexical verb itself can function as the path complement of the COS construction and the Adj functions as the modifier of the lexical verb (it specifies the type of end state).

2. Two distinct mechanisms involved in the construction of Korean resultatives:

- **Pound-type verbs**: constructed via the Serial Verb mechanism (GT), a mechanism that adjoins an l-structure to the head of another l-structure (Z&0 2007), prior to merger with little v, giving rise to a SSVC.
- **Break-type verbs**: constructed via the usual sequential Merge mechanism, giving rise to a standard resultative construction.

### 4.3. The syntax of intransitive resultatives.

**Pound-type verbs**: Simultaneous SVC (SSVC).

(4.11) Kumsok-i yalp-key twutulki-e ci-ess-ta
   metal-Nom thin-key pound-L ci-Past-Decl.
   ‘The metal was pounded thin’.

(4.12) a. l-structure of *(e)ci*-: AP is the complement of the directed motion construction headed by *(e)ci*- (for details on the internal structure of the AP, see Lim & Zubizarreta in press)

```
  VP
   △
  DP   V'
  Kumsok   AP   V
   △
   yalp   ci-     (metal flat become)
```

b. l-structure of transitive twutulki- ‘pound’

```
  VP
   △
  DP   V
  kumsok   twutulki-     (metal pound)
```
(4.13) GT applies: l-structure (4.12 b) adjoins to the head of the l-structure (4.12 a):

\[ \text{VP}_1 \to D \to \text{V} \]
\[ \text{Kumsok} \to \text{AP} \to \text{V} \]
\[ \text{yalp} \to \text{VP}_2 \to \text{V} \]
\[ D \to V \to (e)ci- \]
\[ (\text{kumsok}) \to \text{twutulki-} \]

\textit{destroy}-type verbs: Resultative construction.

- l-structure constructed via the usual sequential Merge mechanism:
  
  a. AP ‘tiny’ merges with verb ‘destroy’
  \( \to \) “complex predicate”, where AP is the modifier of ‘destroy’.
  
  b. AP-V merges with DP ‘box’
  \( \to \) ‘tiny-destroy’ is predicated of ‘box’.
  
  c. VP output merges with (e)ci
  \( \to \) VP is the path complement of (e)ci-
  
  d. VP-(e)ci- merges with copy of DP ‘box’
  \( \to \) ‘box’ moves along ‘destruction path’ with the endpoint specified as ‘broken tiny’.

Box-Nom tiny-key destroy-L ci-Past-Decl
(lit.) ‘The box was destroyed tiny’

(4.15)

\[ \text{VP}_1 \to D \to \text{V}_1 \to \text{V}_2 \to \text{V} \]
\[ \text{sangca} \to \text{AP} \to \text{cal-} \]
\[ (\text{sangca}) \to \text{pwuswu-} \]

- The above analysis captures the differences between \textit{pound}-type and \textit{destroy}-type verbs discussed in 4.1.
Degree Achievements (e.g. el- ‘freeze’, tha- ‘burn’, sik- ‘cool’, kkulh- ‘boil’) compatible with measure phrases:

(4.18) Kwuk-i 3 to sik-ess-ta.
Soup-Nom 3 degree cool-Past-Decl
‘The soup cooled 3 degrees’

• Compatible with a secondary resultative AP phrase (but not required):

(4.19) Hoswu-ka (tantanha-key) el-ess-ta.
Lake-Nom solid-key freeze-Past-Decl
‘The lake froze solid’

• Not compatible with (e)ci-, but compatible with ka

(4.20) ??Hoswu-ka el-e ci-ess-ta.
Lake-Nom freeze-L ci-Past-Decl

(4.21) Hoswu-ka el-e ka-ess-ta.
Lake-Nom freeze-L ka-Past-Decl

• We return to this class of verbs and the analysis of (4.21) in section 7.

5. The syntax of transitive resultatives with activity and COS verbs

5.1. Two different structures:

Pound-type verbs: a hidden Simultaneous SVC (SSVC)

(5.1) a. John-i kumsok-ul yalp-key twutulki-ess-ta.
John-Nom metal-Acc thin-key pound-Past-Decl
‘John pounded the metal thin.’
John-Nom table-Acc clean-key wipe-Past-Decl
‘John wiped the table clean’

• L-structure in (4.13) is merged with little v, which introduces the agent or causer, as shown in (5.2).
• We have no explanation why there is no morphological expression for “(e)ci” + v, while there is one for ka+v --> ponay. Cf. (3.7)-(3.8), repeated in (5.3)-(5.4).
(5.2) John
D v VP2 v
D AP V
Kumsok yalp-key VP1 V2 "e-ci"
D V1 (kumsok) twutulki

(5.3) John-i cengwen-ey kong-ul cha ponay-ss-ta
John-Nom garden-Loc ball-Acc kick send-Past-Decl
Meaning: John caused the ball to go to the garden by kicking it.

(5.4) John-i [ [kongul [cengwen-ey [[ (kongul) cha] ka ]]] v ]], ka- + v --> ponay

destroy-type verbs: a transitive resultative structure obtained by merging (4.14) with little v; see (5.6).

(5.5) a. John-i sangca-lul cal-key pwuswu-ess-ta.
John-Nom box-Acc tiny-key destroy-Past-Decl
(lit.) ‘John destroyed the box tiny’ = John destroyed the box into tiny pieces.

John-Nom house-Acc high-key build-Past-Decl
‘John built the house high’

(5.6) D v John VP1 v
D VP2 V1 "(ei)ci-"
D2 (sangca) AP V2
D cal pwuswu-
5.2. Argument in favor of two different structures.

- Interaction of Q-object and Negation.

*destroy*-type:

\[(5.7)\] John-i pyeng myech kay-lul cal-key pwuswu-cianh-ass-ta.
John-Nom bottle several CL-Acc tiny-key destroy-Neg-Past-Decl

(a) *Neg > several*: John destroyed ALL the bottles/NO bottle flat.
(b) *Several > Neg*: There are several bottles such that John did not destroy them into tiny pieces.

*pound*-type:

\[(5.8)\] John-i soystengeli myech kay-lul napcakha- key twutulki-cianh-ass-ta.
John-Nom chunk.of.metal several CL-Acc flat-key pound-Neg-Past-Decl

(a) **??Neg > several**: John pounded ALL chunks of flat.
(b) *Several > Neg*: There are several chunks of metal which John did not pound and they did not become flat.

- In both structures, SSVCs as in (5.9) and Resultatives as in (5.10), the *several > Neg* interpretation is obtained by LF movement of Q above Neg.

\[(5.9)\]
(5.10)

\[ \begin{array}{c}
Q_i \\
\triangle \\
myech \\
v \\
\triangle \\
Q_i.sangca \\
\triangle \\
D_2 \\
\triangle \\
Q_{i, sangca} \\
\triangle \\
D \\
\triangle \\
John \\
v \\
\triangle \\
\text{VP}_1 \\
v \\
\triangle \\
\text{VP}_2 \\
\triangle \\
\text{AP} \\
\triangle \\
pwuswu-
\end{array} \]

- *Neg > several* reading, which only arises in the resultative structure, involves association of Neg with focused Q *myech*, giving rise to the implicit interpretation ‘NOT SEVERAL but ALL’ or ‘NOT SEVERAL, but NONE’.
- *Neg > several* reading cannot arise in the pound-structure because Focus-association only occurs with overt, stressed items. Therefore, Neg can associate with the Q-subject of covert *(e)ci-*-, but not with the covert object of ‘pound’, giving rise to an ill-formed LF structure, due to lack of parallelism between the copies of the two objects.

- Negation has low scope in Korean (below TP); see morphological ordering (so a NOM subject always has wider scope than Neg).

Several CL-Gen student-Nom home-Loc go-Past-Decl
‘Several students did not went home’
Several > Neg, *Neg > Several

- Therefore, in structures with intransitive verbs, only the “several > Neg” interpretation is available. Neg cannot focus-associate with the Q in NOM position because Neg has lower scope.

‘destroy’-type verbs:

(5.12) pyeng myech kay-ka cal-key pwuswu-e ci-cianh-ass-ta.
bottle several CL-Nom into.pieces-key destroy-L ci-Neg-Past-Decl

‘pound’-type verbs:
5.3. Comparison with English resultatives.

(5.14) a. John pounded several metal thin  
     b. John broke several vases into pieces.
     • Same structures as directed motion construction with a physical path.
     • COS (like break) originate below (in the resultative structure).

(5.15) [. John [ v several vases [ V [ break [PP into pieces]]]]
     • Activity-denoting verbs (like pound) modify the resultative structure via
       compounding with little v; (2.9) repeated in (5.16).

(5.16) [. John [ pound-v [ several metals [ V [AP thin] ]]]]
     • Same analysis applies to activity-denoting intransitives:

(5.17) John cried his handkerchief wet.

(5.18) [.p John [ v cried-v [ his handkerchief [VP V [AP (his handkerchief) [a wet ]]]]]]
     • Korean lacks the counterpart to English (5.17).

(5.19) *Yenghi-ka sonswuken-ul cec-key wul-ess-ta.
       Yenghi-Nom handkerchief-Acc get.wet-key cry-Past-Decl
     • The resultative analysis is not available for (5.19) because the verb does not denote a
       result and therefore cannot function as the path complement of covert “e-ci”.
     • The causative Simultaneous Serial Verb structure (which denotes causation of
       directed motion) is not available for (5.19) either because such structures are by
       definition transitives.
     • To express that meaning of (5.17), Korean uses an adjunct clausal structure (Son
       2008), as in (5.20) Note that the embedded DP is NOM (not ACC). Son gives a
       number of other distinctive properties of intransitive-headed resultatives, such as
       compatibility with progressive and perfective aspect, which indicate that they have a
       bigger clausal structure than the transitive-headed resultatives.

(5.20) Yenghi-ka sonswuken-i cec-key wul-ess-ta.
       Yenghi-Nom handkerchief-Nom get.wet-key cry-Past-Decl
     ‘Yenghi cried until her handkerchief became wet’

6. Summary
• We have shown that the aspectual properties of lexical items are grammatically relevant, so certain aspects of lexical semantics are grammatically relevant (in particular, their aspectual properties).

• We have argued that the analysis of Adjectival Resultatives in Korean and English are partially the same, namely in the case of COS verbs: they have the usual resultative structure constructed via the usual sequential Merge mechanism.

• We have argued that the analysis of Adjectival Resultatives in Korean and English are different in the case of activity-denoting verbs.
  o English uses the syntactic-compounding mechanism that merges the lexical verb to little v.
  o Korean uses the Serial Verb mechanism that merges a (VP) l-structure to the head of another (VP) l-structure.
  o In both cases, the semantics obtained is the same: the lexical verb (e.g. pounding) modifies the directed motion construction.
  o The difference in compositional analyses has the consequence that English can construct resultatives with intransitive activity-denoting verbs, but not Korean.

7. Distribution of ka- and (e)ci-: a rough sketch (further refinements of ideas put forth in Z & Oh 2007 and Lim & Zubizarreta in press)

• In this section we continue to focus mainly on the notion of “abstract path”, with the goal of furthering our understanding on the differences between ka- and (e)ci (both can head an abstract “directed motion” construction). We will mention the DMC with a physical path only when necessary.

7.1. Adjectival path complements

• Gradable and measurable adjectives (hereafter dimensional adjectives, for convenience) are compatible with ka- and (e)ci-

   River-Nom deep-L go-Past-Decl
   ‘The river was getting deep’

   John-Nom height-Nom tall-L go-Past-Decl
   ‘John was getting tall’

   River-Nom deep-L ci-Past-Decl
   ‘The river became deep’

   John-Nom height-Nom tall-L ci-Past-Decl
   ‘John became tall’

• Gradable but non-measurable adjectives (hereafter non-dimensional adjectives, for convenience) do NOT appear as path argument of ka-, but they can appear with (e)ci.

(7.3) a. ??Mary-ka yeyppu-e ka-ess-ta.
    Mary-Nom pretty-L go-Past-Decl
   John-Nom  smart-L  go-Past-Decl

(7.4)  
       Mary-Nom  pretty-L  ci-Past-Decl
       ‘Mary became pretty’

       John-Nom  smart-L  ci-Past-Decl
       ‘John became smart’

•  (e)ci-, but not ka-, is compatible with a measure phrase (MeasP)

(7.5)  
       That stick-Nom  (3 cm)  long-L  ci-Past-Decl /  short-L  ci-Past-Decl
       ‘That stick became (3 cm) longer / shorter’

       That stick-Nom  3 cm  long-e  go-Past-Decl  short-L  go-Past-Decl

•  Note that with (e)ci-, the MeasP only denotes the difference between two states. For example, (7.5a) does not mean that the length of ku maktayki- ‘that stick’ is 3cm: it means that the difference between the length of the stick before the change of state and the length of the stick after the change of state is 3cm.  

•  Note further that in Korean, a MeasP is compatible with a dimensional adjective ONLY WHEN there is a contextually salient standard of comparison. In this case, the MeasP also denotes the difference between the objects of comparison.

(7.8)  
   (Comparing this stick with that stick)
   ku maktayki-ka  (i maktayki-pota)  3 phithu  kil-ta.
   that stick-Nom  (this stick-than)  3 feet  long-Decl
   ‘That stick is 3 ft. longer (than this stick)’

•  When combined with a gradable adjective, -(e)ci, but not ka-, allows a comparative clause headed by pota ‘than’ clause

(7.9)  
   That stick-Nom  one hour before-than  long-L  ci-Past-Decl  long-L  go-Past-Decl
   ‘That stick became longer than it was one hour ago’

•  With adjectives, (e)ci- and ka- can co-occur in that order:

(7.10)  
   Ku kang-i  kiph-e  ci-e  ka-ess-ta.
   That river-Nom  deep-L  ci-L  go-Past-Decl
   ‘That river became deep’

•  When ka- is present, (e)ci- does not allow any MeasP:

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2 To express the meaning of ‘John became 6 feet tall’, Korean uses a noun denoting a dimension and a lexical verb toy- ‘become’, which is different from (e)ci. Therefore Korean counterpart to the abovementioned English sentence looks like ‘John’s height became 6 feet’ (using a lexical verb rather than (e)ci-)
(7.11) a. Ku kang-i 3m kiph-e ci-ess-ta.
That river-Nom 3m deep-L ci-Past-Decl
‘That river became 3m deeper’

That river-Nom 3m deep-L ci-L go-Past-Decl

That river-Nom 3m deep-L ci-L go-Past-Decl

- While ka- cannot directly combine with a non-dimensional adjective (see (7.3)), it can combine with a non-dimensional adjective when that adjective first combines with (e)ci-:

Mary-Nom pretty-L ci-L go-Past-Decl

John-Nom smart-L ci-L go-Past-Decl

7.2. Semantics of adjectives (a simplified version):

- Two types of adjectives: dimensional vs. non-dimensional
  o Dimensional adjectives: adjectives whose scale can be measured (depth, height, weight…); they are associated with a scale that has subintervals and a “relative or variable” telos,\(^3\)
  o Non-dimensional adjectives: adjectives whose scale cannot be measured (beauty, intelligence…); they are Non-dimensional adjectives: are associated with a scale that lacks subintervals and with an “absolute” telos (eg. Mary is pretty / Marry is not pretty).

- Korean does not have any overt comparative morpheme corresponding to -er in English, therefore we assume a null (covert) comparative morpheme for this language.

- When a dimensional adjective combines with the comparative morpheme, the adjective has an absolute rather than a relative telos; eg. when we say John is taller than Bill, what matters is whether the degree of John’s tallness is bigger than the degree of Bill’s tallness or not, and not how much the degree of John’s (or Bill’s) tallness is.

- A MeasP with the comparative morpheme merely denotes the gap or the difference between two states (Schwarzschild 2005); e.g. for example, when we say John is 3 inches taller than Bill, the MeasP “3 inches” denotes the difference between John’s tallness and Bill’s tallness.

\(^3\)English dimensional adjectives are compatible with a MeasP, but Korean dimensional adjectives. We assume that this is because only in English dimensional adjectives are ambiguous (Schwarzschild 2005). To express the meaning of (i-a), Korean uses a noun denoting a dimension, as in (i-c).

(i) a. That stick is 6 feet long.
b. ??ku maktayki-ka 6 phithu kil-ta.
   that stick-Nom 6 feet long-Decl
c. That stick’s length is 6 feet.
7.3. Proposal

• (e)ci- and ka- are two distinct functional heads of directed motion constructions; each take a different type of path arguments.
  - (e)ci- takes a path argument which DOES NOT have any subintervals; therefore it has an absolute telos.
  - ka- takes a path argument which DOES have subintervals; therefore it has a ‘relative’ telos.

• Since (e)ci- combines with a path argument which does not have any subintervals, it takes a non-dimensional adjective as its path argument

• However, a dimensional adjective can appear with (e)ci-. To account for this case, as proposed in Zubizarreta and Oh (2007) and Lim and Zubizarreta (in press), a dimensional adjective can appear as a path argument of (e)ci- only when it combines with a (covert) comparative morpheme. The reason is that the comparative morpheme provides an “absolute telos”; therefore it can then function as a path argument of (e)ci-. This also explains why a MeasP is compatible with (e)ci-.

• As expected, since ka- takes a path argument which has subintervals, it can take a dimensional adjective (whose scale has subintervals) and it cannot take a non-dimensional adjective (whose scale does not have any subinterval). Furthermore, since the comparative morpheme provides an absolutete telos, -ka cannot take as its path argument a dimensional adjective combined with the comparative morpheme (and this is also why ka- cannot cooccur with a MeasP or than phrase).

• Supporting evidence: ka- is also compatible with some degree achievements. This is as expected since degree achievements are associated with a scale with subintervals and a relative telos.

(7.13) Degree achievements (Not many examples, but we can still find some on Google)
  a. Noiun-uy mom-un cemcem pespesha-key
     Old.man-Gen body-Top gradually stiff-key
     el-e ka-ess-ta / ??el-e ci-ess-ta.
     freeze-L go-Past-Decl / freeze-L ci-Past-Decl
     ‘The old man’s body was on the way to gradually freeze stiff’
     => ‘The old man’s body was gradually freezing stiff’
     (http://www.peaceone.net/heart/influence/101/111.htm)
  b. ...ttukewun cikwu-nun chachum sik-e ka-ess-ta. / ??sik-e ci-ess-ta.
     Hot earth-Top gradually cool-L go-Past-Decl / cool-L ci-Past-Decl
     ‘The hot earth was on the way to gradually being cooled’
     => ‘The hot earth was gradually cooling’
     (http://www.animalpicturesarchive.com/animal/Description/reptile/dinosaur/)

• Variable telicity with (e)ci- with an adjectival path argument

4 We think the term ‘degree achievement’ (Dowty 1979, among others) is somewhat misleading, and should be renamed as something like ‘verbs with scales’ or ‘verbs with variable telicity’, but since the term is very commonly used in the literature, we simply adopt this term.
Soup-Nom 10 min. for / 10 min. in cool-L ci-Past-Decl 
‘The soup cooled ?for 10 minutes / in 10 minutes’
b. Soystengeli hana-ka ??10 pwun tongan / 10 pwun maney napcakha-e ci-ess-ta. 
Chunk.of.metal-Nom 10 min. for / 10 min. in flat-L ci-Past-Decl 
‘The chunk of metal became flat ??for 10 minutes / in 10 minutes’
c. (In a car racing) 
Twu cha sai-uy kankyek-i 10 pwun tongan / ??10 pwun maney 
Two car between-Gen gap-Nom 10 min. for / 10 min. in 
nelp-e ci-ess-ta. 
wide-L ci-Past-Decl 
‘The gap between two cars became wider for 10 minutes / ??in 10 minutes’

Lim and Zubizarreta (in press) adopts Kennedy and Levin (2008), explaining examples in (7.28) as follows:
- (7.28a): the path is a dimensional adjective with an open scale, but the endpoint of the scale can easily be given contextually, resulting in variable telicity (telicity is determined depending on whether there is a contextually salient endpoint or not)
- (7.28b): the path is a non-dimensional adjective, and the endpoint is given lexically, resulting in telic interpretation
- (7.28c): the path is a dimensional adjective with an open scale, resulting in atelic interpretation

However, this means that the nature of the scale of the adjective still affects the telicity of the entire construction headed by (e)ci-: how can this be done, if the adjectival core combined with (e)ci- always has an absolute reading (given either by the adjectival semantics or by the comparative morpheme)?

A (tentative) proposal:
- Two different levels of telos:
  - Lexical telos: determined by the semantics of adjectives
  - Compositional telos: determined by the composition of lexical items and functional items, such as pre-/postpositions and comparative morpheme, and the head of the directed motion construction (as we will see below)
- A non-dimensional adjective is interpreted as having an absolute reading, and its scale does not have any subintervals. Therefore it can directly combine with (e)ci-; without any help of a functional morpheme; there is no ‘mismatch’, figuratively speaking, between the lexical telos and the compositional telos. It is simply interpreted as an achievement (or immediate change of state).
- A dimensional adjective has a relative reading, and therefore needs first to combine with the comparative morpheme to be a path argument of (e)ci-. Therefore, we have ‘mismatch’ between lexical telos and compositional telos. Compositionally it is regarded as having no subinterval (due to the comparative morpheme), but at the lexical level it is interpreted as having subintervals (due to its scale). This results in variable telicity.

We will return to this issue when we discuss another question: how to account for the cases where ka- co-occurs with (e)ci?
That river-Nom deep-L ci-L go-Past-Decl
‘That river was getting deep’
Mary-Nom pretty-L ci-L go-Past-Decl
‘Mary was getting pretty’

7.4. Extension of the proposal to verbal path arguments

Ka + verb:

- ka- is compatible with some achievement verbs, in addition to the degree achievement discussed earlier:

(7.15) Achievements not associated with degrees/scales
       John-Nom die-L go-Past-Decl
       ‘John was on the path to death’ => ‘John was dying’
       Play-Nom end go-Past-Decl
       ‘The play was on the path to end’ => ‘The play was coming to end’

- Except for the above achievement verbs, ka- generally does not take a verbal path complement:

(7.16) a. ??John-i mwulkoki-lul cap-a ka-ess-ta.\(^5\)
       John-Nom fish-Acc catch-L go-Past-Decl
       John-Nom people-Acc beat-L go-Past-Decl

- On the other hand, ka- is compatible with a physical path argument headed by P, whereas (e)ci- is not:

       John-Nom park-Loc/Dir go-Past-Decl
       ‘John went to/towards the park’
       John-Nom p ark-Loc/Dir-L ci-Past-Decl

(E)ci + verb:

- (e)ci- can take some classes of verbs as its path argument, which has the meaning related to the directed motion (Lim and Zubizarreta in press).

i) Verbs of change of state (discussed earlier)


\(^5\) This sentence is fine under the interpretation ‘John caught fish and went’, but this is the interpretation of covert coordination, which is not of interest here.
John-Nom bottle-Acc tiny-key destroy-Past-Decl
‘John destroyed the bottle (into tiny pieces)’

Bottle-Nom (tiny-key) destroy-L ci-Past-Decl
‘The bottle was destroyed (into tiny pieces)’

John-Nom house-Acc build-Past-Decl
‘John built the house’
c. Cip-i (noph-key) cis-e ci-ess-ta.
House-Nom high-key build-L ci-Past-Decl
‘The house was built high’

ii) Verbs of transfer/change of location

Mary-Nom John-Dat apple one-Acc give-Past-Decl
‘Mary gave John an apple’
Apple one-Nom John-Dat give-L ci-Past-Decl
‘An apple was given to John’

John-Nom cup-Acc trashcan-Loc discard-Past-Decl
‘John dumped/threw away the cup into the trashcan’
Cup-Nom trashcan-Loc discard-L ci-Past-Decl
‘The cup was dumped/thrown away into the trashcan’

• An observation: difference between PP argument in the ka-construction and in the (e)ci-construction:

John-Nom park-Loc go-Past-Decl
‘John went to the park’
Cup-Nom trashcan-Loc discard-L ci-Past-Decl
‘The cup was dumped/thrown away into the trashcan’

• In (7.22a) cengwen-ey ‘to the park’ (literally: ‘at the park’) is interpreted as path: even though only the endpoint, the park, is specified, it denotes the path along which John undergoes the directed movement.

• In (7.22b) ssuleykithong-ey ‘into the trashcan’ (literally: ‘at the trashcan’) is interpreted as the location where the change of state of the theme argument ends: the meaning of physical movement in (7.19b) is merely provided by world knowledge (or it is merely a kind of implicature)

• Below is supporting evidence that (e)ci- with the PP argument does not necessarily denotes movement along a physical path, indicating that change of state denoted by
(e)ci- does NOT have any subinterval, just like cases where (e)ci- takes an adjectival path. Let us assume that, this is because, just like adjectival complements of (e)ci-, verbal complements of (e)ci- do not have any subintervals, just like adjectival arguments.

(7.23) a. #John-i cengwen-ey kutaylo ka-ess-ta.
    John-Nom park-Loc as.it.is go-Past-Decl
    => cannot be interpreted as ‘John went to the park without moving’
    That seesaw-Nom that playground-Loc as.it.is discard-L ci-Past-Decl
    => can be interpreted as ‘That seesaw was abandoned/discarded at that playground without moving’

(7.24) (Scenario: a book was on John’s bookshelf. One day John said to his friend Mary, who was visiting him: “Now that book is yours.” Neither John nor Mary even touched the book)
Ku chayk-i Mary-eykey cwu-e ci-ess-ta.
That book-Nom Mary-Dat give-L ci-Past-Decl
‘That book was given to Mary’
=> Change of possession need not involve any physical movement of the possessee.

Back to ka-:

• We proposed earlier that ka- takes a path argument which has subintervals. However, ka- can co-occur with an achievement verbs such as those in (7.15) (repeated in 7.26), which lack subintervals:

    John-Nom die-L go-Past-Decl
    ‘John was on the path to death’ => ‘John was dying’
b. Yenkuk-i kkuthna ka-ess-ta.
    Play-Nom end go-Past-Decl
    ‘The play was on the path to end’ => ‘The play was coming to end’

• Note that this is the same problem as what we have in cases where ka- appears with (e)ci-, repeated in (7.26). In these cases, as in (7.25), ka- takes a verbal argument headed by (e)ci-.

    That river-Nom deep-L ci-L go-Past-Decl
    ‘That river was getting deep’
    Mary-Nom pretty-L ci-L go-Past-Decl

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6 One may make a weaker statement here: it is the semantics of a verb (that is whether the verb has the meaning related to the directed motion - that is change of state/location or transfer) that determines whether it can appear as a path argument of (e)ci- or not, but the point to be retained is that as a complement of (e)ci-, it is interpreted as a path without any subinterval (see also Beavers 2008, among others, for the homomorphism between verb and its path argument)

7 The notion of homogeneity may work at this point (Rothstein 2004, Borik 2006, among others), but here we will not pursue this line of research, which we still need to develop.
‘Mary was getting pretty’

- To analyze the cases where ka- appears with (e)ci-, let us return to the distinction between the lexical telos and the compositional telos, repeated below:
  - Lexical telos: determined by the semantics of the lexical item (e.g. adjectives)
  - Compositional telos: determined by the composition of a lexical item and a functional item.

- We tentatively propose that the cases in (7.25) and (7.26) are also a kind of ‘mismatch’ between lexical telos and compositional telos.
  - The cases in (7.26): Even though the path complement of (e)ci- is an achievement verb, by combining with the head ci-, it becomes a directed motion construction, which can be compositionally interpreted as having subintervals, and therefore can appear as a path argument of ka-.
  - The cases in (7.25): For achievement verbs without ka-, we may assume a covert (e)ci- which takes a achievement complement such as die and end; the output in turn functions as the path of ka- (which is interpreted as a directed motion construction and have subintervals).

- The case of ka- with a physical path argument; e.g. (7.17a):
  - It involves a complex PP that denotes a path with subintervals; telicity depends on the choice of preposition. See Beavers 2008 for further discussion of PPs.

8. Conclusions

- Our analysis on resultatives and directed motion constructions support the mixed approach, or what we could call a Matching Analysis:
  - The l-syntactic structures, via their grammatical formatives, determine the aspectual properties of the construction. E.g. the (semi) functional formatives that head the directed motion construction, such as ka, (e)ci, or a comparative morpheme, determine the aspectual properties of the path argument of a resultative construction (whether it has sub-intervals or not and an absolute or relative endpoint).
  - The lexical semantics of a substantial lexical item (namely, its aspectual properties) must match the aspectual properties imposed by the l-syntactic structure.

- Cross-linguistic variations of resultatives:
  - Different languages may use different syntactic constructions to express the same type of general (resultative) meaning:
    - Resultative complementation structures: both Korean and English use with COS verbs.
    - Syntactic-compounding mechanism: English uses it to compose resultative meaning with activity denoting verbs (both transitives and intransitives)
    - Generalized Transformation that gives rise to a Simultaneous SVC: Korean uses it to compose resultatives with activity-denoting verbs (transitives only).
    - With transitive activity-denoting verbs, Korean uses clausal adjuncts to express a meaning akin to resultatives.
Japanese: uses resultative construction with COS (e.g. tiny destroy), but lacks SSVC with activity-denoting verbs (e.g. flat pound). Cf. Washio 1997.

Comparison with other works on Korean resultatives:
- Previous studies mainly focus on whether Korean resultatives are complements (Kim 1999, Wechsler and Noh 2001, among others) or adjuncts (Shim and den Dikken 2008, Ko 2011, among others), or whether Korean have both types of resultatives (Yeo 2006, Son 2008, among others)
- We support the last view, claiming that there are two types of resultatives. However, we claim that a subset of the resultatives that have been analyzed as complements are not complements at all, but modifiers of a Simultaneous Serial Verb Construction.

Selected References


