

Event Structure Composition in Korean Verbless Constructions by Particles and Verbal Nouns: Evidence from Newspaper Headlines*

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Gyu-Ho Shin (2018), *Event Structure Composition in Korean Verbless Constructions by Particles and Verbal Nouns: Evidence from Newspaper Headlines*. *Journal of Language Sciences* 25(3), 403-425. This study explored how event representations are composed in Korean verbless constructions by investigating 500 newspaper headlines. Four findings were noted. First, certain form-function pairings of particles were extensively used. Second, noun-final headlines occurred dominantly with *-i/ka/(n)un* and *-ey/eyse*, and particle-final headlines were proportionally more common with *-(u)lo* than the other particles. Third, verb types (copula vs. non-copulas) inferred from headlines differed by the first particle types. Lastly, the majority of non-copulas inferred from noun-final headlines with *-ey/eyse* and *-(u)lo* patterns consisted of verbal nouns with light verbs. Those findings suggest that event structures in Korean headlines can be constructed by combining particular form-function pairings of particles and headline-final verbal nouns, implying a possible motivation for event structure composition in Korean verbless constructions. (University of Hawai'i at Mānoa)

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1. Introduction

It is widely known that a verb plays a crucial role in constructing an

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event representation by specifying the number and type of arguments that should occur in a sentence and their relationship to each other(Chomsky, 1965; Fisher et al. 1991; MacDonal et al., 1994; McRae et al., 1997; Pinker, 1989). This verb-based approach to an event structure has been supported by numerous linguistic theories and psycholinguistic models(e.g., Altmann and Kamide, 1999; Garnsey et al., 1997; Trueswell et al., 1993), suggesting an important role for verbs in the construction of event representations.

However, the strong belief that a verb determines an event structure is problematic for sentences that do not contain a verb. Indeed, the predication of a property may be achieved with no verb expressed overtly(Nordlinger and Sadler, 2006; Rosén, 1996). Those arguments lead us to consider so-called a non-elliptical verbless construction, defined as a form-meaning pairing that lacks a verb altogether(Goldberg, 2006; Västi and Kittilä, 2014), as exemplified in (1-2)¹⁾.

(1) Huume-i-ta entis-tä enemmän
 drug-PL-PAR former-PAR more
 ‘Drugs even more than before.’ (Finnish; Västi and Kittilä, 2014)

(2) Un verdadero idiota aquel camarero
 ART real.Masc idiot.Masc that.Masc waiter.Masc
 ‘A real idiot that waiter.’ (Spanish; González-Rivera, 2011)

A sizeable body of literature documents instances of verbless constructions across languages such as Arabic(e.g., Al-Horais, 2006), Finnish(e.g., Västi and Kittilä, 2014), Hebrew(e.g., Hazout, 2010), Hungarian(e.g., Hetzron, 1970), Russian(e.g., Kopotev, 2015), Samoan(e.g., Clark, 1969), Spanish(e.g., González-Rivera, 2011), and Turkish(e.g.,

1) Abbreviation: ACC = accusative marker; ART = article; DIR = directional marker; GEN = genitive marker; INC = inclusive marker; LOC = locative marker; LV = light verb; Masc = masculine; NM = nominaliser; NOM = nominative marker; PAR = partitive marker; PL = plural marker; PR = propositive marker; PRS = present tense marker; PRS.PRG = present progressive marker; PST = past tense marker; RL = relativiser; SRC = source marker; TOP = topic marker

Curnow, 2000). Yet the majority of discussions so far have been made in relation to copula-less sentences by supposing the existence of copulas (e.g., Doron, 1983; González-Rivera, 2011; Kopotev, 2015). Deletion of copulas in a sentence changes little in its meaning, thus allowing for the omission of those verbs particularly when expressing static events (e.g., Stassen, 1994). This speculation seems to be a reminiscent of verb-based accounts for the composition of event representations.

A crucial property of a non-elliptical verbless construction is, however, that an event representation is not naturally ascribed to a verb because it is non-existent in a sentence (Goldberg, 2006). It is thus impossible to define argument roles in relation to any verb which does not exist in a sentence (Västi and Kittilä, 2014). We may suppose a null verb to account for the semantics of a verbless construction, but as Goldberg (2006: 9) argues, “such a move seems motivated only by the desire to maintain the position that the main verb determines the overall form and meaning of a sentence”. This leads us to examine another possible factor(s) for the composition of event representations in verbless constructions.

The current study investigates how event representations can be composed in Korean verbless constructions, which is an under-studied area. We pose specific questions as to how event structures are formed and which factors contribute to the composition of event schemata in Korean non-elliptical verbless constructions. For this purpose, we adopted newspaper headlines as a typical example of verbless constructions.

2. Background Knowledge

2.1. Newspaper Headlines in Korean

Headlines are defined as a summary-type linguistic unit which seeks an optimal ratio between contextual effects and processing efforts (e.g., Dor, 2003). Headlines are usually constructed to include as much information and creativeness as possible (Dor, 2003; Ifantidou, 2009) under the severe

limitation of space(Kronrod and Engel, 2001). To compose event structures, headlines adopt various linguistic devices such as grammatical cases and adpositions, independent of a verb(Västi and Kittilä, 2014).

Characteristics of Korean headlines have been investigated(e.g., Jeong, 2006; Ju and Yeon, 2015; Kang, 2008; Kim, 2003; Kim, 2013; Noh, 2010) mostly to seek an explanation of the features of headlines outside of morpho-syntax. Only a few studies have argued characteristics of Korean headlines based on morpho-syntactic properties(e.g., K. Kim, 2016; R. Kim, 2016). K. Kim(2016), *inter alia*, provides relevant insights into Korean newspaper headlines in comparison to English headlines. He found that preferred semantic structures were different from each other: ‘who/what does something’ in English, and ‘something happens’ in Korean. Moreover, whereas English headlines tended to preserve a full sentence structure with canonical word order, Korean headlines tended to have reduced sentence structures via an extensive use of particles with bare nouns at the end. He explained the different strategies used by the two languages in terms of typological differences: English, as an SVO language, must preserve the verb because its early occurrence makes it crucial to understand the rest of the sentence. In contrast, as an SOV language, Korean can delete or nominalise a verb more easily.

Although K. Kim(2016) opens the door to understanding strategies for the construction of headlines in Korean, it is not entirely clear how and to what extent linguistic devices in Korean influence the formation of event structures of Korean headlines. Moreover, there is little research particularly focusing on non-elliptical verbless constructions in Korean. Most analyses of verbless sentences have focused on verb ellipsis or gapping in conjunctive constructions as in (3)(Sohn 1999; also see An 2016 for the parasitic deletion process). They differ from non-elliptic verbless constructions in that the former happen only when the same verb exists within the same sentence or paragraph whereas the latter does not necessitate a verb from the outset. Those gaps create the need to investigate the possible contributors to event structures, other than verbs, in Korean non-elliptical verbless constructions. We now focus on particles

and verbal nouns as possible contributors to the formation of event structures of Korean headlines, which has not been investigated clearly in the previous studies with respect to verbless constructions in Korean.

- (3) mina-nun mikwuk-ulo (~~ka-ss-ko~~), minswu-nun yengkwuk-ulo
 Mina-TOP America-~~DIR~~ (~~go-PST-and~~), Minswu-TOP England-~~DIR~~
 ka-ss-ta.
 go-PST-SE
 'Mina (~~went~~) to the United Status (~~and~~) Yengswu went to England.'

2.2. Possible Contributors to Event Structure Composition in Korean Headlines

2.2.1. Particles

Particles in Korean are defined as postpositional function words indicating grammatical information to which they are attached (Sohn, 1999). Korean employs particles for identifying the syntactic positions of nominal elements and their role within a sentence. Speakers of Korean appear to integrate the grammatical and semantic information encoded in these local grammatical cues with the structural characteristics of the entire sentence (e.g., Kim, 1999), which is parallel to what other SOV languages operate (e.g., Kamide and Mitchell, 1999). Particles may thus allow speakers of Korean to effectively draw upon information of an event (e.g., Choi, 2005), allowing for reduced structures in Korean headlines.

Of various particles in Korean, some particle types serve as a basis for composing simple sentence structures (Choo and Kwak, 2008; Sohn, 1999)². The first type involves a topic marker *-(n)un* and a nominative case

2) *-(l)ul* is also one of the basic particles in this respect, expressing an accusative case by indicating that a noun phrase to which it is attached is the direct object of a transitive verb (Sohn, 1999). However, we do not consider *-(l)ul* here afterwards because of a straightforward relation of its form and the function encoded in this particle (Choo and Kwak, 2008; Sohn, 1999). To preview, the corpus analysis revealed a perfect match between the form and the function of *-(l)ul* with respect to the frequency of use (44 cases in total; 5.61% of the overall particle use).

marker *-i/ka*. *-(n)un* expresses a topic(Seo, 1996; Sung, 1985) as in (4), most of which corresponds to old information in a given context(Ko and Kwu, 2008). *-i/ka* usually marks a subject in a sentence by expressing new information in the context(Choo and Kwak, 2008) as in (5).

(4) onul-un cengki hyuil-i-ta.
 today-TOP regular holiday-be-SE
 'Today is a regular holiday.'

(5) i umsik-i masiss-ta.
 this food-NOM delicious-SE
 'This food is delicious.'

However, the distinction between *-i/ka* and *-(n)un* is not entirely clear due to functions they share. For example, *-i/ka* can be used to mark a topic, and *-(n)un* can mark a subject(e.g., Sohn, 1980). They also work together when expressing focus, exclusiveness, genericity, or degree of power in information delivery(see Shin, 2001 for more information on this issue), rendering it difficult to clarify the inherent nature of each particle.

The second particle type of interest is locative markers *-ey* and *-eyse*. *-ey* is found in situations where a speaker mentions either a static place or time as in (6). *-ey* also indicates a goal 'to' particularly in conjunction with movement verbs(e.g., *ka-* 'to go')(Choo and Kwak, 2008), and covers a broad range of functions such as instrument, norm, addition, an agent in passives, and an inanimate object denoting 'local'(Lee, 2004; Sohn, 1999; Lee, 1981). Another locative marker *-eyse* refers to a place where dynamic action takes place as in (7) and to a source 'from' as in (8)(Choo and Kwak, 2008; Sohn, 1999). The dynamic locative and the source functions are distinguishable by verb types: activity verbs(e.g., *mek-* 'to eat') are combined with the former and movement verbs(e.g., *ka-* 'to go') with the latter(Choo and Kwak, 2008).

(6) Mina-nun achim-ey cip-ey iss-ess-ta.
 mina-TOP morning-LOC house-LOC exist-PST-SE
 'Mina was in the house in the morning.'

(7) siktang-eyse umsik-ul mek-ess-ta.
 restaurant-LOC food-ACC eat-PST-SE
 '(I) ate food in the restaurant.'

(8) hakkyo-eyse cip-ey ka-ass-ta.
 school-LOC house-LOC go-PST-SE
 '(I) went to the house from the school.'

The third type of particles is *-(u)lo*, expressing mainly directional or instrumental functions (Choo and Kwak, 2008; Kim and Ko, 2009; Sohn, 1999; see also Jeong, 2010 for discussion about the prototypical function of *-(u)lo*). As a directional particle, *-(u)lo* indicates 'to(wards), for' which denotes a place/location as in (9). It can embrace other functions such as choice and change of status (Choo and Kwak, 2008). As an instrumental particle, *-(u)lo* indicates means as in (10), also denoting manner, material, cause/reason, and qualification (Ko and Ku, 2008).

(9) John-i hakkyo-lo ka-ass-ta.
 John-NOM school-DIR go-PST-SE
 'John went to(wards) school.'

(10) i peyn-ulo ss-eyo.
 This pen-INS write-SE
 'Write with this pen.'

The three types of particles, *-i/ka* and *-(n)un*, *-ey* and *-eyse*, and *-(u)lo*, are polysemous in that each form can indicate various functions. *-i/ka* expresses nominative function and *-(n)un* expresses topic function but they overlap each other frequently. *-ey* and *-eyse* have various

functions regarding location encoded in each form. *-(u)lo* has at least two representative functions in one form. One question then arises as to how the polysemy encoded in each particle type observed in a complete clause is manifested in reduced structures such as headlines.

2.2.2. Verbal Nouns

Verbal nouns are classified as a special type of nouns (Chae, 1997) that, like nouns in general, can be case-marked as in (11), can be modified by adjectives as in (12), but are not compatible with a nominaliser as in (13) and cannot take tense and aspect markers as in (14).

- (11) pihayngki-ka chaklyuk-hay-ss-ta. / chaklyuk-ul hay-ss-ta.
 airplane-NOM land-do-PST-SE / land-ACC do-PST-SE
 ‘The airplane landed.’ / ‘The airplane did land.’

- (12) pihayngki-ka sengkongcekin chaklyuk-ul hay-ss-ta.
 airplane-NOM successful chaklyuk-ACC do-PST-SE
 ‘The airplane did successful land.’

- (13) *chaklyuk-um, *chaklyuk-ki.
 *land-NM, *land-NM
 ‘land (noun)’

- (14) *chaklyuk-ass-ta, *chaklyuk-nun-ta
 *land-PST-SE, *land-PRS.PRG-SE
 ‘land (with the past tense or the present progressive aspect)’

Verbal nouns are responsible for argument roles in a sentence with their own argument structures (e.g., Chae, 1997; Miyamoto, 2000; see also Park, 2013 for a debate on the status of verbal nouns). To take a simple example, the verbal noun *kongpwu* ‘study’ as in (15–16) implies an agent role and a theme role, each of which is case-marked. Note that *kongpwu* ‘study’ exerts influence on argument roles, independent of the existence of a light verb *ha-* ‘to do’.

(15) *yengswu-ka hankul-ul kongpwu-ha-n-ta.*
yengswu-NOM Korean-ACC study-do-PRS-SE
 ‘Yengswu studies Korean.’

(16) *yengswu-ka hankul-ul kongpwu cwung-ey ...*
yengswu-NOM Korean-ACC study process-LOC
 ‘while Yengswu studies Korean ...’

Light verbs, such as *ha-* ‘to do’, *toy-* ‘to become’, *cwu-* ‘to give’, and *pat-* ‘to receive’, are defined as verbs which are thematically incomplete so have to be combined with verbal nouns to become regular predicates (Chae, 1997; Hwang and Park, 2014). Light verbs do not have their own argument structures (e.g., Park, 2013), so they must depend on verbal nouns since they are defined on the basis of verbal nouns. It thus becomes clear that, in the case of a combinatorial predicate of verbal nouns and light verbs, verbal nouns are the core of event representations in full clauses. Less clear is whether verbal nouns are also a core for the construction of event structures in headlines.

3. The Present Study

This study explored how event representations are composed in the absence of verbs in Korean by assessing the degree to which three particle types (*i/ka/(n)un*, *-ey/eyse*, and *-(u)lo*) and verbal nouns affect event representations of Korean newspaper headlines. We predicted that an event structure in a headline can be inferred from particular form-function associations of particles and the combination of those particles and verbal nouns which are placed at the final position of the headline.

3.1. Methods

A corpus was created from 500 declarative headlines from the five most

popular newspapers in South Korea (*Chosun*, *Joongang*, *Dong-A*, *Hankyoreh*, and *Kyunghyang*). All instances were obtained online through the Internet homepage of each newspaper company, with publication taking place from the 1st of September, 2016 to the 4th of January, 2017. The headlines were collected from four topic areas in equal proportions: 1) politics-economy, 2) international affairs, 3) society-culture, and 4) entertainment-sports-opinion.

For the creation of the corpus, headlines involving verb coordination as in (17) or inversion as in (18) were excluded. Headlines with nominalised verbs as in (19) were also not included since event structures can be expressed by the verbal root. In addition, headlines without particles as in (20) were excluded since those instances cannot measure the influence of particles on the composition of event representations. The exclusion process was prior to the actual selection of each headline instance, so the number of headlines which was taken into account was 500.

- (17) cengchi-to kwake-lo, kyokwase-to kwake-lo ka-n-ta
 politics-INC past-DIR, textbook-INC past-DIR go-PRS-SE
 'Politics (goes) to the past, and the textbook also goes to the past'
- (18) ka-ca, olay-toy-n milay-lo
 go-PR, old-become-RL future-DIR
 'Let's go to the future which is old'
- (19) thanhayk minsim-ey saykkallon tesssuywu-ki
 impeachment public.sentiment-LOC McCarthyism overlay-NM
 'Overlaying public sentiment of impeachment with McCarthyism'
- (20) cwuka kongsi cen taypi 35% phoklak
 stock.price official.announcement before contrast 35% nosedive
 'Stock price has nosedived by 35% contrastively before official
 announcement'

All instances in the corpus were analysed in terms of these four aspects: 1) the number of events per one headline (a single event or complex events), 2) use of individual particles by function, 3) the final component types of headlines such as a noun as in (21), a particle as in (22), and an adverb as in (23), and 4) possible verbs to be inferred for complete sentences in cases where the first particle in single-event headlines was related to the three particle types³⁾.

- (21) khwelkhem-un mikwuk IT-uy caconsim
 khwelkhem-TOP America IT-GEN pride
 'Qualcomm (is) the pride of American IT'
- (22) nokhia silcikca-nun cwungsokiep-ulo
 Nokia unemployed-TOP small.business-DIR
 'The unemployed in Nokia (go) to small businesses.'
- (23) sinla myenseycem, 7wi-lo kkengchwung
 Shilla duty.free.shop, 7rank-DIR up
 'Shilla duty free shop, (jumps) up the 7th rank'

3.2. Results

Most headlines encoded a single event (452 cases; 90.4%) and included 1 or 2 particles (444 cases; 88.8%). Of 765 particles which consisted of the 500 headline instances, the most frequently used particle form was *-ey* (201 cases; 26.27%), followed by *-(u)lo* (164 cases; 21.44%), *-(n)un* (108 cases; 14.12%), *-eyse* (88 cases, 11.50%), and *-i/ka* (52 cases; 6.80%). They were the top 5 frequent particle forms used in the data, making up more than three-fourth (613 cases; 80.13%) of the entire use of particles

3) Two native speakers of Korean coded the data for this purpose. The agreement rates between the coders on inferring verbs from the noun-final headlines and inferring non-copular verbs from headlines with *-ey/eyse* and *-(u)lo* were 94.76% (217 cases out of 229) and 95.62% (131 cases out of 137), respectively. The disagreement cases between the coders were resolved after the coders went over those cases.

in the data. As for particle function, locative was the most frequent one (143 cases; 18.69%), followed by topic (108 cases; 14.12%), directional (80 cases; 10.46%), instrumental (53 cases; 6.93%), and nominative (52 cases; 6.80%). Those top 5 most frequent functions occupied more than half (436 cases; 56.99%) of the entire use of particles in the data.

Table 1. Number and Proportion of Functions of *-ey*, *-eyse*, and *-(u)lo* Used in 500 Headline Instances

Form	Function	#	%
<i>-ey</i>	locative	79	39.30
	dative	32	15.92
	goal	26	12.94
	causal	20	9.95
	connective	1	0.50
	others	43	21.39
	SUM	201	
<i>-eyse</i>	locative	60	68.18
	source	28	31.82
	SUM	88	
<i>-(u)lo</i>	directional	80	48.78
	instrumental	53	32.32
	causal	13	7.93
	others	18	10.98
	SUM	164	

Those particles are polysemous as mentioned earlier, but there was nonetheless a strong connection between individual particles and their functions. To illustrate, *-(n)un* was used only to indicate a topic, and *-i/ka* was used only for a nominative case, implying the straightforward form-function relationship of each particle. *-ey*, *-eyse*, and *-(u)lo* also showed usage skewed towards one function as illustrated in Table 1: *-ey* and *-eyse* were used mostly for indicating a location, and *-(u)lo* was used largely for demoting a direction. The findings suggest form-function associations of particles which are frequently used in headlines, possibly affecting specific types of event structures for headlines.⁴⁾

As for the final component involving single-event headlines with *-i/ka/(n)un*, *-ey/eyse*, and *-(u)lo* as the first particle type, the most frequent final component of the headline instances was a noun (229 cases; 75.33%), followed by a particle (66 cases; 21.71%) and an adverb⁵⁾ (9 cases; 2.96%). The number and the proportion of headlines by final component types as in Table 2 show that, whereas the noun-final type made up the majority of final items in the *-i/ka/(n)un* and *-ey/eyse* patterns, the headlines including *-(u)lo* employed the particle-final type proportionally more often (43.48% of all use in *-(u)lo*) than the others (15.12% of use in *-i/ka/(n)un* and 16.43% of use in *-ey/eyse*).

Table 2. Final Components of Headlines for the First Particle Types

First particle type	Final component type (# (%))		
	Noun	Particle	Sum
<i>-i/ka/(n)un</i>	73 (84.88)	13 (15.12)	86
<i>-ey/eyse</i>	117 (83.57)	23 (16.43)	140
<i>-(u)lo</i>	39 (56.52)	30 (43.48)	69

We then inferred possible verbs that were required to create complete sentences from the noun-final headlines. The proportion of verb types predicted from the headlines differed in accordance to the first particle types as in Table 3.

Table 3. Verb Types Inferable from Headline-final Nouns by the First Particle Types

First particle type	Verb type (# (%))			Sum
	Copula <i>i-</i>	Non-copula	Existential <i>iss-</i>	
<i>-i/ka/(n)un</i>	52 (71.23)	21 (28.77)	-	73
<i>-ey/eyse</i>	9 (7.69)	100 (85.47)	8 (6.84)	117
<i>-(u)lo</i>	2 (5.13)	37 (94.87)	-	39

4) In consideration of readability, every particle type (*-i/ka/(n)un*, *-ey/eyse*, and *-(u)lo*) represents a mapping between its form and the most frequently used function hereafter.

5) Adverb-final headlines will not be considered hereafter due to the small portion in ending types and the simplicity of observation.

Most of the headline instances with *-i/ka/(n)un* have implied copular verbs (71.23% of all inferred verb types) as in (21). In contrast, the headlines with *-ey/eyse* and *-(u)lo* tended to imply non-copulas (85.47% and 94.87% of all inferred verb types) as in (24-25).

(24) mi meylilayntucwu-ey 'hankwuklo' phyociphan selchi
 USA Maryland.state-LOC 'Korea Road' sign installation
 'The 'Korean Road' sign (is installed) in the state of Maryland, USA.'

(25) hankwukin 'salm-uy cil' 47wi-lo 7kyeytan halak
 Korean 'life-GEN quality' 47rank-DIR 7step decrease
 'Korean's quality of life (decreased) by 7 steps to 47th.'

Of the non-copulas inferred from the headlines with *-ey/eyse* and *-(u)lo*, the majority of verbs were light verbs as shown in Table 4. In addition, every headline with an assumed light verb ended with a verbal noun. The event types expressed by verbal nouns ranged from static as in (26) to dynamic as in (27) or abstract as in (28).

Table 4. Types of Non-copulas Inferable from Headline-final Nouns by the First Particle Types *-ey/eyse* and *-(u)lo*

First particle type	Verb type (# (%))		Sum
	Light verb	Heavy verb	
<i>-ey/eyse</i>	73 (73.00)	27 (27.00)	100
<i>-(u)lo</i>	33 (89.19)	4 (10.81)	37

(26) mi-se pangwipi pwuntankum kwanlyen
 America-LOC defense.cost share.of.the.expenses regarding
 pwucekcel palen nonlan
 impropriety statement controversy
 'A controversy over an improper statement regarding the share
 of the defense cost in USA'

- (27) cengpwu eselphun kwucococeng, haywun yuktay
 government sloppy restructuring, shipping six.major
 kangkwuk-se pyenpang-ulo chwulak
 strong.country-SRC border-*DIR* fall
 ‘The Government’s sloppy restructuring, shipping falling from the
 major 6 strong countries to the border’
- (28) pocungcanayk 84%, cwungsokiep·semin
 assurance.balance 84%, small.businesses·ordinary.people
 ciwen-ey cipcwung
 support-*LOC* focus
 ‘84% of the assurance balance focus on support for small
 businesses and ordinary people’

In the case of the particle-final headlines, the types of headline-final particles were skewed towards *-(u)lo* as illustrated in Table 5, and the presence of *-(u)lo* permitted verb inference to be either a heavy verb or a combination of a verbal noun and a light verb as in (29). Marginal observations notwithstanding, those findings imply the varied degree of the contribution of each particle type to evoking event structures.

Table 5. Final Particle Types in Particle-final Headlines by the First Particle Types

First particle type	Final particle type (# (%))				Sum
	<i>-(u)lo</i>	<i>-(l)ul</i>	<i>-ey/eyse</i>	others	
<i>-i/ka/(n)un</i>	9 (69.23)	2 (15.38)	1 (7.69)	1 (7.69)	13
<i>-ey/eyse</i>	11 (47.83)	5 (21.74)	5 (21.74)	2 (8.70)	23
<i>-(u)lo</i>	22 (73.34)	4 (13.33)	1 (3.33)	3 (10.00)	30

- (29) nokhia silcikca-nun cwungsokiep-ulo
 Nokia unemployed-*TOP* small.business-*DIR*
 ‘The unemployed in Nokia (go; move; etc.) to small businesses.’

4. General Discussion

Motivated by previous gaps regarding possible contributor(s) to evoking event structures of verbless constructions in Korean, the present study investigated Korean newspaper headlines as an example of verbless constructions(cf. Västi and Kittilä, 2014) specifically by focusing on particles and verbal nouns. Four major findings from 500 Korean headline instances were noted. First, despite their polysemy, certain form-function associations of particles were more frequently used than others: *-i/ka* for nominative, *-(n)un* for topic, *-ey* and *-eyse* for locative, and *-(u)lo* for directional. Second, the proportion of final component types differed in accordance to the first particle types appeared in headlines. To illustrate, noun-final headlines were prevalent in headlines that contained *-i/ka/(n)un* and *-ey/eyse*, but particle-final headlines were proportionally more often in headlines containing *-(u)lo* than the other two particle types. Third, types of verbs inferable from noun-final headlines⁶⁾ were related to types of particles used in the headlines. Whereas *-i/ka/(n)un* were associated with implied copular verbs, *-ey/eyse* and *-(u)lo* were associated with implied non-copular verbs at the end of headlines. Fourth, all instances involving light verbs inferable from noun-final headlines included verbal nouns as their final component, which indicates a possible contribution of verbal nouns to the formation of event representation in headlines. In this section, we discuss implications on each finding and

6) One reviewer argued against the verb-less nature of headlines in this study from the outset, raising a possibility that those headlines had been created originally with verbs and then the verbs were deleted later. Of course we do not know how they were 'born' since we usually encounter them after they are published or posted. The point here is, however, that we intentionally chose headlines without verbal elements, and that those headlines could infer verbs which fit into the attributes of the headlines (not just recovering putative verbs which was believed to exist in the headlines). Considering the nature of headlines(i.e., maximum informativeness under space limitation), what verb inference showed implies the ability of verb-less headlines to deliver considerable amount of information, which mirrors the employment of structural cues in sentence processing by speakers of Korean(e.g., Kim, 1999). Extending this issue, it would be interesting to compare the headline data in this study with those including verbal elements, which awaits future research.

diagnose the role of particles and verbal nouns in the composition of an event structure of a verbless construction in Korean.

We found that certain form-function associations of particles occurred more frequently than others. The skewedness of particle use suggests possible types of event representations that Korean newspaper headlines generally constitute. For example, the majority of single-event headlines with *-i/ka/(n)un* tended to denote a state of affairs in which ‘X has the property Y’, implying an unstated copular verb. In other words, the inclusion of *-i/ka/(n)un* may be crucial of the projection of this type of event structures. The ‘semantically bleached’(Kopotev, 2015) nature of copulas may contribute little to the formation of event structures, possibly leading to their omission when composing headlines.

However, the *-ey/eyse* and *-(u)lo* patterns do not obviously accord with the idea of copula deletion⁷⁾. The noun-final headlines involving the two particle types mainly inferred light verbs which elicited diverse event types with the aid of verbal nouns. More importantly, all of the headlines with assumed light verbs ended with verbal nouns. Those findings indicate that, even in headlines, verbal nouns are responsible for argument roles with their own argument structures. Verbless constructions in this case are thus verb-less, but not predicate-less: predication can be performed by the combination of particles and verbal nouns (cf. Halle and Marantz, 1993). This observation is not what has been attested clearly in the previous studies regarding headlines and also verbless constructions in Korean.

The observations so far suggest that predication in Korean headlines can be performed by the combination of particles and verbal nouns. This further implies the role of form-function associations of particles and combination of particles and verbal nouns in the contribution of event

7) One additional report comes from the observation that some of the headline instances with *-ey/eyse* and *-(u)lo* as the initial particle types had bare nouns prior to the appearance of those particles, which is similar to (1). This case was not a focus on this study, but it might be interesting to check any difference between the headlines where the particles occur with the first noun and those where the particles do not occur with the first noun.

structures in Korean headlines. This line of thinking offers several directions for future inquiry, for example, regarding the impact of particle-noun association on the comprehension, processing, and acquisition of Korean sentences in accordance with particle types(cf. Lee and Jeong, 2014; Park, 2013; see also Won, 2013 for the consideration of case particles in defining basic sentence types in Korean for learners of Korean). It may also be meaningful to see if the same observation can be made in other contexts such as full newspaper articles or spoken genres(cf. Kim, 2003).

Another issue involves the factors relevant to the status of final components. The pattern involving *-ey/eyse* was associated more with noun-final headlines than that involving *-(u)lo* pattern, but the *-(u)lo* pattern occurred proportionally more frequently in particle-final headlines than the *-ey/eyse* pattern (see Table 2). One tentative interpretation regarding this contrast is that, all else being equal, *-(u)lo* (involving direction) by itself suffices to construct event structures whereas *-ey/eyse* cannot. This interpretation implies an asymmetry in the role played by particle types in contributing to the construction of event representations in Korean(cf. Kim, 2003), suggesting that the extent to which *-(u)lo* contributes to the formation of event representations may be larger than that of the other particles. Indeed, a highly frequent co-occurrence is found between the directional *-(u)lo* and predicates involving movement(e.g., Kim and Ko, 2009), which also supports the possible contribution of the directional *-(u)lo* to the composition of an event structure. It then leads to an empirical question of how to measure the degree of an impact generated by particles in the course of event structure formation, which awaits further research.

Taken together, the findings in this study encourage us towards an idea that an event structure in a Korean headline can be constructed by particular form-function association of particles and a combination of particles and verbal nouns placed at the final position of the headlines, as hypothesised earlier. This idea may then open a door to understanding factors for composing event representations of verbless constructions in

Korean. It may not be the case that event representations formulated in verbless constructions are exactly the same as those with full clauses containing corresponding finite verbs(cf. Västi and Kittilä, 2014). However, particles and verbal nouns can be influential in composing event representations of verbless constructions in Korean.

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