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An experimental investigation of event telicity in Korean*

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Kim, Kyumin. 2023. An experimental investigation of event telicity in Korean. *Linguistic Research* 40(1): 1-25. In Korean, either specific quantity or definiteness of an object is recognized to be associated with event telicity. However, there has been no clear account on which property is a crucial factor for telicity. This study conducted an acceptability judgment experiment testing to identify what property of an object is associated with telicity of an event VP under the conditions which differ by the presence or absence of the time adverbials (*-maney* 'in x time' and *-dongan* 'for x time'). 30 Korean native speakers were given target sentences with multiple choices to select, and the choices were made based on the potential interpretations of the sentences with different types of objects such as a bare noun or numeral classifier object. The target sentences also differ in the presence or absence of the time adverbials, i.e., *-maney* or *-dongan* adverbial. The results suggested that contrary to the current literature definiteness may not play a role in event telicity. As for specific quantity, it is not a necessary property of an object, but mere quantity of an object is found to be sufficient for a telic interpretation of an event. The results also showed that *-dongan* adverbials can have time span meaning not only with numeral classifier objects but also with bare noun objects. **(Chungbuk National University)**

Keywords telicity, event, object, quantity, definiteness, time adverbial

1. Introduction

Lexical aspect, often called inner aspect (Travis 2010) or situation aspect (Smith 1991), refers to internal temporal properties of the event described. The properties of an event are determined not by a verb alone, but by the verb and its internal argument (i.e.,

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VP) (e.g., Verkuyl 1972; Dowty 1979; Tenny 1994; Borer 2005). This paper is concerned with telicity of an event, one of the ways to describe the properties of an event VP. A telic VP is a VP that describes an event as having an endpoint as illustrated in (1a), while an atelic VP is a VP that describes an event as not necessarily having an endpoint, as illustrated in (1b). The endpoint of the event VP in (1a) corresponds to the moment when 'an apple' is all consumed; the event of eating an apple ends when no more apple is left. Note that the quantity of the object in (1a) is known (i.e., 'one') and thus it is clear when the event of eating an apple will be completed. On the other hand, in (1b), the quantity of the object 'apples' is not known, and thus no endpoint to the event is understood to have necessarily been reached.

(1) a. John ate an apple.
    b. John ate apples.

The association between specific quantity of an object and event telicity as shown in English has been well observed across languages (e.g., Ritter and Rosen 2000; Borer 2005). In a language such as Korean, however, it is not clear whether the relevant association is also true. Unlike English, Korean allows a bare noun object such as a bare singular noun object, as shown in (2). The bare singular noun *sakwa* 'apple' is ambiguous in its quantity, being singular or plural, and is ambiguous in definiteness (e.g., Kang 1994; Jo 2000; Lee 2000; Park 2011; Kim and Melchin 2018a, b), as indicated in the gloss in (2).

(2) YoungHee-ka sakaw-lul mek-ess-ta
    YoungHee-NOM apple-ACC eat-PAST-DEC
    'YoungHee ate an apple/apples/the apple/the apples'

In literature on lexical aspect in Korean, specific quantity or definiteness of an object is recognized as being associated with event telicity (e.g., Jo 2000; Lee 2000; Park 2011; C. H. Kim 2014). However, it is left unclear which property of an object is associated with telicity. For instance, for the same object such as a bare singular one in (2), specific quantity is proposed to be associated with event telicity in some studies, but in others definiteness is suggested to be a factor for telicity. The same question remains for different types of objects available in Korean such as bare plural or numeral classifier

noun phrase objects, as will be discussed in section 2. The current study aims to contribute to the question of which property of an object is associated with telicity of an event VP in Korean by investigating native speakers' judgment on the interpretation of telicity of event VPs with respect to different types of objects. Thus, unlike the previous studies on lexical aspect in Korean that pursue theoretical research relying on informal native judgment, the current research provides empirical evidence from experimental results that can contribute to the current debate on event telicity in Korean.

The rest of the paper is organized as follows. Section 2 discusses event telicity with respect to a property of an object and time phrase adverbials in English, which will serve as background to the discussion of the same issues in Korean in the same section. Section 3 discusses the design and results of the experimental study. Section 4 provides general discussion on the results of the experiment. Section 5 concludes the paper.

2. Event telicity

2.1 (A)telic event VP, objects, and time adverbials in English

In English and many other languages, specific quantity of an object matters for a telic event (e.g., Verkuyl 1972; Krifka 1992; Ritter and Rosen 2000; Borer 2005; MacDonald 2008). For example, 'an apple' as in (3a) is associated with a telic event VP, but a bare plural object such as 'apples' in (3b) is associated with an atelic event VP, as discussed in the previous section. The example in (3c) is an another instance of a telic event with an object that indicates a specific quantity: the numeral 'three' indicates the quantity of the object noun 'apples'.

(3) a. John ate an apple.
    b. John ate apples.
    c. John ate three apples.

There is well known diagnostic to identify whether an event is telic or atelic, namely time adverbials such as 'in x time' and 'for x time' phrases. This is illustrated in (4) below. The time span adverbial such as 'in three minutes' is compatible with a telic event that bears an endpoint, as shown in (4a) or (4c) but it is not compatible with an atelic

event as shown in (4b). In contrast, the duration adverbial 'for three minutes' is not compatible with a telic event as shown in (4a) or (4c), but is compatible with an atelic event as shown in (4b).

(4) a. John ate an apple (in three minutes/*for three minutes).
b. John ate apples (*in three minutes/for three minutes).
c. John ate three apples (in three minutes/*for three minutes).

In English, these time adverbials do not contribute to the aspectual composition (e.g., Borer 2005; Thompson 2006). In other words, unlike specific quantity of an object, they cannot turn a telic event into an atelic one or vice versa. Thus, they are modifiers of an event.

2.2 (A)telic event VP, objects, and time adverbials in Korean

Korean shows different types of objects than English such as a bare noun or a numeral classifier object. A bare noun includes either bare singular or bare plural nouns. These objects are illustrated in (5)-(6) respectively. In (5), the bare singular object *sakwa* 'apple' is illustrated with the verb *mek-* 'eat'. A bare singular noun in Korean is number neutral being interpreted either as singular or plural (e.g., Lee 2000; Kim and Melchin 2018b). Furthermore, a bare singular noun is unspecified for definiteness (e.g., Jo 2000, Lee 2000; Park 2011). Thus, a bare singular noun object such as in (5) can be ambiguous in both number and definiteness, as indicated in the gloss.

(5) Yonghee-ka sakwa-lul mek-ess-ta
Younghee-NOM apple-ACC eat-PAST-DEC
'Younghee ate an apple/apples/the apple/the apples.'

Korean also allows a bare plural object similar to English, as shown in (6). The object noun *sakwa* 'apple' is suffixed with the plural morpheme *-tul*. In the literature, there is a view that the plural morpheme *-tul* functions as a definiteness marking (e.g., Song 1975; Park 2008). On the other hand, there is another view in which *-tul* is not itself a marker of definiteness (e.g., Kim and Melchin 2018b; Park 2022). It is not the

concern of this paper to address this issue, but a relevant aspect of this debate to the current paper is that a bare plural object in Korean can mean definite in addition to indefinite, as shown in (6).

(6) Yonghee-ka sakaw-tul-lul mek-ess-ta
Yonghee-NOM apple-PL-ACC eat-PAST-DEC
'Yonghee ate the apples.' OR 'Yonghee ate apples.'

The last type of an object in Korean, different from English, is a numeral classifier noun phrase. Most of the current analyses on a numeral classifier noun phrase recognize three or four different types of numeral classifier phrases (e.g, Chae 1983; Choi 2001, 2011; C. Kim 2005; Ko 2007; J. Kim 2013). However, in terms of definiteness, they can be divided into two types – definite and indefinite ones, which is the main concern of this paper.[1] An example of a numeral classifier object with a definite meaning is illustrated in (7a), and an indefinite one is illustrated in (7b).[2] The surface difference between the two types is that in definite one (7a) accusative case appears on a classifier but in indefinite one (7b) accusative case appears on the noun.

(7) a. YongHee-ka sakwa sey key-lul mek-ess-ta
YongHee-NOM apple three CL-ACC eat-PAST-DEC
'YongHee ate the three apples OR three apples.'
b. YongHee-ka sakwa-lul sey key mek-ess-ta
YongHee-NOM apple-ACC three CL eat-PAST-DEC
'YongHee ate three apple (*the three apples).'

Regarding (in)definiteness, a numeral classifier phrase with a case marker on a classifier such as in (7a) has been reported to indicate either definite or indefinite

1 See the literature mentioned in the text for detail on three or four different types of numeral classifier noun phrases. I do not further question them for the purpose of this paper.

2 Traditionally, a N Num-CL-Acc type of classifier object such as in (7a) is considered as a basic order of numeral classifier noun phrase. On the other hand, the version of a numeral classifier object in (7b) is viewed as being derived by the movement of the N out of the VP which strands the numeral, the classifier and its trace behind (e.g., Park and Sohn 1993; C. Kim 2005). Under this view, the stranded numeral classifier is considered a floating quantifier. The issue of the derivational relation between the numeral classifier noun phrases such as in (9a) and (9b) is still under debate, which is not the concern of this paper and will not be further questioned.

meaning: ‘the three apples’ or ‘three apples’. On the other hand, a numeral classifier phrase with a case marker on a noun such as in (7b) has been identified to indicate an indefinite meaning only.

The discussion in this section thus far suggests that Korean has the types of objects different from English. Moreover, those objects in Korean denote a (specific) quantity or an (in)definiteness meaning, which has been recognized in the literature (e.g., Lee 1982, 2000, Kang 1994; Yang 1994; Jo 2000; Choi 2001, 2011; C. Kim 2005; Park 2011; J. Kim 2013; Kim and Melchin 2018b). The two semantic properties, a (specific) quantity and definiteness, are well-known central factors that are associated with event telicity across languages (e.g., Verkuyl 1972, 1993; Dowty 1979; Tenny 1994; Ritter and Rosen 2000; Borer 2005; Thompson 2006; MacDonald 2008; Travis 2010). If so, in Korean, it is predicted that the different interpretations in quantity or definiteness of numeral classifier noun phrase or bare noun objects may be associated with different telicity of VP. In the current literature on Korean, however, this prediction has not been seriously tested in the studies of lexical aspect. As for numeral classifier noun phrase objects, most of analyses have heavily focused on the syntax of different types of numeral classifier phrases of the different semantics (e.g., Chae 1983; Park and Sohn 1993; Choi 2001, 2011; C. Kim 2005; Ko 2007; Shin 2009; J. Kim 2013). Yet, it has not been questioned what contribution the different types of numeral classifier phrases make to telicity of VPs in accordance with their difference in definiteness. For bare noun objects, the situation is similar: it has not been seriously questioned what properties of a bare noun in the language is associated with telicity of an event VP. These issues are addressed in the experimental study discussed in this paper (section 3).

Another issue to be discussed with respect to event telicity in Korean is the behaviors of time adverbials. In English, as discussed in the previous section, time span and duration adverbials, being modifiers, can be used as tests to identity telicity of an event. Korean also has corresponding adverbials to those of English, and they are illustrated in (8)-(9). In (8), the time span adverbial marked with the postposition *-maney* appears, *o pun-maney* ‘in five minutes’. In the literature, *-maney* adverbial such as in (8) is mentioned to be compatible with a telic event VP that has a numeral classifier object such as ‘eating three apples’ in (8) (e.g., Lee 1982; Jo 2000; Park 2011; C. H. Kim 2014).

(8) YongHee-ka o pun-maney sakwa sey key-lul mek-ess-ta
YongHee-NOM five minute-in apple three CL-ACC eat-PAST-DEC
'YongHee ate (the) three apples in five minutes.'
(= 'YongHee finished eating (the) three apples in five minutes.')

As for a time duration adverbial 'for x time' in Korean, its interpretation with respect to numeral classifier objects is under debate. Consider the example in (9) that illustrates a duration adverbial marked with the postposition *-dongan.* In (9), the duration adverbial *o pun-dongan* 'for five minutes' appears with the event VP that has a numeral classifier object 'three apples'. In such an example, some literature proposed that *-dongan* adverbial is interpreted as time span adverbial 'in x time' (e.g., Lee 1982; Jo 2000), as shown in the gloss (i). Another view different from this is found in Park (2011). It is proposed that the time duration adverbial is not interpreted as a time span adverbial in an example such as in (9), but it has its durative meaning only as indicated in the gloss (ii) in (9).[3] In this case, it is further proposed that a duration adverbial overrides the specific quantity meaning of numeral classifier objects and the event is interpreted as being atelic.

(9) YongHee-ka o pun-dongan sakwa sey key-lul mek-ess-ta
YongHee-NOM five minute-for apple three CL-ACC eat-PAST-DEC
(i) 'YongHee finished eating (the) three apples in five minutes.' VS.
(ii) 'YongHee ate (the) three apples for five minutes.'

Behaviors of the time adverbials with bare noun objects are also discussed in the literature, which is under debate. In one view, event VPs with bare singular or plural noun objects are compatible with *-dongan* time adverbial, but not with *-maney* time adverbials (Jo 2000), as illustrated in (10). Jo (2000) proposed that bare nouns do not indicate specific quantity, and thus the events with those objects are atelic allowing *-dongan* adverbial only.[4]

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3 Specifically, in a case such as in (9ii), Park (2011) proposed that a duration adverbial changes accomplishment into active, and there is no contribution of a numeral classifier object to the event interpretation. For further detail, see Park (2011). For a relevant discussion, also see Jo (2000) or C. H. Kim (2014).

4 Jo (2000) presented the data in Korean and this paper presents an English version of it.

(10) YoungHee-ka pyenci-lul/pyenci-tul-lul sip pun*maney/dongan
YoungHee-NOM letter-ACC/letter-PL-ACC ten minutein/for
ss-ess-ta
write-PAST-DEC
'YoungHee wrote a letter/letters *in/for ten minutes.' (Jo 2000)

In contrast to this view, Park (2011) suggested that events with bare noun objects are ambiguous being telic or atelic, and thus either *-maney* or *-dongan* time adverbials is allowed in an example such as in (10).

This section discusses two issues regarding telicity of an event VP in Korean. One is what property of an object contributes to telicity of an event VP, and in the current literature it is left unclear which factor plays a role in Korean. Another issue discussed is the (in)compatibility or interpretations of the time adverbials with different types of objects, which is not currently settled. The experimental study discussed in the next section investigates these issues by finding out whether the mind of native speakers of Korean can provide supporting or countering evidence for the current debates on telicity of an event VP.

3. Experiment

The experiment discussed in this section tested native speakers' intuition on event telicity with different type of objects which has been presented with or without *-maney* and *-dongan* adverbials. Its aim was to find out what property of an object is associated with telicity of an event VP under the conditions which differ by the presence or absence of the time adverbials. The results from the experiment provide empirically significant evidence for the current debate on event telicity in Korean (cf. section 2). Moreover, the results from the experiment contribute to theoretical approaches to event telicity in Korean particular and to the cross-linguistic understanding on lexical aspect generally.

3.1 Methodology

Participants

Thirty native speakers of Korean were recruited and they are all university students.

They were recruited through advertisements posted on campus. The participants were in their 20's. Of the thirty subjects, there were 28 female and 2 male participants (mean: 23.2, SD: 1.7). Upon completion of the experiment, each participant was compensated with a 10,000 KRW in cash.

Design and Materials

The participants were given target sentences with multiple choices to select, and the choices are potential interpretations of the sentences (see (11) which will be discussed shortly). They were asked to select all interpretations that are judged to be acceptable. This way of method is used as telicity in Korean involves ambiguity in different contexts, e.g., with bare noun objects or with *-dongan* adverbial, as discussed in section 2. Four types of objects were tested: (i) bare singular noun, (ii) N Numeral CL-Acc, (iii) N-Acc Numeral CL, (iv) bare plural noun. The target sentences with each of these objects were presented in three conditions: (i) without a time phrase; (ii) with in x time phrase; (iii) with for x time phrase. Without a time phrase adverbial, each target sentence was presented with three choices to select. With a time phrase adverbial, four choices were presented.

To illustrate, consider the examples of a N Numeral CL-Acc object in (11)-(13) in the three different conditions.[5] In (11) without a time adverbial, there are three options to choose as an acceptable interpretation of the sentence which have been presented in Korean to the participants. All these interpretations (including the forth one, Telic R2 in (12)-(13)) are adopted from the literature mentioned in section 1 and 2; these are often used to illustrate telic or atelic interpretations of events. The interpretation in (11a) indicates a telic interpretation of the event VP referred as Telic R(eading)1 in this paper. The one in (11b) means an atelic reading of the same event, Atelic R1. The last interpretation in (11c) is another atelic interpretation of the event VP, Atelic R2.[6] These shorthanded names for each interpretation will be used for the rest of the paper.

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5 The target sentences and the interpretations to choose were all presented in Korean to the participants.

6 A reviewer suggested that Atelic R2 may represent uncertainty rather than atelic meaning. Uncertainty may be possible because an atelic reading describes an event as not necessarily having an endpoint. I assume that uncertainty is a part of an atelic interpretation, and as with the previous approaches include Atelic R2 as one of the atelic interpretations.

(11) YoungHee-ka sakwa sey key-lul mek-ess-ta
YoungHee-NOM apple three CL-ACC eat-PAST-DEC
a. 'YongHee finished eating three apples.' (Telic R1)
b. 'YongHee did not finish eating three apples.' (Atelic R1)
c. 'It is unknown if YongHee finished eating three apples.' (Atelic R2)

The next two examples in (12) and (13) are presented with time adverbials. The sentence in (12) is presented with 'in x time phrase' such as *o pun maney* 'in five minutes' while the sentence in (13) is presented with 'for x time phrase' *o pun dongan* for five minutes'. The three choices in (a)-(c) in both (12) and (13) are identical to those in the sentences without time phrases such as in (11), except the addition of the appropriate time phrase as illustrated in (a)-(c). In the target sentences with time adverbials, fourth possible interpretation as in (d) are presented differently from a target sentence without time phrase such as in (11). The interpretation in (d) examples is a telic reading that indicates how long an event takes to be completed which is recognized as indicating that the event has an endpoint similar to the telic interpretation in (a) examples (e.g., Borer 2005; MacDonald 2008). This interpretation is referred as Telic R2.

(12) YongHee-ka o pun maney sakwa sey key-lul
YoungHee-NOM five minute in apple three CL-ACC
mek-ess-ta
eat-PAST-DEC
a. 'YongHee finished eating three apples in five minutes.' (Telic R1)
b. 'YongHee did not finish eating three apples for five minutes.' (Atelic R1)
c. 'It is unknown if YongHee finished eating three apples in five minutes.' (Atelic R2)
d. 'It took 5 minutes for YongHee to finish eating three apples.' (Telic R2)

(13) YongHee-ka o pun dongan sakwa sey key-lul
YoungHee-NOM five minute for apple three CL-ACC
mek-ess-ta
eat-PAST-DEC
a. 'YongHee finished eating three apples in five minutes.' (Telic R1)
b. 'YongHee did not finish eating three apples for five minutes.' (Atelic R1)
c. 'It is unknown if YongHee finished eating three apples in five minutes.' (Atelic R2)
d. 'It took 5 minutes for YongHee to finish eating three apples.' (Telic R2)

The target sentences consisted of three different verbs: a consumption verb, *mek-* 'eat' and creation verbs, *kuli-* 'draw' and *ssu-* 'write'. These verbs were used for each different type of an object tested and for each condition. Each of the verbs were presented with the following objects respectively: *sakwa* 'apple', *topyo* 'graph', and *pyenci* 'letter'.

A total of 12 target sentences of 3 conditions were tested for each of thirty participants. The resulting responses were 1080 in total (12 target sentences x 3 conditions x 30 participants). The material for the experiment also includes a total of 18 fillers which were half of the number of the target sentences. The number of responses from the filler sentences were 540 in total (18 filler sentences x 30 participants).[7]

Procedure

The experiment was conducted via an online survey platform (Naver Form) created for the purpose of the experiment. Each participant visited Naver Form through the link provided at a scheduled time, and performed the judgment task. Both target and filler sentences were presented in a pseudo-randomized order and one at a time. Participants were asked to choose all possible acceptable interpretations of them. Upon the completion of the judgment task on the whole set of tokens, the responses were submitted and saved automatically. Total of 20 minutes were given, and in general, the participants completed the experiment in 15 minutes.

Data Analysis

Although the Multiple Response Analysis does not provide a *p*-value, a series of

7 Filler sentences consisted of different verbs from those in the target sentences but presented under the same conditions such as without or with the time adverbials.

Pearson's Chi-square tests were conducted for testing statistical significance of cross-tabulation between categorical variables. For analysis, results on target sentences were used only; results on filler sentences were excluded.

In analyzing results, responses were analyzed with different types of objects, not according to different verbs in accordance with the goals of the experiment.

3.2 Results

The number and rate (%) of the responses for each type of an object under the three different conditions are shown in Table 1-3 below. In the Tables, N refers to a bare singular noun object such as *sakwa* 'apple' and N-Pl refers to a bare plural object such as *sakwa-tul* 'apples'. The numeral classifier objects are two different types as discussed in section 2: N-Acc Num-CL has an indefinite meaning only, and N Num-CL-Acc can indicate either a definite or an indefinite meaning. The former will be referred as N-Acc and the latter will be referred as CL-Acc in the rest of the discussion. The statistical output of the Pearson's Chi-square tests is provided at the bottom of each table.

Table 1. Frequencies (%) of responses under a NO-TIME adverbial condition

NO-TIME adverbial	**Telic R1**	**Atelic R1**	**Atelic R2**	**Total**
N	48 (53.3%)	7 (7.8%)	63 (70.0%)	90
N-Pl	51 (56.7%)	5 (5.6%)	59 (65.6%)	90
N-Acc Num-CL (N-Acc)	82 (91.1%)	4 (4.4%)	15 (16.7%)	90
N Num-CL-Acc (CL-Acc)	81 (90.0%)	1 (1.1%)	15 (16.7%)	90
Total count	262	17	152	360

$X^2 = 73.52$, $df = 6$, $p < 0.001$

Table 2. Frequencies (%) of responses under a IN X-TIME adverbial condition

IN X-TIME adverbial	**Telic R1**	**Atelic R1**	**Atelic R2**	**Telic R2**	**Total**
N	89 (98.9%)	2 (2.2%)	5 (5.6%)	63 (70.0%)	90
N-Pl	82 (91.1%)	1 (1.1%)	11 (12.2%)	63 (70.0%)	90
N-Acc Num CL (N-Acc)	84 (97.8%)	0 (.0%)	10 (11.1%)	62 (72.2%)	90
N Num-CL-Acc (CL-Acc)	88 (97.8%)	1 (1.1%)	3 (3.3%)	65 (70.0%)	90
Total count	343	4	29	253	360

$X^2 = 8.60$, $df = 6$, $p = 0.47$

Table 3. Frequencies (%) of responses under a FOR X-TIME adverbial condition

FOR X-TIME adverbial	Telic R1	Atelic R1	Atelic R2	Telic R2	Total
N	29 (32.2%)	3 (3.3%)	59 (65.6%)	39 (43.3%)	90
N-Pl	32 (35.6%)	4 (4.4%)	55 (61.1%)	46 (51.1%)	90
N-Acc Num CL (N-Acc)	59 (65.6%)	0 (.0%)	25 (27.85)	60 (66.7%)	90
N Num-CL-Acc (CL-Acc)	62 (68.9%)	2 (2.2%)	21 (23.3%)	66 (73.3%)	90
Total count	182	9	160	211	360

$X^2 = 60.42$, $df = 9$, $p < 0.001$

With NO-TIME adverbial condition presented in Table 1, bare noun objects show ambiguity in telicity, unlike numeral classifier objects. This difference between the noun types is found to be statistically significant ($X^2 = 73.52$, $df = 6$, $p < 0.001$). For the bare singular noun objects, Telic R1 was 53.3% and Atelic R2 was 70.0%. Although the rate of Atelic R1 is much lower than Telic R1, the high rate of Atelic R2 clearly indicates that there is ambiguity in telicity. A bare plural object showed a similar pattern to a bare singular object: an ambiguity in telicity was observed as indicated by similar rates of Telic R1 and Atelic R2, 56.7% and 65.6% respectively. With respect to numeral classifier objects, regardless of the types, the rate of Telic R1 was much higher than those of Atelic R1 and R2, which suggests that a telic reading is highly dominant. A N-Acc type shows 91.1% in Telic R1 but 4.4% in Atelic R1 and 16.7% in Atelic R2. A CL-Acc type shows a similar pattern: 90.0% in Telic R1 but 1.1% in Atelic R1 and 16.7% in Atelic R2.

Turning to an IN X-TIME condition in Table 2 in which a *-maney* adverbial appears, recall that there was one more option in the potential interpretations for the participants to select, i.e., Telic R2. Unlike the results under the condition of NO-TIME adverbial discussed above, under an IN X-TIME adverbial condition, the available readings across all types of the objects were dominantly telic, as evidenced by the rates of Telic R1s or Telic R2s compared to the rates of Atelic R1s and R2s. This means that the dominant telic reading is shown to be statistically consistent, regardless of the noun types ($X^2 = 8.60$, $df = 6$, $p = 0.47$). As can be seen in Table 2, bare singular nouns showed 98.9% in Telic R1 and 70% of Telic R2, and bare plural nouns showed 91.1% in Telic R1 and 70.0% in Telic R2. In contrast, the rates of Atelic R1 and R2 of those objects were very low; for instance, a bare singular object showed only 2.2% of Atelic R1 and 5.6% of Atelic R2. With the two types of numeral classifier objects, the dominant reading was again telic: 97.8% and 72.2% in Telic R1 and Telic R2 respectively for a N-Acc type, and 97.8% and 70.0 % in Telic R1 and Telic R2 for a CL-Acc type. Thus, there was

no clear significant difference in Telic readings with respect to the two types of numeral classifier objects that are reported to be different in their definiteness in the literature. The two types of the classifier objects also do not show differences in Atelic readings: both showed a very low rate of Atelic R1s, 0% and 1.1% respectively, and Atelic R2s, 11.1% and 3.3% respectively.

Lastly, with respect to a FOR X-TIME adverbial condition presented in Table 3, the readings of a telic event VP vary by the presence and absence of a numeral classifier (X^2 = 60.42, df = 9, $p < 0.001$). The two types of bare nouns behave similarly, and the two different types of numeral classifier objects show a similar pattern, which has been the case with the other two conditions discussed above. The two types of bare nouns — a bare singular and plural objects — showed ambiguity in telicity. As for a bare singular object, Telic R1 and R2 were 32.2% and 43.3%, and Atelic R2 was 65.6%. With a bare plural object, Telic R1 and R2 were 35.6% and 51.1% respectively, and Atelic R2 was 65.6%. In both types of objects, Atelic R1s were very low being 3.3% for a bare singular object and 4.4% for a bare plural object, but the rates of Atelic R2s mentioned above indicate that ambiguity is there. With the two types of numeral classifier objects, both showed similar patterns. They showed higher rates of Telic readings than the rates of Atelic readings. A N-Acc type showed 65.6% of Telic R1 and 66.7% of Telic R2. On the other hand, the rate of Atelic R1 was 0% and that of Atelic R2 was 27.8%. A CL-Acc type does not behave differently: higher rates of Telic R1 and R2, 68.9% and 73.3% respectively than the rates of Atelic R1, 2.2%, and Atelic R2, 23.3%.

In order to see the similarities and contrasts among the object types more clearly, the results of Telic R1 and Atelic R2 are presented in Figures 1-8 for each type of the objects across all three conditions. Bare noun objects in Figure 1-4 are first discussed, and then numeral classifier objects in Figure 5-8.

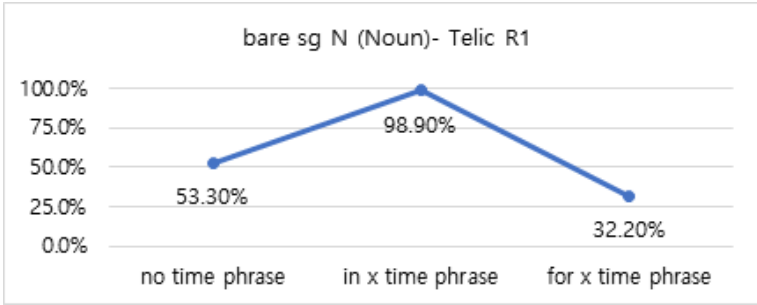

Figure 1. Bare singular object in Telic R1 across three conditions

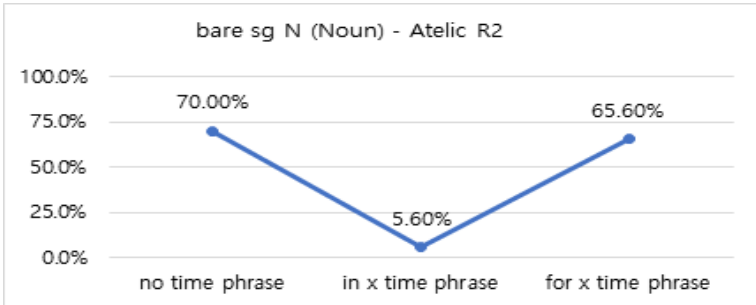

Figure 2. Bare singular object in Atelic R2 across three conditions

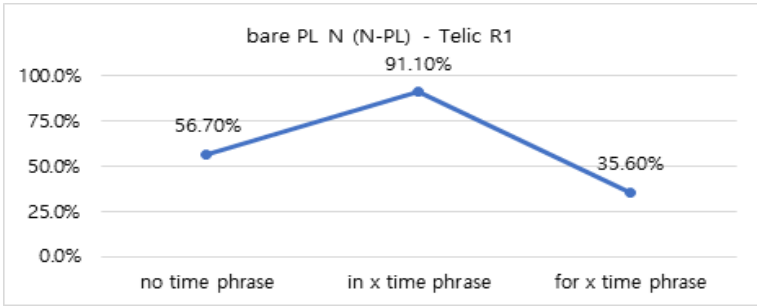

Figure 3. Bare plural object in Telic R1 across three conditions

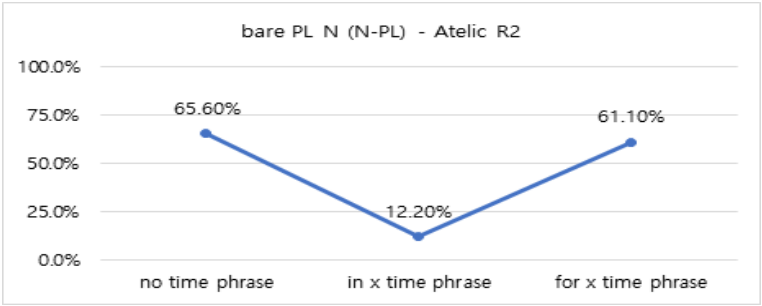

Figure 4. Bare plural object in Atelic R2 across three conditions

Bare singular and plural objects show similar patterns as shown in Figure 1-4. They show ambiguity under the conditions of NO-TIME adverbial and FOR X-TIME adverbial: they can be associated with either Telic R1 or Atelic R2. Under a FOR X-TIME condition, however, a preferred reading is Atelic R2 for both types of bare noun objects. Under a IN X TIME adverbial condition, both bare singular and plural objects show a strong Telic R1 compared to Atelic R2, as shown in the Figures above. Thus, with the condition of a IN X TIME adverbial, it can be concluded that ambiguity is not observed but a telic reading is dominant.

Now consider numeral classifier objects as presented in Figure 5-8 below. As mentioned earlier, the two types of numeral classifiers do not show considerable differences in telicity under all three conditions. Both types of objects show strong Telic R1s in both NO-TIME and IN X-TIME adverbial conditions, and low rates of Atelic R2s were observed. A N-Acc type showed 91.1% and 93.3% of Telic R1s in each condition, and a CL-Acc type showed 90.0% and 97.8% of Telic R1s in those two conditions. The rates of Atelic R2s associated with these objects in NO-TIME and IN X-TIME adverbial conditions were very low being 16.7% and 11.1% respectively for a N-Acc type and 16.7% and 3.30% respectively for a CL-Acc type. The difference between the rates of Telic R1s and Atelic R2s is large enough to suggest that these objects are associated with telic readings under these two conditions. With a FOR X-TIME adverbial condition, they show ambiguity in telicity; either Telic R1 or Atelic R2 was observed, although the rates of Atelic R2 was lower than Telic R1, e.g., 65.60% vs. 27.80% for a N-Acc numeral classifier object.

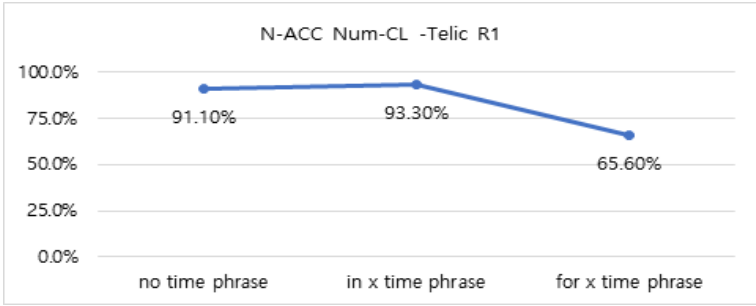

Figure 5. N-Acc Num-CL object in Telic R1 across three conditions

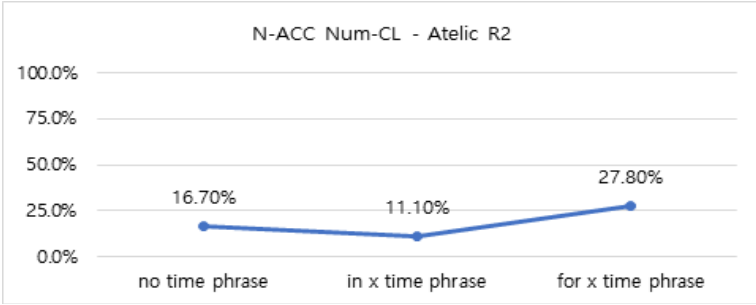

Figure 6. N-Acc Num-CL object in Atelic R2 across three conditions

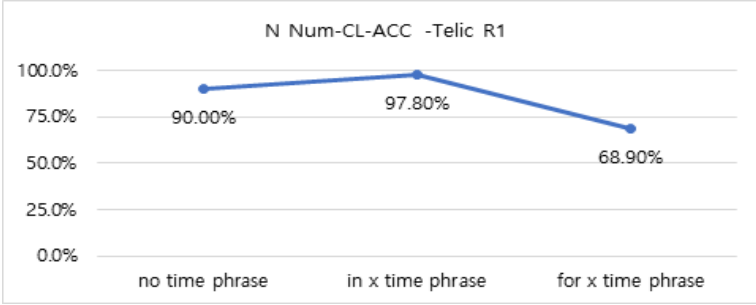

Figure 7. N Num-CL-Acc object in Telic R1 across three conditions

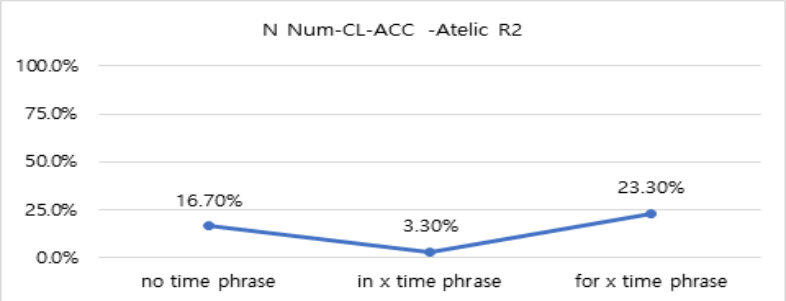

Figure 8. N Num-CL-Acc object in Atelic R2 across three conditions

As for the ambiguity with the two types of numeral classifiers under the condition of FOR X-TIME adverbial, on an average, Telic R1 is a preferred reading to Atelic R2. For example, as for a CL-Acc type, 68.90% of the responses favored Telic R1, but only 23.3% of the responses favored Atelic R2. This type of an object with FOR X-TIME adverbial has been under debate (cf. section 2), and one may wonder whether the speakers' responses were based on a skewed distribution or if most of the speakers preferred Telic R1 over the other. Therefore, the maximum, minimum, and the frequencies for 100%, 66.7%, and 33%, and 0%, respectively, were calculated, as shown in Table 4. As can be seen, the average acceptance rate for Telic R1 was 100% for 17 participants, 66.7% for 3 participants, 33.3% for 5 participants, and 0% for 5 participants. However, regarding Atelic R2, only 2 participants found the target sentence acceptable (100% frequency), whereas 19 participants judged that it was unacceptable (0% frequencies). For the same reading, 6 participants showed the acceptance rate of 66.7% and 3 participants showed 33.3%. Thus, it can be concluded that the ambiguity is not based on a skewed distribution but it is based on the general distribution that Telic R1 is more acceptable than Atelic R2 under the condition of FOR X-TIME adverbial.[8]

8 The result presented in Table 4 also shows that there were subject variations in each reading. I speculate that for those participants who accepted Telic R1, specific quantity meaning of a numeral classifier object appears to override duration meaning of FOR X-TIME adverbial. In contrast, for those who accepted Atelic R2, duration meaning of the adverbial may play a stronger role in event interpretation than specific quantity meaning of a numeral classifier object.

Table 4. Mean, SD, Maximum, Minimum values, and frequencies for 100%, 66.7%, 33.3%, and 0%, respectively for the Noun Num-CL-ACC with FOR X-TIME adverbial

	Telic R1	**Atelic R2**
Mean	68.9%	23.3%
SD	0.40051053	0.340722694
Max	100.0%	100.0%
Min	0.0%	0.0%
Frequencies for 100%	17	2
Frequencies for 66.7%	3	6
Frequencies for 33.3%	5	3
Frequencies for 0%	5	19

4. General discussion

The experimental study discussed in this paper investigated what properties of an object play a role in telicity of an event VP in Korean. It has compared possible interpretations of an event VP associated with the different types of objects. In particular, the experiment examined which of the two properties of an object, namely a specific quantity and definiteness, play a role in event telicity, which have been left unclear in the literature. Also, the behaviors of time adverbials in the language have been investigated with respect to the current debate on the time adverbials in the domain of lexical aspect (cf. section 2).

4.1 The property of an object and event telicity in Korean

The results of the experiment discussed in section 3 suggest two new findings which have not been noted in the previous studies on telicity of an event VP in Korean: one is regarding the property of an object associated with event telicity, and the other is regarding the behavior of the time adverbials. I discuss the first finding in this section and the second one in the following section.

The result from the experiment suggests that definiteness of an object may not be a significant factor for telicity in the language. Rather, quantity of an object, but not particularly specific quantity, is a major factor to affect telicity of an event VP. Table 5 summarizes the results on telicity with respect to the different types of objects.

Table 5. Summary of telicity with respect to properties of objects

Object property / Object type	Quantity	Definiteness	Result: Telicity
Bare sg N	singular or plural	def or indef	Telic or Atelic
Bare pl N	plural	def or indef	Telic or Atelic
N-Acc Num-CL (N-Acc)	specific quantity	indef	Telic
N Num-CL-Acc (CL-Acc)	specific quantity	def or indef	Telic

Let us first compare two different types of numeral classifier objects in Table 5. In the literature, they are known to be different in definiteness as indicated in the Table: a N-Acc type denotes an indefinite meaning only, but a CL-Acc type can mean either definite or indefinite. However, this difference in definiteness does not make a difference in telicity of an event VP associated with these types of numeral classifier objects, as the result from the experiment as summarized in Table 5 suggests: an event VP associated with both of these two types of classifier objects is telic. If definiteness were associated with event telicity, a N-Acc type should show a dominant atelic reading contrary to the result, and a CL-Acc type should show ambiguous reading, which is not the case either. Thus, the result from the experiment indirectly suggests that definiteness may not play a major role in event telicity in Korean.[9]

Ruling out definiteness, a remaining factor for event telicity is specific quantity of an object. Revisiting the two types of classifier objects examined in the experiment in the current paper that showed telic readings (see Table 5), it is clear that they both indicate specific quantity. This fact may suggest that specific quantity of an object is a major factor for a telic event in Korean. However, this conclusion does not seem to be easily carried over to bare noun objects investigated in the experiment. For example, a bare plural object does not indicate specific quantity, but it can be associated with a telic reading, as the result from the experiment shows (see Table 5). A similar pattern was observed with a bare singular noun object. This type of an object can be associated with a telic reading, and it can also mean plural similar to a bare plural noun. Another interpretation of a bare singular noun is that it can mean a singular entity. The common meaning of the two available interpretations of a bare singular noun, singular and plural,

9 The experiment has not tested a clear contrast of definiteness across numeral classifier objects such as *ku sakwa-lul sey key* vs. *sakwa-lul sey key*, as pointed out by a reviewer. Thus, the result discussed here does not directly suggest that definiteness is not a factor for event telicity. However, the result that numeral classifier objects different in definiteness show no difference in telicity is worth being discussed, as it suggests that definiteness may not be as strongly as associated with telicity contra to the previous literature.

is a quantity meaning. That is, all the types of objects investigated in current paper share a quantity meaning and they all can be associated with a telic reading. Thus, it can be concluded that a quantity meaning of an object is sufficient to have a telic event reading in Korean.[10]

4.2 Time adverbials in Korean

Turning to the result with respect to time adverbials as summarized in Table 6, the finding suggests that the properties of time adverbials in Korean are different from those in English (see section 2). I discuss the result of each of the time adverbials with respect to different types of objects and telicity of an event.

Table 6. Summary of the result on time adverbials

condition / object type	No time adverbial	*-maney* adverbial	*-dongan* adverbial
Bare sg N	Ambiguous	Telic (98.9%)	Telic or atelic
Bare pl N	Ambiguous	Telic (91.1%)	Telic or atelic
N-Acc Nml-CL (N-Acc)	Telic	Telic	Telic or atelic
N Nml-CL-Acc (CL-Acc)	Telic	Telic	Telic or atelic

The results from the experiment regarding *-maney* adverbials support the previous literature to some extent, as the events with numeral classifier objects are all interpreted as telic in the presence of *-maney* adverbials. However, contrary to the previous study (Jo 2000), the results showed that events with bare noun objects are not only compatible with *-maney* adverbials, but also dominantly interpreted as telic, as indicated by the higher rates of telic readings repeated in Table 6. In comparison with the interpretations with the same bare noun objects in the context without a time adverbial, a surprising finding is that ambiguous readings of events with bare singular or bare plural object disappear in the context of *-maney* adverbials. This finding suggests that *-maney* adverbials may not be merely an event modifier, but it seems to contribute to the composition of an event. It turns an atelic reading to a telic reading. This finding appears

10 This result suggests that the properties of lexical aspect in Korean differs from English supporting previous researches on this issue. For example, it has been proposed that in Korean event cancellation with a specific quantity object is possible unlike English (e.g., Jo 2000; Kim 2020) (see an acquisition study of Oh (2015) for a similar result).

to be interesting, as it has been proposed that an adverbial can also contribute to event composition across languages (Borer 2005). Although we need further research into this issue, Korean may be such a language.[11]

Regarding *-dongan* adverbial, the result from the experiment is in line with the suggestions of the previous literature such as Lee (1982), Jo (2000), or C. H. Kim (2014). The time adverbial is ambiguous having either a telic or atelic reading with the events that have numeral classifier objects, as summarized in Table 6. However, this result does not provide support for the proposal of Park (2011) in which *-dongan* adverbial in the context of a numeral classifier object cannot be interpreted as a time span adverbial. Another finding of this experiment is that *-dongan* adverbial is also ambiguous with other types of objects investigated in this study, i.e. bare singular and plural objects. In the context of the events with these bare noun objects, *-dongan* adverbials are interpreted as time span or duration meaning.

5. Conclusion

Lexical aspect has been a central topic examined by numerous studies, and event telicity has been the core part of those studies. The tight association between specific quantity of an object and event telicity has been well established in an English type language. In Korean, the properties of objects – specific quantity and definitness – has been recognized to be relevant to telicity in the literature. However, it was left unclear which property is the one that can be associated with event telicity.

This paper investigated this issue by carrying out an experimental study that tested native judgments on telicity of event VPs with types of objects that differ in quantity and definiteness meanings. The target event VPs were also tested in conditions that differ by the presence or absence of the time adverbials, which were also under debate in the literature. The results showed that contrary to the previous research on Korean

11 It is well known that a linguistic means other than an object can be associated with event telicity (e.g., Smith 1991; Slabakoba 1997; Borer 2005; MacDonald 2008). For example, in Slavic languages, event telicity is indicated by a verbal morpheme and specific quantity of an object does not play a role (Slabakoba 1997). Another instance is Mandarin (Smith 1991; Woo 2013) which shows a similar pattern to Slavic languages. In Korean, adverbials that indicate frequency such as *twu pen* 'twice' can contribute to telicity, regardless of the type of an object (e.g., Jo 2000; Park 2011). This fact may suggest that Korean has a different strategy to mark telicity than English. I leave this issue for future research.

definiteness is not a relevant factor for event telicity. Rather, quantity of an object is found to be an important factor and specific quantity is found to be not necessary. The results from time adverbials suggest that *-dongan* adverbial is compatible with either telic or atelic event VPs across the different types of objects in Korean, unlike English. Moreover, *-maney* adverbial was found to play a more active role than traditionally viewed: it is not just a modifier, but it contributes to event composition, which also differs from English. These results contribute to clarifying the major debates on the issues regarding event telicity in Korean, and pave the way for further research toward the characterization of event structure in Korean differently than English.

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