

Decomposing *-(e)ci* and bare inchoatives in Korean*

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Yoo, Myung Hye. 2021. Decomposing *-(e)ci* and bare inchoatives in Korean. *Linguistic Research* 38(3): 491-535. Korean deadjectival verbs have two forms. First, there are predicates that do not require additional morphemes from their stative forms to mean a change of state, hereafter referred to as bare inchoatives. The other type of inchoatives must combine with the morpheme *-(e)ci-* after the root form to contain the meaning of the change of state. The bare inchoatives reach the absolute standard of degree achievements as a result of the change of the state, while *-(e)ci* denotes the event where the degree property of an entity becomes greater than the previous one. This *-(e)ci* morpheme has been traditionally considered as a BECOME operator. This paper, however, proposes an alternative semantic analysis of *-(e)ci* morpheme and its syntactic structure by adopting the concept of the measure of change function. The bare inchoatives have one degree phrase (DP), while the *-(e)ci* inchoatives are decomposed into two degree phrases. Furthermore, the *-(e)ci* morpheme is assumed to be the realization of a typical functional degree head. (University of Delaware)

Keywords Korean, inchoatives, degree phrase, gradable predicates, measure of change function, *(e)ci*

1. Introduction

1.1 Scalar analysis of adjectives

A number of studies have established semantic analysis of adjectives in English, using several different features (Kennedy and McNally 2005; Yoon 1996). Kennedy and McNally (2005) specifically applied scales such as finiteness, density, minimal or maximal elements, endpoints, and so forth to the distinction of adjectives in terms of their semantic properties. Among those semantic dimensions, Rotstein and Winter (2004) claimed that the open/closed scale structure correlates with the total and partial predicates

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identified by Yoon (1996).

- (1) Absolute adjective
 - a. Total adjective
 - e.g. full, flat, closed, straight, clean
 - b. Partial adjective
 - e.g. awake, visible, open, bent, dirty
- (2) Relative adjective
 - e.g. tall, interesting, large, energetic (Kennedy and McNally 2005)

These total and partial predicates illustrated in (1) are known to have absolute endpoints, so called absolute predicates such that total predicates have a maximal degree of their own properties and partial predicates has some degree, at least non-zero degree of their properties. For instance, a total adjective like *clean* in (1a) has a maximum standard of cleanliness, while a partial adjective like *dirty* in (1b) has at least some degree of dirtiness. In addition, adjectives with context-dependent standards are referred as relative adjectives (Unger 1975; Kennedy and McNally 2005). Relative adjectives such as *tall* do not have an absolute standard to have the property of tallness. The standard of comparison to identify someone to be tall is contextually dependent. The scalar properties of adjectives can be further applied to the corresponding deadjectival verbs, which is the range of adjectives that will be mainly discussed in the present paper.

1.2 Deadjectival verbs

In English, verbs such as *dry*, *wet*, and *widen* are deadjectival verbs, which are derived from adjectives *dry*, *wet*, and *wide*, respectively. The goal of this paper is to present an analysis of two types of Korean inchoatives, change-of-state verbs, which correspond to deadjectival verbs in English.¹ First, some predicates do not require additional morphemes. The stative predicate form is maintained when there is a change of state. They do not undergo morphological changes. For example, *pi-* '(be) empty' can

1 Adjectives in Korean are still being debated whether they are real adjectives or a different type of verbs (Kim 2002). Whichever analysis turns out to be the correct prediction, Korean, in principle, does not undergo the process of transforming adjectives into verbs. In other words, adjectives are predicates by themselves. Thus, Korean gradable predicates are expected to have the scales of English deadjectival verbs directly in inchoatives. I, however, introduce them as deadjectival inchoatives to present the range of analysis in this paper.

indicate both the state of emptiness and “becoming empty”. The examples are shown in (3), and I call this kind of predicate bare inchoative.

The other type is marked by the morpheme *-(e)ci-* after the root forms as in (4). For example, *nelp* ‘wide’ must combine with *-(e)ci* to mean ‘widen’. The predicates that belong to *-(e)ci* inchoatives must have this morphological marking to contain the change of state meaning. For example, (3) shows that the expression for stative and inchoative meaning is identical for a typical example of bare inchoatives, *malu-* ‘dry’. The inchoative form of *nelp-* ‘wide’ in (4b), which is a typical example of *-(e)ci* inchoatives, indeed differs from the stative form. It requires *-(e)ci* to have the meaning of changing to a wider state.

- (3) a. Stative/Inchoative *malu-* ‘dry’
 ku swuken-i malu-ess-ta
 The towel-NOM dry-PST-DEC
 ‘The towel was dry/The towel dried.’
- (4) a. Stative *nelp-* ‘wide’
 ku kang-i nelp-ess-ta
 The river-NOM wide-eci-PST-DEC
 ‘The river was wide.’
- b. Inchoative *nelp-* ‘wide’
 ku kang-i nelp-eci-ess-ta
 The river-NOM wide-eci-PST-DEC
 ‘The river widened.’

The predicates map onto one of the two inchoatives. *hwi-/kwup-* ‘bend’ is the only exception that can be both bare and *-(e)ci* inchoatives among the lists of deadjectival verbs in (5) and (6).²

2 The lists are based on Petersen (2015)’s list of English deadjectival verbs. Some might argue that bare inchoatives are verbs, while *-(e)ci* inchoatives are adjectives. It, however, does not fully explain in that some predicates like *hwi-* ‘bend’ can belong to both categories, and some change-of-state verbs like *kwut-* ‘solidify’, *ciwu-* ‘erase’, *it-* ‘connect’ can indeed combine with *-(e)ci*.

(5) Bare inchoatives

tat-hi- ‘close’,³ *malu-* ‘dry’, *swum-* ‘hide’, *pi-* ‘empty’, *cha-* ‘fill’, *yel-li* ‘open’, *cec-* ‘wet’, *tulena-* ‘expose’, (*hwi-/kwup-* ‘bend’)

(6) *-(e)ci* inchoatives

kkaykkushay-eci- ‘clean’, *kencohay-eci-* ‘dry’, *phyengphyenghay-eci-* ‘flatten’, *telep-eci-* ‘dirty’, *supha-eci-* ‘wet’, *hulisha-eci-* ‘blur’, *nelp-eci-* ‘widen’, *cop-aci-* ‘narrow’, *ccalp-aci-* ‘shorten’, *phi-eci-* ‘broaden’, *kangha-eci-* ‘strengthen’, *chwu-eci-* ‘cool’, (*hwi-eci/kwup-eci* ‘bend’)

The deadjectival verbs are derived from gradable adjectives in English, which involve scalar analysis. The traditional scalar analysis, however, does not fully account for the distribution of the two types of inchoatives in Korean. Let’s take a look at the scalar analysis of English gradable deadjectival verbs that become inchoatives.

Peterson (2015) applies the scalar analysis of gradable adjectives to the corresponding deadjectival verbs. (7) and (8) present typical adjectives that generate the corresponding deadjectival verbs in English.

(7) Absolute adjective

a. Total adjective

e.g. dry, close, clean, straight, flat, empty, fill, hide...

b. Partial adjective

e.g. blurry, open, wet, exposed, curve, bent, dirty...

(8) Relative adjective

e.g. wide, narrow, short, broad, strong, cool, rise, fall...

Unlike their adjectival counterparts, the scalar analysis of deadjectival verbs is based

3 In *tat-hi* ‘close’ and *yel-li* ‘open’, suffix ‘-hi’ and ‘-li’ are allomorphs of passive morpheme. According to Haspelmath (1993: 103-105), these types of verbs are more likely to occur spontaneously, but still usually caused externally. Therefore, these verbs tend to show a preference for anticausative expression. Anticausative expression type is the probability of an outside force bringing about the event. The scale of the increasing likelihood of spontaneous occurrence is shown below. Verb meanings to the right are more likely to occur spontaneously. This spontaneous occurrence accounts for why only ‘close’ and ‘open’ verbs insert passive morpheme in Korean. I classify them into bare inchoatives in this paper in that the forms of both state and change-of-state meanings are identical.

< inchoative/causative alternations >
‘wash’ - ‘close’ - ‘melt’ - ‘laugh’

on the state as a result of the change-of-state. For example, a total verb, *dry*, changes from the non-maximal state of dryness to the maximal state of dryness. A partial verb, *wet*, on the other hand, changes from the minimal (zero) state of wetness to the non-minimal (non-zero) state of wetness. The degree of the relative verbs simply becomes greater than the previous state because they do not have any required standard changes. For example, *widen* expresses the increased width compared to the previous width. The examples of corresponding deadjectival verbs are shown in (9) and (10).

(9) Absolute verbs

a. Total verbs

e.g. dry, close, clean, straighten, flatten, empty, fill, hide...

b. Partial verbs

e.g. blur, open, wet, expose, curve, bend, dirty...

(10) Relative verbs

e.g. widen, narrow, shorten, broaden, strengthen, cool, rise, fall...

(11) and (12) show how this traditional classification of absolute and relative predicates does not fully capture the distribution of bare and *-(e)ci* inchoatives. In particular, it does not account for the distribution of absolute predicates. Some absolute predicates become bare inchoatives as shown in (11), while the other absolute predicates combine with *-(e)ci* as shown in (12a) and (12b). It is notable, however, that all relative verbs must combine with *-(e)ci*. I predict that the total and partial verbs in (12), thus, should be reanalyzed to have the same semantic properties with relative predicates.

(11) Bare inchoatives

a. Total verbs: *tat-hi* ‘close’, *malu-* ‘dry’, *swum-* ‘hide’, *pi-* ‘empty’, *cha-* ‘fill’

b. Partial verbs: *yel-li* ‘open’, *cec-* ‘wet’, *tulena-* ‘expose’

(12) *-(e)ci* inchoatives

a. Total verbs: *kkaykkushay-eci-* ‘clean’, *kencohay-eci-* ‘dry’,
phyengphyenghay-eci- ‘flatten’

b. Partial verbs: *telep-eci-* ‘dirty’, *supha-eci-* ‘wet’, *hulisha-eci-* ‘blur’

c. All relative verbs: *nelp-eci-* ‘widen’, *cop-aci-* ‘narrow’, *ccalp-aci-* ‘shorten’,
phi-eci- ‘broaden’, *kangha-eci-* ‘strengthen’, *chwu-eci-* ‘cool’

Specifically, I will propose in section 2 (i) that *-(e)ci* inchoatives have more relative meanings than bare inchoatives by using three main tests, and (ii) thus, the increase in degree is available only in *-(e)ci* inchoatives. Section 3 presents the discrete syntactic structures of bare and *-(e)ci* inchoatives. The main proposal is that the structure of *-(e)ci* inchoatives is decompositional, taking two Degree Phrases (DegPs), while bare inchoatives have one DegP structure.

2. The distribution of *-(e)ci* inchoatives

In the Introduction, it has been observed that scalar analysis of gradable adjectives cannot completely capture the distribution of *-(e)ci* inchoatives in Korean. The main difference between bare and *-(e)ci* inchoatives that will be discussed in this section is that the property of *-(e)ci* inchoatives uses a relative scale, while that of bare inchoatives uses a more absolute scale.

2.1 The availability of relative meanings

Bare inchoatives such as *close* and *open* achieve the degrees of closeness and openness once it closed and opened, no matter how much it closed and opened. Once the degree reaches the standardized degree, then it is achieved. *-(e)ci* inchoatives, on the other hand, have no absolute or clear standard scales even when they appear to be absolute predicates, compared to bare inchoatives. For example, it is unclear to determine from which extent of the degrees of *-(e)ci* partial verbs, such as *telep-eci-* ‘dirty’, *supha-eci-* ‘wet’, *hulisha-eci-* ‘blur’, should be defined to have the degree properties. Even for *-(e)ci* total verbs, such as *kkaykkushay-eci-* ‘clean’, the standard of cleanness can vary from individual to individual in that *kkaykkushay-eci-* ‘clean’ is acceptable even when the degree of cleanness does not reach to the absolute maximum degree.⁴ In this context, it is predicted that *-(e)ci* inchoatives have more relative meanings than bare forms. *-(e)ci* inchoatives include the predicates that are traditionally categorized as absolute. I will show that those *-(e)ci-* choosing absolute predicates indeed have more relative meaning than the true absolute ones that belong to bare inchoatives.

4 Another *-(e)ci* total verb *phyengphyenghay-eci-* ‘flatten’ seems to have more absolute meaning than *kkaykkushay-eci-* ‘clean’. But its property is more similar to other *-(e)ci* inchoatives than bare inchoatives in terms of the availability of the increase in its degree.

The first evidence is that only *-(e)ci* inchoatives allow shifting a standard. Shifting a standard is available when the predicates have relative meanings, not absolute end points, given the entailments of predicates. For example, for a bare total predicate, *tat-hi* ‘close’, which has a maximum standard, an object that is a little bit closed entails that it did not reach the maximum standard of closed-ness as shown in (13a). A bare partial predicate like *yel-li-* ‘open’ in (13b), on the other hand, entails that an object is open even if the degree of open-ness is low because it exceeds the minimal degree of open-ness.

(13) Bare inchoatives

a. Total predicates

ku	mwun-i	yakkan	→	ku	mwun-i	tathici
The	door-NOM	a little bit		The	door-NOM	close
tat-hi-ess-ta				anh-ass-ta		
close-PASSIVE-PST-DEC				not-PST-DEC		
‘The door closed a little bit.’				‘The door was not closed.’		

b. Partial predicates

ku	mwun-i	yakkan	→	ku	mwun-i	yelli-ass-ta
The	door-NOM	a little bit		The	door-NOM	open-PST-DEC
yel-li-ess-ta						
open-PASSIVE-PST-DEC						
‘The door opened a little bit.’				‘The door was open.’		

In the following examples of all types of *-(e)ci* inchoatives, they are predicted to have relative meanings, and thus, do not entail any state of an object. It is assumed to have a relative increase in degree.

(14) *-(e)ci* inchoatives

a. Total predicates

ku	swuken-i	yakkan	↗	ku	swuken-i
The	towel-NOM	a little bit		The	towel-NOM
kkaykkusha-eci-ess-ta				kkaykkusha-ta/kkaykkushaci	anh-ta ⁵

5 Korean has two types of negation, one of which is argued to undergo movement (Kang and Oh 2020). These two types of negation do not bear any difference in entailment relationship.

clean-PST-DEC		Is clean-DEC/is clean	not-DEC
'The towel cleaned a little bit.'		'The towel is clean/is not clean.'	
b. Partial predicates			
ku swuken-i yakkan	↗	ku swukeni telep-ta/telepci	
The towel-NOM a little bit		The towel is dirty-DEC/is dirty	
telew-eci-ess-ta		anh-ta	
get dirty-PST-DEC		not-DEC	
'The towel got dirty a little bit.'		'The towel is dirty/is not dirty.'	
c. Relative predicates			
ku kang-i yakkan	↗	ku kang-i nelp-ta/nelpci	
The river-NOM a little bit		The river-NOM is wide-DEC/wide	
nelp-eci-ess-ta		anh-ta	
wide-eci-PST-DEC		not-DEC	
'The river widened a little bit.'		'The river is wide/is not wide.'	

For example, the situation where the towel became somewhat clean in (14a) does not necessarily indicate that the state of the towel is neither clean nor not clean as a result of the change of state. (14a) only describes a situation where the degree of cleanness increased as a result of an event. The same interpretation is applied to (14b) and (14c), establishing no entailments.

Assuming these entailment relationships, the availability of shifting a standard can be tested. Shifting a standard of a bare total predicate like *malu-* 'dry' in (15a) is degraded, using 'but'. In the first statement, the towel reached the maximum standard of dryness. However, the second statement contradicts this fact in that it failed to achieve the maximum standard of dryness, leading to a contradiction between the two statements. A bare partial predicate like *cet-* 'wet' as in (15) is also infelicitous in that the second statement contradicts the entailment of the first sentence. As a bare partial predicate, *cet-* 'wet' in the first statement indicates that it achieved the minimum standard of wetness, which contradicts the second statement.

- (15) Bare inchoatives *dry/wet*⁶
- | | | | |
|--------------------------------|-----------|---------------|------------------|
| ku | swuken-i | (icen-pota) | malu/cec-ess-ta. |
| The | towel-NOM | (before-than) | dry/wet-PST-DEC |
| 'The towel dried/got wet.' | | | |
| #kulena | yecenhi | maluci/cecci | anh-ass-ta. |
| #But | still | dry/wet | not-PST-DEC |
| #But it is still not dry/wet.' | | | |
- (16) *-(e)ci* inchoative *clean*
- | | | | |
|------------------------------|----------|---------------|------------------------|
| ku | pang-i | (icen-pota) | kkaykkusha-eci-ess-ta. |
| The | room-NOM | (before-than) | clean-eci-PST-DEC |
| 'The room cleaned.' | | | |
| kulena | yecenhi | kkaykkushaci | anh-ta. |
| But | still | clean | not-DEC |
| 'But it is still not clean.' | | | |

The degree of bare inchoatives in (15) should reach the standardized degree. Once it reaches the required degree, it is no longer able to shift the standard. For example, the bare forms of *malu-/cec-* 'dry/wet' have the degree of maximum or non-minimal standard, respectively. Once they achieve their own degrees, then it is impossible to shift the standards. In contrast, *-(e)ci* inchoative *clean* in (16) shows that it can shift the standard of cleanness because it has more relative meaning than bare inchoatives. Although *kkaykkusha-* 'clean', which becomes a bare inchoative, has been traditionally classified into the absolute predicate, *kkaykkusha-* 'clean' is more flexible than *malu-* 'dry', which becomes a *-(e)ci* inchoative, allowing the relative meaning. It appears to be an absolute predicate, but in fact, it has a relative meaning comparable to the traditional relative adjectives. Therefore, it is shown to be combined with *-(e)ci*. It provides evidence that the actual criteria to divide absolute predicates and relative predicates needs to be revised.

The next difference is about the acceptability of the verb *ka-* 'go'. 'go' is a typical motion directed verb with *o-* 'come' and combines with a verb to cause movement along an abstract path. According to Zubizarreta and Oh (2007), *-ka* 'go' presents the movement towards the absolute end point as in (17). Furthermore, it cannot co-occur with comparative phrases as in (18).

6 Korean counterparts of *dry* and *wet* have two different lexicons that belong to different categories.

- (17) Yen kuk-i kkuthna ka-ass-ta.
 Performance-NOM end go-PST-DEC
 ‘The play was nearing the end.’ (Zubizarreta and Oh 2007: 78)
- (18) *?ku kang-i han sikan cen pota kiph-e
 the river-NOM one hour before than deep-L
 ka-ass-ta.
 go-PST-DEC
 ‘the river was getting deeper than an hour ago.’
 (Zubizarreta and Oh 2007: 113)

The verb *ka-* ‘go’ can combine with the scalar predicates, but only with predicates that become bare inchoatives as examples in (19) and (20) present.⁷ This concept of the verb *-ka* ‘go’ is a good tool to determine that there is a difference in meanings between predicates that become bare and *-(e)ci* inchoatives. The bare stative form of *malu-* ‘dry’ is compatible with *-ka* ‘go’ because it has an absolute end point of dryness. However, *telewe-* ‘(be) dirty’ in (20a), which becomes an *-(e)ci* inchoative is incompatible with *-ka* ‘go’ since the predicate has no absolute end point. Under the analysis in the current paper, *kkaykkusha-* ‘clean’ in (20b) also does not have to reach the maximal end point to have ‘clean-ness’ but has relative meaning. Therefore, it is predicted that *kkaykkusha-* ‘clean’ does not allow *-ka* ‘go’.⁸ If it has a clear end point, it is expected to be

7 Even though *-ka* ‘go’ is known to be only acceptable with a verb, not with an adjective syntactically, there are exceptions to this claim. Other gradable predicates that become *-(e)ci* inchoatives such as *etwuw-* ‘dark’ and *kiph-* ‘deep’ that are not listed in this paper are compatible with *-ka* ‘go’ below in a few contexts, though they are traditionally classified into adjectives:

- (i) pam-i kiphe-ka-n-ta
 night-NOM deep-ka-ING-DEC
 ‘It drew towards night.’
- (ii) nal-i etwuwe-ka-n-ta
 day-NOM dark-ka-ING-DEC
 ‘It is darkening.’

Zubizarreta and Oh (2007) state that *-(e)ci* construction is temporally bounded, while the *-ka* construction is temporally unbounded at the R-time level. While *-(e)ci* construction indicates the state has been changed, *-ka* construction indicates it is on the way to the end point. Thus, *-ka* construction implies that it has not reached the end point yet at the time it is stated. In this context, *etwuw-* ‘dark’ and *kiph-* ‘deep’ can combine with *-ka* when the subject is temporally long but has an end point such as night or day.

8 The stative forms of *-(e)ci* inchoatives are not able to combine with the verb *ka-* ‘go’ directly as shown in (18). As reviewers pointed out, however, *-(e)ci* inchoatives are compatible with *ka-* ‘go’ when the *-(e)ci*

compatible with *-ka* ‘go’.

(19) Predicates that become bare inchoatives: *dry*

ku swuken-i (ta/keuy)⁹ malue-ka-ass-ta
 the towel-NOM (completely/almost) dry-go-PST-DEC
 ‘The towel is (completely/almost) getting dry.’

(20) Predicates that become *-(e)ci* inchoatives: *(be) dirty/clean*

a. *ku pang-i (ta/keuy) telewe-ka-ass-ta
 the room-NOM (completely/almost) dirty-go-PST-DEC
 ‘*The room is (completely/almost) getting dirty.’

b. *ku pang-i han sikan cen pota
 the room-NOM one hour before than
 kkaykkushay-ka-ass-ta.
 clean-go-PST-DEC
 ‘*The room was getting cleaner than an hour ago.’

This notion can be further applied to achievement verbs like *cwuk-* ‘die’ and *salaci-* ‘disappear’, which have the absolute end points of death and disappearance, respectively. *cwuk-* ‘die’ and *salaci-* ‘disappear’ do not have relative degrees. Once they achieve the

construction is embedded in the *ka*-construction as shown below:

- (i) a. ku pang-i (ta/keuy) telep-eci-ka-ass-ta
 the room-NOM (completely/almost) be dirty-eci-go-PST-DEC
 ‘The room is (completely/almost) getting dirty.’
 b. ku pang-i han sikan cen pota kkaykkusha-eci-ka-ass-ta.
 the room-NOM one hour before than clean-go-eci-PST-DEC
 ‘The room was getting cleaner than an hour ago.’

It appears to be contradictory because *-ka* ‘go’ should be incompatible with those that have no end point. Given the notion of this construction as the path complement of *ka* (Zubizarreta and Oh 2007), *-(e)ci* inchoatives are acceptable with *ka-* ‘go’, such that ‘the degree of predicates moves toward a greater point in the scale.’ The greater degree point, no matter how much it becomes greater, would be the end point in this context. For example, *telep-* ‘(be) dirty’ combining with *-(e)ci* is acceptable with *ka-* ‘go’ as in (ia). This sentence would have a meaning such as ‘the degree of dirtiness moves toward a dirtier point in the scale.’ The dirtier point, no matter how much it becomes dirtier, would be its target point to reach in this context. The predicate ‘(be) dirty’ itself does not have a true end point. Similarly, *-(e)ci* inchoatives have relative meanings. They, however, describe the change of state that involves with the movement toward a greater degree, regardless of the amount of increase in degree. On this view, *-(e)ci* constructions are compatible with *-ka* ‘go’ constructions.

9 *ka-* ‘go’ is normally used with adverb *ta* or *keuy* ‘completely’ or ‘almost’.

state of death or disappearance, their degrees are achieved. They maintain their conventional meanings, or the standard degrees, and keep their bare forms. The achievement verbs show exactly the same patterns with bare inchoatives. They do not allow shifting a standard as in (21a), but they are compatible with *-ka* ‘go’ as in (21b). The two tests presented in this section support the claim that these predicates do not have relative meaning, and thus do not combine with the *-(e)ci* inchoative marker.

(21) Availability of relative meaning

a. Shifting a standard

ku namca-ka cwuk/salaci-ess-ta.

The man-NOM die/disappear-PST-DEC

‘The man died/disappeared.’

#kulena yecenhi cwuk/salaci anh-ass-ta.

#But still die/disappear not-PST-DEC

#But (he is) still not died/disappeared.’

b. The acceptability of *-ka* ‘go’

ku namca-ka (ta/keuy) cwuk(e)/salacie-ka-ass-ta.

the man-NOM (completely/almost) die/disappear-go-PST-DEC

‘The man is (completely/almost) getting dead/disappeared.’

2.2 The availability of the interpretation of the extension to a surface

It has been observed that bare inchoatives have the absolute standard to have their own lexical properties. Since the degree of a bare inchoative has an end point, it no longer needs to increase its degree. Once the property of a bare inchoative reaches its standardized degree, either maximum or minimum, it achieves its degree scale. Then, a bare inchoative can increase the range where its property applies: the larger space or surface would have the property of a bare inchoative.

I have argued that *-(e)ci* inchoatives, on the other hand, have relative meaning, open-scaled. They can increase their degree properties because the degree of *-(e)ci* inchoatives has no true absolute end points. In this section, adverbs—*te* ‘more’, *wancenhi* ‘completely’, and *pan* ‘half’—will be used to further highlight the different semantic properties of bare and *-(e)ci* inchoatives.

The first evidence is the interpretation of *te* ‘more’ in the inchoative sentences. Both types of inchoatives are acceptable to use *te* ‘more’, but only bare inchoatives can

produce additional meanings. For instance, both *-(e)ci* and bare inchoatives increase the degree of the property of predicates when adding *te* ‘more’. Bare inchoatives can convey another meaning, such that the surface or space to which the property of predicates applies becomes wider.¹⁰ For instance, (22) presents total and partial predicates, *malu-* ‘dry’ and *cec-* ‘wet’, which become bare inchoatives. In this case, they can describe two different situations. First, the degree of dryness or wetness increased, compared to the previous state of dryness or wetness. This situation is available if the degree of dryness or wetness has not yet reached their own standards. This sentence can also describe the change of state where the surface of the towel that dried or got wet became wider when the state changed. The degrees of dryness and wetness pertain to the larger application of the degree properties to towel.¹¹ *-(e)ci* inchoatives of *dry* and *wet* in (23), on the other hand, can only describe the increase in the degrees of dryness and wetness from the previous degrees of dryness and wetness when adding *te* ‘more’.

(22) Bare inchoatives *dry/wet*

ku swuken-i te malu/cec-ess-ta¹²
 The towel-NOM more dry/wet-PST-DEC
 ‘The towel dried/got wet more.’

(23) *-(e)ci* inchoatives *dry/wet*

ku pang-uy kongki-ka te kencohay/supha-eci-ess-ta
 The room-GEN atmosphere-NOM more dry/wet-eci-PST-DEC
 ‘The atmosphere of the room dried/got wet more.’

-
- 10 This intuition can vary across native speakers. Bare inchoatives, however, are at least more compatible with this interpretation, compared to *-(e)ci* inchoatives. For instance, *-(e)ci* inchoatives such as *keoncohay-* ‘dry’ and *supha-* ‘wet’ in (23) is incompatible with the notion of surface or space in any case. Bare inchoatives such as *malu-* ‘dry’ and *cec-* ‘wet’, on the other hand, can be involved with the extension of its own degree to further space or surface if its property of dryness or wetness has not been applied to the whole surface or space of an object.
- 11 Unlike the bare inchoative *malu-* ‘(be) dry’, *cec-* ‘(be) wet’ can, in fact, increase its degree of wetness within the same surface of the towel. It differs from *-(e)ci* inchoatives, however, in that bare inchoatives can increase its application to larger spaces without increasing the degree property. It involves increasing its degree property after they achieve the minimal standard of wetness. It compares the degrees that have already reached the standardized minimal degree.
- 12 As a reviewer pointed out, this sentence can be interpreted as having a hidden comparative. For instance, it can indicate that the towel is drier or got drier than that towel. This hidden comparative construction also encompasses the comparison between the two objects in two aspects: degree properties and surface/spaces to which the property of predicates applies. (i) The degree of dryness is greater for the towel than that towel, and/or (ii) the surface to which the dryness applies is larger for the towel than that towel.

The second evidence is the insertion of adverbs *completely/slightly*. A similar test was conducted in Kennedy (2007) to test the scales of gradable adjectives.¹³ In this paper, these adverbs are used to test the availability of the increase in degree. (24) is an example of bare inchoatives with adverbs *wancenhi/yakkan* ‘completely/slightly’, and the examples in (25) illustrate *-(e)ci* inchoatives with these adverbs. Like *te* ‘more’, *wancenhi* ‘completely’ is compatible with both forms, but bare inchoatives are more compatible with the change-of-state meaning associated with the increase in surface or space to which the degree applies.

(24) Bare inchoatives *dry/wet*

ku swuken-i wancenhi/yakkan malu/cec-ess-ta
 The towel-NOM completely/slightly dry/wet-PST-DEC
 ‘The towel completely/slightly dried/got wet.’

(25) *-(e)ci* inchoatives *clean/wet*

ku pang-i kongki-ka wancenhi/yakkan
 The room-NOM atmosphere-NOM completely/slightly
 kenco-ha/supha-eci-ess-ta
 dry/wet-eci-PST-DEC
 ‘The atmosphere of the room completely/slightly became dry/moist.’

Total and partial verbs of bare inchoatives are acceptable with *wancenhi/yakkan* ‘completely/slightly’ as shown in (24). When it comes to the interpretations, they can describe the increase in the degree of dryness/wetness. *wancenhi* ‘completely’ indicates that the total verb, *malu-* ‘dry’ reached its maximum degree of dryness. For partial predicate *cec-* ‘wet’, *wancenhi* ‘completely’ cannot indicate that the wetness reached the maximum standard because no maximum standard exists for partial predicates. Instead, *wancenhi* ‘completely’ can be used to emphasize the wetness as it is commonly used for emphasis in colloquial style. *yakkan* ‘slightly’ indicates that the dryness has not yet reached its maximum standard, while the wetness exceeded its minimum standard, but a little degree of wetness. These bare inchoatives can further describe the extended range

13 Kennedy (2007) used *perfectly* and *slightly* to test the acceptability of degree modifiers that show maximal or minimal degrees on the scales of the adjectives they modify. *wanpyekhakey* ‘perfectly’ is normally unnatural with gradable verbs in Korean. Instead, I use *wancenhi* ‘completely’, which is a more natural degree modifier that presents the maximal degree of adjectives they modify.

of surface that the degree applies to. For instance, *completely* describes the situation where the whole surface of the towel dried or got wet, whereas *slightly* expresses that only some part of the towel dried or got wet. The dried part has already dried and does not need more dryness, but the rest of the towel is not dry at all in this case.¹⁴

Total and partial predicates combining with *-(e)ci*, however, are not able to be involved with surface/space-related meaning as presented in (25). They only represent the increase in degree properties of predicates. The adverbs *wancenhi/yakkan* ‘completely/slightly’ are used to refer to the degree of the property of dryness/wetness without involving the space or surface. *wancenhi* ‘completely’ can be used for emphasis of the degree of both total and partial predicates as it was in partial predicate *cec-* ‘wet’ that becomes a bare inchoative. For example, *wancenhi* ‘completely’ indicates that the atmosphere reached a substantial degree of dryness/wetness, whereas *yakkan* ‘slightly’ indicates that the dryness/wetness is not substantial in contexts.

In brief, total and partial predicates that belong to bare inchoatives can expand their semantic properties to larger space or surface once they achieve the absolute maximal or minimal degree. Predicates that belong to *-(e)ci* inchoatives have a more relative standardized degree than those in bare inchoatives and increase the degrees without involving space or surface.

The last test is about the adverb *half*.¹⁵ In this paper, *half* is used to test the unavailability of the increase in degree with bare inchoatives. *Half* is acceptable with bare inchoatives as shown in (26), but it is not acceptable with *-(e)ci* inchoatives as shown in examples in (27).

(26) Bare inchoatives *dry/wet*

ku swuken-i pan-ccum malu/cec-ess -ta
 The towel-NOM half-about dry/wet-PST-DEC
 ‘The towel half dried/got wet.’

(27) *-(e)ci* inchoatives *dry/wet*

ku pang-uy kongki-ka (*)?pan-ccum
 The room-GEN atmosphere-NOM half-about

14 As a reviewer notes, (24) *wancenhi/yakkan* ‘completely/slightly’ can describe the increase of degree properties if the whole part of the towel is wet from the beginning.

15 Kennedy and McNally (2005) used *half* to examine the difference between absolute and relative adjectives in terms of entailments, along with negative and comparative constructions.

kencohay/supha-eci-ess-ta

dry/wet-eci-PST-DEC

‘The atmosphere of the room *half dried/got wet.’

Half is acceptable to use when the object is bounded and the measurement is visible. All bare inchoatives can extend their properties to a larger surface or space, and the predicates are used when space or surface is bounded. Thus, *half* in the contexts means half of the surface or space to which the property of the predicates applies. For example, *half dried* in (26) indicates that half of the surface of towel dried but the other half of the surface is still wet. Likewise, *half got wet* in (26) indicates that half of the surface of the towel got wet, but the other half of its surface is not wet. The resulting state is the same in the end. *-(e)ci* inchoatives, however, are not compatible with *half* in that the degree is unbounded, and the measurement is vague and invisible: degrees do not have end points, and thus cannot measure the half amount of the degrees.

I have presented three main tests so far to examine the semantic properties of bare and *-(e)ci* inchoatives. Returning to testing the achievement verbs like *cwuk-* ‘die’ and *salaci-* ‘disappear’, the availability of the degree increase test can be extended further to account for the reason why they do not allow to have the *-(e)ci* marker.¹⁶ They are even more absolute and restricted than the bare inchoatives in previous examples like *malu-* ‘dry’ or *cec-* ‘wet’ in terms of the availability of the increase in degree. It is because the partial degree properties do not apply to *cwuk-* ‘die’ and *salaci-* ‘disappear’ in terms of the surface.

(28) Availability of the increase in degrees

a. *te* ‘more’

*ku namca-ka te cwuk/salaci-ess-ta

The man-NOM more die/disappear-PST-DEC

‘*The man died/disappeared more.’

b. *wancenhi/yakkan* ‘completely/slightly’

ku namca-ka wancenhi/*yakkan cwuk/salaci-ess-ta

The man-NOM completely/slightly die/disappear-PST-DEC

‘The man completely/*slightly died/disappeared.’

16 Lim and Zubizarreta (2012) acknowledge that their analysis fails to capture it because they argue that Korean *-(e)ci* can freely combine with gradable and measurable adjectives, either relative or absolute, including the change-of-state verbs.

c. *pan* ‘half’

ku namca-ka pan-ccum ?cwuk/*salaci-ess-ta
 The man-NOM half-about die/disappear-PST-DEC
 ‘The man half ?died/*disappeared.’

If the predicates cannot divide the portion of the degree in context, then *te* ‘more’ and *yakkan* ‘slightly’ are unacceptable. For example, *the man* cannot be divided into ‘dying/not-dying parts’ or ‘disappeared/not disappeared parts’. *cwuk-* ‘die’ and *salaci-* ‘disappear’ do not allow *te* ‘more’ or *yakkan* ‘slightly’ because the degrees should be applied to the whole part of a human being. *te* ‘more’ *yakkan* ‘slightly’ are modifiers that typically have to do with degrees. Therefore, they are not compatible with *cwuk-* ‘die’ and *salaci-* ‘disappear’ particularly. *pan* ‘half’, on the other hand, has to do with the surface or parts where the degree applies. Accordingly, if the subject can partially apply the property of the degree to itself, *pan* ‘half’ will be acceptable. For example, only half of the chicken in (29) can ‘disappear’. (28c) disallows *pan* ‘half’, however, since it is nonsense to make only half of *the man* disappear.¹⁷

(29) ku chikhin-i pan-ccum salaci-ess-ta
 the chicken-NOM half-about disappear-PST-DEC
 ‘The half of the chicken disappeared.’

2.3 Further discussion

In the Introduction, I introduced *hwi-/kwup-* ‘bend’ as an exception that can be either a bare or an *-(e)ci* inchoative. In this section, I investigate an essential semantic property of *hwi-/kwup* ‘bend’.

17 ‘half dead’ is in principle not acceptable based on my proposal, but it is often used to mean ‘very tired’ as an informal way in Korean. It is also used to mean ‘almost in the state of being dead or frighten somebody’ informally in Korean. It seems more like a colloquial style and became an idiomatic expression. It is notable that ‘half dead’ does not express the half degree of being dead or the half part being dead.

(30) The availability of the increase in degrees

a. *te* ‘more’

ku maktayki-ka te hwi/hwi-eci-ess-ta¹⁸
 The rod-NOM more bend/bend-eci-PST-DEC
 ‘The rod bent more.’

b. *wancenhi/yakkan* ‘completely/slightly’

ku maktayki-ka wancenhi/yakkan hwi/hwi-eci-ess-ta
 The man-NOM completely/slightly bend/bend-eci-PST-DEC
 ‘The rod completely/slightly bent.’

c. *pan* ‘half’

ku maktayki-ka pan-ccum hwi/hwi-eci-ess-ta
 The rod-NOM half-about bend/bend-eci-PST-DEC
 ‘The rod half bent.’

(31) The availability of relative meaning

a. Shifting a standard

ku maktayki-ka yakkan hwi/*hwi-eci-ess-ta.
 The man-NOM slightly bend/*bend-eci-PST-DEC.
 Kulena yecenhi hwici anh-ass-ta.
 But still bend not-PST-DEC
 ‘The rod bent, but (it is) still not bent.’

b. The acceptability of *-ka* ‘go’

ku maktayki-ka (ta/keuy) hwi-e/hwi-eci-ka-ass-ta.
 the rod-NOM (completely/almost) bend/bend-eci-go-PST-DEC
 ‘The rod is (completely/almost) getting bent.’

In (30), both bare and *-(e)ci* forms are acceptable with adverbs that are used to test the availability of increase in degree. *hwi-* ‘bend’ gives a unique situation in which the relative degree of bent-ness and the spatial manifestation of bent-ness seem to coincide. As the degree of bending becomes greater, the object takes up more space. The change of degree caused by bending necessarily involves the change in space, thus allowing both cases. *hwi-* ‘bend’ lexically contains the meaning that the degree of bent-ness increases. It can also lead us to infer that space which the rod occupies becomes larger during the

18 I show only the predicate *hwi-* ‘bend’, not *kwup-* ‘bend’ for convenience. The patterns are the same.

event of bending. It seems, therefore, to have no big difference in meaning between bare and *-(e)ci* inchoative forms in (30). Accordingly, when asking how many degrees the rod bent, it is more natural to ask and answer with the *-(e)ci* inchoative in my judgment, but the bare inchoative is also acceptable. It is assumed to allow the bare inchoative form of *hwi-* ‘bend’ in that the degree of bent-ness and its spatial change is near-isomorphic.

In (30c), *pan* ‘half’ is expected to be unacceptable with *-(e)ci* predicates. *hwi-* ‘bend’ can have a gradient degree of bending, which allows for relative meaning. The exception of *hwi-* ‘bend’ to be compatible with *pan* ‘half’ when combining with *-(e)ci* is attributed to the physical limitation of the bending. The rod, for example, would no longer be able to bend over 180° angle. Therefore, *hwi-* ‘bend’ has the property to delimit the degree to be able to bend. In this context, I assume that *pan* ‘half’ is allowed even with *-(e)ci*. Another point is that *pan* ‘half’ in bare form is more natural to indicate the half of the whole rod, while *pan* ‘half’ in *-(e)ci* construction provokes an image of the rod bent by 90° angle, which is half of the vertical line.

The two forms also seem to have a general subtle difference or preference in meaning. The bare form *hwi-* ‘bend’ describes a more severe bent situation, taking much space to bend. *hwi-* ‘bend’ combining with *-(e)ci* seems to be more sensitive with the degree, and thus more natural to express a slight degree of bending. This assumption is relevant to the shifting a standard test illustrated in (31a). If *yakkan* ‘slightly’ is inserted, the bare form does not allow shifting a standard, while it allows when combining with *-(e)ci*. *-(e)ci* with *yakkan* ‘slightly’ indicates a slight degree of bending. Therefore, the sentence is acceptable, yielding the meaning that the rod is slightly bent, but not severely bent.

2.4 *-(e)ci* is not just a passivizer

Some might claim that *-(e)ci* combining with *hwi-* ‘bend’ indicates passives. *-(e)ci* indeed can derive a passive meaning as shown below:

- (32) Sujin-eyuyhay ku kulim-i kuli-eci-ess-ta.
 Sujin-by the picture-NOM draw-PASSIVE-PST-DEC
 ‘The picture was drawn by Sujin.’

In (32), it is obviously a passive sentence where the picture is drawn by some

external force, *Sujin*. Inchoatives in many other languages indeed show the same morphology as passives and/or middles (Schafer 2009). Likewise, *-(e)ci* is used as passives and inchoatives in Korean.¹⁹ When it comes to predicates like *khu-* ‘big’ or ‘grow’, they may be compatible with *-(e)ci* as in (33b) when there is an external force.

- (33) a. Ne khi-ga manhi khu-ess-ta!
 You height-Nom a lot grow-PST-DECL
 ‘You have grown tall a lot!’ (Lit.: ‘Your height has gotten big a lot!’)
- b. Ne khi-ga manhi khu-eci-ess-ta!
 You height-Nom a lot grow-ECI-PST-DECL
 Intended: ‘You have grown tall a lot!’
 (Lit.: ‘Your height has gotten big a lot!’)

For example, if this sentence is uttered in a context where the addressee has been receiving an injection to get tall or taller and the speaker knows this event. In this case, *-(e)ci* is considered as a passivizer because it indicates the presence of an external force like *injection* in this context.

Schafer (2009) presents the core semantic properties of inchoatives by comparing passives. The main difference between passives and inchoatives is that inchoatives do not allow implicit external argument. They also differ in the licensing of purpose clauses. However, this distinction does not discriminate passives and inchoatives in Korean. The overt external agent argument is grammatical and the control into a purpose clause is disallowed in both bare and *-(e)ci* inchoatives.

19 The following examples illustrate how passives and *-(e)ci* inchoatives are ambiguous and how we can make a distinction between them by adding implicit external arguments. In (i), it is ambiguous whether the reservoir was cleaned by someone else or external force or it cleaned by itself.

(i) telep-essten ceswuci-ka kkaykkusha-eci-ess-ta.
 dirty-PST reservoir-DEC clean-eci-PST-DEC
 ‘The dirty reservoir cleaned.’

In (ii), when an external argument is explicitly introduced, we can differ passives and inchoatives. The reservoir was cleaned by a civic group as a passive sentence, whereas it cleaned as the change of state.

(ii) telep-essten ceswuci-ka simintanch-ey uyhay/cecello kkaykkusha-eci-ess-ta.
 dirty-PST reservoir-DEC civic group-by/by itself clean-eci-PST-DEC
 ‘The dirty reservoir cleaned by itself/ by a civic group.’

- (34) a. ku namwuka nwukwunka-ey uyhay/hwacay-ey/cecello
 the tree-NOM someone-by/the fire-DAT/by itself
 hwi-eci/hwi-ess-ta
 bend-eci/bend-PST-DEC
 ‘The tree (was) bent by someone/by the fire/by itself.’
- b. *ku namwuka [PRO san-ey oluki wihay]
 the tree-NOM [PRO mountain-to climb in order to]
 hwi-eci/hwi-ess-ta
 bend-eci/bend-PST-DEC
 ‘*The tree bent to climb a mountain.’

The bare and *-(e)ci* forms of *hwi-* ‘bend’ show exactly the same patterns. I assume that the sentences have passive meanings when there are agent phrases like ‘by someone’ regardless of predicate forms. The acceptability of ‘by itself’ in both forms implies that *-(e)ci* can indeed be inchoative. Other bare and *-(e)ci* inchoatives behave the same way as presented in (35) and (36).

(35) Bare inchoatives

- a. ku swuken-i nwukwunka-ey uyhay/pwul-ey/cecello
 the towel-NOM someone-by/the fire-DAT/by itself
 malu-ess-ta
 dry-PST-DEC
 ‘The towel (was) dried by someone/by the fire/by itself.’
- b. *ku swuken-i [PRO tasi ssuki-wihay] malu-ess-ta
 the towel-NOM [PRO again use-in order to] dry-PST-DEC
 ‘*The towel dried to use again.’

(36) *-(e)ci* inchoatives

- a. ku kapang-i nwukwunka-ey uyhay/tewi-ey/cecello
 The bag-NOM someone-by/the heat-DAT/by itself
 nelp-eci-ess-ta
 wide-eci-PST-DEC
 ‘The bag (was) widened by someone/by the fire/by itself.’
- b. *ku kapang-i [PRO te nehki-wihay] nelp-eci-ess-ta
 The bag-NOM [PRO more put-in order to] wide-eci-PST-DEC
 ‘*The bag widened to put things more.’

Like *malu-* ‘dry’ in (35), *nelp-* ‘wide’ combining with *-(e)ci* in (36) does not necessarily involve an external force; it can be a natural progression to becoming dry or becoming wider. On this view, I conclude that *-(e)ci* in inchoatives does not serve as a passivizer. The unacceptability of the purpose clause can be due to the inanimate subject in both bare and *-(e)ci* inchoatives.

2.5 Acceptability judgment

An acceptability judgment task was conducted to ask judgments on how natural sentences containing gradable predicates were as a pilot test. Participants were 24 native speakers of Korean who currently live in Korea from ages 27 to 38 and have never lived abroad for more than one year. If the traditional scalar analysis of predicates applies to inchoatives in Korean, the participants will have a different judgment between traditional absolute and relative predicates regardless of the presence of a morphological change in their inchoative forms. If, however, all predicates that combine with *-(e)ci*, including those that appear to be absolute, are in fact relative predicates, then all *-(e)ci* predicates are predicted to be more acceptable than bare inchoatives.

For the purpose of this judgment task, the repetitive reading of *again* has been used in successive-increase contexts. The adverb *again* that appears with gradable predicates can have two different meanings. One of the readings is called a repetitive reading in which the whole action is repeated. The material for this study is based on the repetitive reading of *again* in successive-increase contexts, which was discussed in Petersen (2015). This paper presented the difference in this repetitive reading of *again* between absolute and relative predicates in the following successive-increase contexts:

- (37) a. Last week, the river **widened** a lot and reached the flood barrier. This week, the river widened again and overflowed onto the bank.
(Relative predicates)
- b. This morning, I left the soaking wet shirt out in the sun for a few hours. When I took it in, it had **dried** somewhat but was still quite damp. When I put the shirt outside in the afternoon, it dried #again.
(Absolute predicates)

In successive-increase contexts, the repetitive reading of *again* sentences is felicitous only with predicates that have relative meanings, which can provide a diagnostic of the

semantic properties of gradable predicates. For example, the repetitive readings of sentences containing relative predicates like *widen* are felicitous, whereas sentences containing absolute predicates like *dry* are infelicitous. This is because relative predicates do not have true absolute standards, while absolute predicates have absolute standards to have their semantic properties. For example, (37a) shows a relative predicate is felicitous in successive-increase contexts as two successive widenings of the river can take place. The second widening can happen successively from the width that the river achieved as a result of the first widening, such that the river widened even further in the second event. The widening events can be successive because *widen* can achieve its semantic property as long as its degree relatively increases, compared to the previous state. On the other hand, the use of *again* in sentences containing the absolute predicate *dry* in successive-increase contexts is infelicitous. Absolute predicates can have their own properties only when they undergo the change of states from the degree of not achieving an absolute standard to the degree of achieving the standard. For example, *again* in (37b) is infelicitous to describe the successive increase in dryness. *dry*, as an absolute predicate, can have its semantic property only when it achieves the maximum standard of dryness from the state of wetness. As a result of the first event in (37b), however, the shirt is still damp, which implies that it did not achieve the maximum standard of dryness, and thus it has not become dry yet. Therefore, the use of *again* in this successive-increase context becomes infelicitous to describe two events of becoming dry.

These ‘successive-increase’ contexts containing *again* was used to diagnose the acceptability of relative interpretations of different types of predicates. The availability of *again* in successive-increase contexts can provide a piece of evidence that the predicates are true relative predicates, having relative meanings. The implausibility of *again* in the successive-increase contexts, on the other hand, implies that there is a clearly defined standard for the predicates to undergo changes in degree. As another example of absolute predicates, a partial predicate like *open* has a minimum standard to achieve its property of openness. The use of *again* with this partial predicate is infelicitous in successive-increase contexts because it must have no degree of open-ness as its initial state. However, it already has some degree of openness as a result of the first event, which does not allow it to undergo the second opening subsequently unless it returns to its state of being closed. Accordingly, the true relative predicates are compatible with *again* in successive increases in a degree, while true absolute predicates, which have either maximum or minimum standards, are relatively not compatible with it. This

contrast will confirm the semantic properties of different types of gradable predicates.

The stimuli were conducted in Korean, which consisted of sixteen sets of items that contained different types of gradable predicates. There are three types of *again* in Korean, namely, *tasi*, *tto*, and *tolo* as Ko (2011) and Yoon (2007) discussed. Only the adverb *tasi* ‘again’, which was used in this acceptability judgment task, elicits the ambiguity observed in English *again*. A sample set of each condition appears in Table 1. The target stimuli consisted of conditions in a two × three factorial design that manipulated the morphological forms of inchoatives (bare and *-(e)ci* inchoatives) and the traditional scalar property of gradable predicates (total, partial, and relative predicates).²⁰ It is notable, however, that there are no traditional relative predicates that become bare inchoatives because all relative predicates must combine with the *-(e)ci* morpheme to be inchoatives. Therefore, the bare inchoative × relative predicate condition was excluded, resulting in the five conditions for a total. Participants were given successive-increase contexts as presented in Table 1 and were instructed to complete the acceptability-rating questionnaire on a 6-point scale for all target stimuli. The fillers were composed of similar lengths of paragraphs and the participants were given comprehension tasks based on the contexts of each question.

Table 1 A sample set of items for the acceptability judgment task²¹

	Preceding context	Target sentence
Bare inchoatives	Total predicates ‘As I left the soaking wet shirt out in the sun for a few hours this morning, it had dried somewhat but was still quite damp.’	‘When I put the shirt outside in the afternoon, it dried <u>again</u> .’
	Partial predicates ‘When I entered a restaurant, the door opened a little bit.’	‘After a while, the door opened <u>again</u> as more people came.’
<i>-(e)ci</i> inchoatives	Total predicates ‘As the room was too cold, I turned on the heater. So it got dry a little bit.’	‘After a while, I turned on the heater while sleeping because it was still cold, and it got dry <u>again</u> .’
	Partial predicates ‘While I traveled Philippine, it was on rainy	‘As it began to rain, it became humid <u>again</u> .’

20 In this section, I call total, partial, and relative predicates based on the traditional classification of gradable predicates for the sake of convenience.

21 A full set of experimental sentences is available at the following link: https://osf.io/d5s3j/?view_only=e3796391823449f0b2676bf6c242f59e

season and the air conditioner did not work at the airport. So it became humid a little bit but I could bear it.'

Relative predicates

'Last week, the river widened to the extent to which almost reach the flood barrier due to flood.'

'This week, the river widened again and overflowed onto the bank.'

The descriptive result of the acceptability judgment task is summarized in Table 2.

Table 2. Mean acceptability ratings of each condition

	Morphological forms		Total
	Bare inchoatives	<i>-(e)ci</i> inchoatives	
Relative predicates	--	3.58	3.58
Partial predicates	2.46	3.86	3.16
Total predicates	2.28	3.13	2.45
Total	2.36	3.62	3.07

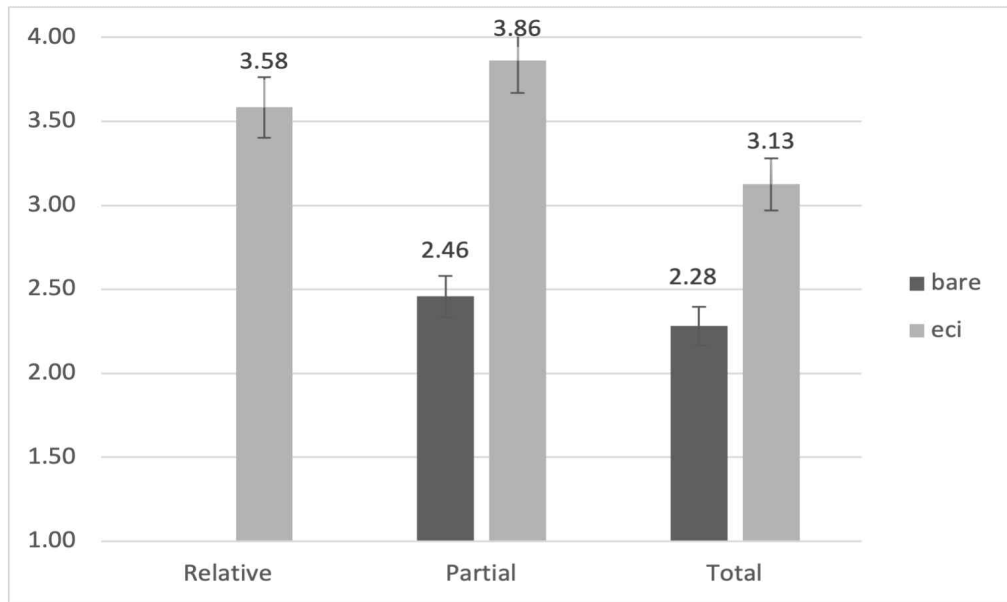


Figure 1. Mean acceptability ratings of each condition

Table 2 and Figure 1 report the mean acceptability scores. They show that relative predicates, all of which becomes *-(e)ci* inchoatives, received the highest score followed by the partial predicates that combine with *-(e)ci* to become inchoatives.

Data were analyzed using linear mixed effects linear regression with crossed random

effects for participants and items (Baayen, Davidson, and Bates 2008), using the *lme4* package (R 4.0.3: Bates, Maechler, Bolker, and Walker 2015). Each model included the maximal random effect structure that would allow for convergence. The morphological forms, namely bare and *-(e)ci* morphemes (2 levels), and types of predicates (3 levels) were contrast-coded using centered Helmert contrasts. For the morphological forms, the first coefficient contrasted relative predicates (coefficient: $+2/3$) with absolute predicates (coefficient: $-1/3$ for total predicates; $-1/3$ for partial predicates). This contrast asks about the effect of the two main types of predicates: relative predicates versus absolute predicates. The second coefficient contrasted total predicates with partial predicates (0 for relative predicates, $-1/2$ for total, and $+1/2$ for partial predicates). The last coefficient contrasted bare forms (coefficient: $-1/2$) and *-(e)ci* morpheme (coefficient: $+1/2$): this contrast asks the effect of morphological forms.

In terms of the types of predicates, a partial predicate yielded the highest acceptability ratings, lower when it is a relative predicate, and lowest when it is a total predicate. The repetitive reading of ‘again’ in successive-increase contexts was more accepted with relative predicates (3.58) than partial predicates (3.16), which was more accepted than total predicates (2.45). The differences between relative predicates and the two absolute predicates revealed no significance ($\beta=0.09$, $SE=0.58$, $t=0.15$, $p=.88$). The difference between total and partial predicates also revealed no significance ($\beta=0.45$, $SE=0.55$, $t=0.82$, $p=.42$). Furthermore, this pattern of the rating score is attributed to a certain morphological form of predicates given the comparison of morphological forms, such that not all types of partial and total predicates presented the different rating scores compared to relative predicates. Only the predicates that become bare inchoatives—bare partial and bare total predicates—caused relatively lower rating scores than relative predicates, but not those that become *-(e)ci* inchoatives, or *-(e)ci* partial and *-(e)ci* total predicates. The comparison of *-(e)ci* partial and *-(e)ci* total predicates to relative predicates showed similar rating scores to relative predicates (3.58), which are 3.86 and 3.13, respectively. However, bare partial and bare total predicates revealed relatively lower rating scores than relative predicates (3.58), which are 2.46 and 2.28, respectively. The effect of morphological forms between *-(e)ci* and bare inchoatives was marginally significant ($\beta=1.12$, $SE=0.55$, $t=2.04$, $p=.06$). In sum, this result suggests that the lower rating scores of partial and total predicates than relative predicates are due to the low rating scores of those that become bare inchoatives, not *-(e)ci* inchoatives. Therefore, it supports the current proposal that morphological forms of gradable predicates in Korean are in line

with the different semantic properties of gradable predicates.

In terms of total predicates, *-(e)ci* total predicates received a slightly lower acceptability rating (3.13) than *-(e)ci* partial (3.86) and relative predicates (3.58). This pattern is consistent with the pattern of bare total predicates in comparison to bare partial predicates and relative predicates. For *-(e)ci* total predicates, it can be due to relative unnaturalness of *again* with total predicates, which have the maximum standards. The speakers might have considered the maximum standards of the total predicates unnatural in successive-increase contexts although *-(e)ci* total predicates still can have their own properties without achieving their very end maximum standards in contexts.

The acceptability scores were low on average, which can be attributed to the fact that *te* ‘more’ is basically more natural than *tasi* ‘again’ in successive-increase contexts. The result of this experiment, however, gives a hint of the distinct pattern between *-(e)ci* and bare partial predicates, in comparison to the traditional scalar analysis. More systematic and quantitative research is necessary to explore the semantic analysis of bare and *-(e)ci* inchoatives and draw a concrete conclusion since this paper recruited a small number of Korean native speakers. I leave a more in-depth investigation of this issue to future research.

3. The structure of *-(e)ci* and bare inchoatives

In section 2, I showed that both *-(e)ci* and bare inchoatives are relevant using a degree scale. The only difference is whether there exists an absolute end point or not. Accordingly, I assume that both bare and *-(e)ci* inchoatives require Degree Phrase (DegP) in their syntactic structures but have different structures: bare inchoatives are composed of one DegP, while *-(e)ci* inchoatives have two DegPs. The current paper adopted DegP with a degree head inspired by Lim (2016) and Lim and Zubizarreta (2012) who also used DegP for the structure of *-(e)ci* construction. I further propose a decompositional structure for *-(e)ci* inchoatives and two different degree heads in this paper: *pos* and *pos_v*, that Svenonius and Kennedy (2006) introduced.

3.1 The concepts of a measure function and the change of measure function

Before getting into the proposal, I will introduce the basic concept of a measure

function m and the change of measure function m_{Δ} . According to Kennedy (1999), adjectives are assumed to be functions from individuals to degrees so called the measure function, m . For example, the semantic denotation of the measure function *wide* is (38):

$$(38) \llbracket \text{wide} \rrbracket_c = \lambda x e. \text{ the degree to which } x \text{ is wide}$$

It is more commonly assumed that an adjective is a function of individuals to truth values. Therefore, it needs extra help to become what we typically assume for predicates. Kennedy resolves it by introducing a degree head. An adjective first combines with a functional degree head called *Deg*, which takes an adjective of type $\langle e, d \rangle$ as its argument and returns a predicate of type $\langle e, t \rangle$. One of the functional degree heads, *pos*, is an unmarked positive form of degree and is sensitive to the scale structure of a predicate (Petersen 2015: 30). For predicates combining with *-(e)ci*, I adopt the definition of *pos* that Svenonius and Kennedy (2006) proposed:

$$(39) \llbracket \text{Deg } pos \rrbracket_c = \lambda g \in D \langle e, d \rangle. \lambda x. g(x) > ds(g)(c)$$

ds(g)(c) represents the ‘standard of comparison’ for a context of utterance c : the degree that is required to count as having the property measured by g in c .
(Svenonius and Kennedy 2006)

Svenonius and Kennedy (2006) give *pos* denotation for relative adjectives. It indicates that the degree exceeds the standard of comparison in a context. The combination of *pos* and *wide*, for example, yields the property in (40): it is true of an object if its degree of width exceeds a contextually determined standard of width. For example, the sentence ‘the river is wide’ can be represented as (40).

$$(40) \text{ The river is wide.}$$

$$\llbracket \text{is} \rrbracket = \lambda P_{\langle e, t \rangle}. P$$

$$\llbracket pos \text{ (wide)} \rrbracket_c = \lambda x. \text{ the degree to which } x \text{ is wide} > d_{s(wide)(c)}$$

$$\llbracket \text{is} \rrbracket (pos \text{ (wide)}) = \lambda x. \text{ the degree to which } x \text{ is wide} > d_{s(wide)(c)}$$

$$\llbracket \text{the river is } pos \text{ (wide)} \rrbracket = \text{the degree to which the river is wide} > d_{s(wide)(c)}$$

Under their analysis, the stative sentence ‘the river is wide’ without *-(e)ci* means the degree to which the river is wide is greater than the standard of comparison.

The next function I introduce is the measure of change function, m_{Δ} . Kennedy and Levin (2008) first introduce the difference function $m\uparrow_d$ and consider the achievement of the degree of adjectives as a special kind of difference function. The basic idea of the difference function $m\uparrow_d$ is the same as m except that the degree it returns represents the difference between the object's projection on the scale and an arbitrary degree d :

(41) Difference functions

For any measure function \mathbf{m} from objects and times to degrees on a scale S , and for any $d \in S$, $m\uparrow_d$ is a function just like \mathbf{m} except that:

- i. its range is $\{d' \in S \mid d \leq d'\}$, and
- ii. for any x, t in the domain of \mathbf{m} , if $m(x)(t) \leq d$ then $m\uparrow_d(x)(t) = d$.

(Kennedy and Levin 2008: 17)

If the degree scale d' is larger than an arbitrary degree d , the outcome is d' . Also, if the measure function of x at a certain time is less than d , then the outcome of the difference function $m\uparrow_d$ is d .

(42) Measure of change

For any measure function \mathbf{m} , $\mathbf{m}_{\Delta} = \lambda x. \lambda e. \mathbf{m}\uparrow_{m(x)(\text{init}(e))} (x)(\text{fin}(e))$

(Kennedy and Levin 2008: 18)

(42) is for the specific denotation for the achievements of the degree in adjectives. The output of the measure of change function \mathbf{m}_{Δ} is “a degree to which it measures \mathbf{m} at the end of e , which is the result of the positive difference from the degree to which x measures \mathbf{m} at the beginning of e ”. \mathbf{m}_{Δ} whose type is $\langle e, d \rangle$ as the measure function \mathbf{m} must combine with a degree head in order to be a property. The measure of change function \mathbf{m}_{Δ} and its corresponding degree head pos_v is based on the measure function \mathbf{m} that has a lower closed scale. A measure of change function combines with a degree morpheme— pos_v —a verbal positive form morpheme introduced by Pinon (2005).

(43) a. $pos_v = \lambda g \in D_{\mathbf{m}_{\Delta}}. \lambda x. \lambda e. g(x)(e) > \text{std}(g)$

(std represents standard of comparison)

b. $pos_v(\mathbf{m}_{\Delta}) = \lambda x \lambda e. \mathbf{m}_{\Delta}(x)(e) > \text{std}(\mathbf{m}_{\Delta})$ (Kennedy and Levin 2008: 19)

Combining pos_v with \mathbf{m}_{Δ} , the property is true iff the resulted degree of an object x

due to the positive difference in an event e exceeds the standard of comparison for m_{Δ} . The minimal element of the measure function m_{Δ} corresponds to the degree introduced as the standard of comparison.

3.2 The proposed structure of $-(e)ci$ inchoatives

3.2.1 Ramchand (2008)'s structure

Ramchand (2008) assumes that lexicons are part of the same system with syntax. The paper, therefore, incorporates the lexical meaning of verbs into a syntactic structure by decomposing the verbal meaning syntactically.

Under her analysis, the syntactic structure is composed of several event-building phases, which decompose the lexical information into a set of distinct phases with “syntactic and semantic modes of combination”. Ramchand (2008) examines how we can generate the event structures such as the classic Hale and Keyser (1993)'s conflation type verbs (e.g., *dance*, *sleep*, *laugh*), double object constructions, prepositional phrases with motion verbs, and adjectival resultatives, including inchoatives as degree achievements. These constructions include lexical verbs with complex features, such that lexical information includes the subsequent process of an event.

Ramchand (2008) introduces that verbs can be decomposed into three categories: namely, *init*, *proc*, and *res*. *init* represents the causational projection that introduces the external argument, and *proc* basically represents the dynamic process. The label *res* indicates the result of an event. These types of verbs can be present or absent in the structure depending on a systematic semantic interpretation of the lexical verb. In terms of inchoatives, the paper analyzed these deadjectival verbs as “a special kind of process verb where the degree of verbal change is mapped onto a property scale of some sort (derived from a basic adjectival meaning)”, following Hay, Kennedy, and Levin (1999: 98). She, thus, posits that they are classic *proc* verbs as an intransitive use, and the complement position of the verb pertains to the property scale of adjectives. This paper, however, did not discuss how the structure of the complement position will be realized as a syntactic structure in detail. Furthermore, it only showed *dry* as an example (e.g., *The cocoa beans dried in the sun for two hours*), which is an absolute predicate and, thus, corresponds to bare inchoatives in Korean. Therefore, the current paper adopts the concept of Ramchand's decompositional structure to $-(e)ci$ and bare inchoatives and further

proposes how to represent the property scale of adjectives in the syntactic structure.

3.2.2 Ramchand (2008)'s structure to *-(e)ci* inchoatives

The proposed structure of *-(e)ci* inchoative in this paper is decompositional following Ramchand (2008)'s event structure. There are two stages of DegPs: initial projection, *initDegP*, and process projection, *procDegP* as shown in (42). The first *initDegP* describes the non-minimal degree of an entity in the initial state; *procDegP* introduces the degree of an entity as a result of the change of state. This part of the structure is, in fact, the decomposition of the concept of measure of change function \mathbf{m}_Δ . I use intervals to explicitly present the decomposition of \mathbf{m}_Δ . Recall that the concept of \mathbf{m}_Δ includes the temporal argument to derive the outcome of \mathbf{m}_Δ as shown below:

(44) Difference functions

For any measure function \mathbf{m} from objects and times to degrees on a scale S , and for any $d \in S$, $\mathbf{m}\uparrow_d$ is a function just like \mathbf{m} except that:

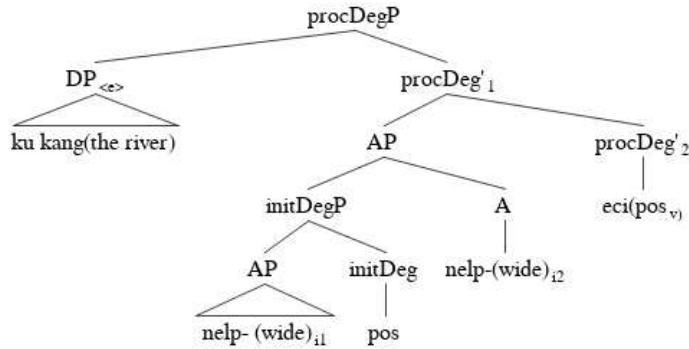
- i. its range is $\{d' \in S \mid d \leq d'\}$, and
- ii. for any x, t in the domain of \mathbf{m} , if $\mathbf{m}(x)(t) \leq d$ then $\mathbf{m}\uparrow_d(x)(t) = d$.

(Kennedy and Levin 2008: 17)

The structure of *nelp-eci*, for example, is the decomposition of wide_Δ . It is assumed that wide_Δ is decomposed into *initDegP* and the degree in the later state *nelp(wide)_i* structurally. Then the degree in the later state combines with *pos_v*, which introduces the standard degree of comparison, leading to the property that the degree in the later state is greater than the degree in the initial state. The first *initDegP* is composed of the degree head *pos* and a measure function \mathbf{m} at interval i_1 , while the next process *procDegP* is composed of the degree head *pos_v*, and a measure function \mathbf{m} at interval i_2 . An *-(e)ci* inchoative is proposed to be syntactically represented as (45):²²

- (45) *ku kang-i nelp-eci-ess-ta*
 the river-NOM wide-eci-PST-DEC
 'The river widened'

22 The category of 'wide' can be a verb depending on the claim on the category of adjectives in Korean. The point in this structure is that whatever the category of 'wide' is, itself cannot make a proposition. It must combine with a degree functional head to return into predicate type $\langle e, t \rangle$.



As the degree head *pos* is sensitive to the scale of predicates mentioned before, the *initDegP* is suggested to have *pos* whose semantic representation corresponds with the one that selects lower closed scale adjectives.

- (46) $\llbracket \text{Deg } pos \rrbracket^c = \lambda g. \lambda x. g(x) > \min_c(g)$
 (\min_c is a function from measure function to the contextually minimal element in the range.)

This default semantic denotation of *pos* when combining with the relative predicate in *initDegP* comes from the presupposition of the inchoative meaning. “The lake became bigger”, for example, presupposes that it was still a ‘lake’ at the initial state and the size of the water was big enough to be called a lake. It does not describe the situation where a pond has become bigger so that it became a lake. If the lake was small in the initial state, then it is no longer called a lake. Accordingly, *pos* helps the relative predicates to have the property to be true if the object has the contextually non-minimal element so that it is justified to be the object.

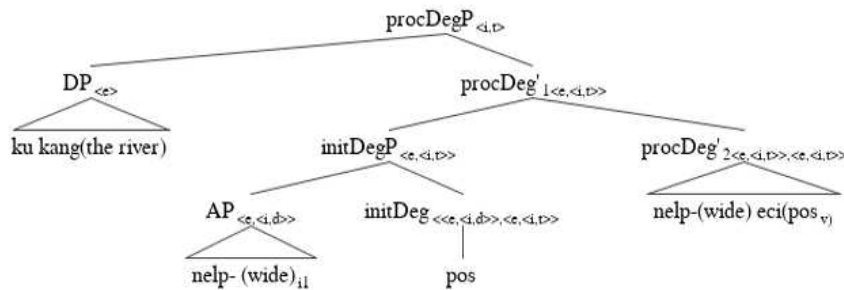
The semantic denotations of degree heads and measure functions include interval denotations for the structure of the *-(e)ci* inchoative as mentioned before. For example, the measure function *m* in this structure is a function from objects and time intervals to degrees $\langle e, \langle i, d \rangle \rangle$. Intervals are defined as a base set of ordered points, either temporal moments or points in the space of a path (Gawron 2005). An interval is a dense, gapless subset of such points (Peterson, 2015: 381). $i_1 < i_2$ iff every point in i_1 precedes every point in i_2 . *Wide* is shown in (47a) as an example of the semantic property of the measure function.

- (47) a. $\llbracket \text{wide} \rrbracket = \lambda x. \lambda i_1 \in D_{\langle i \rangle}. \text{width}_{\max}(x)(i_1)$
 b. $\llbracket pos \rrbracket = \lambda g \in D_{\langle e, \langle i, d \rangle \rangle}. \lambda x. \lambda i_1 \in D_{\langle i \rangle}. g(x)(i_1) > \min_c(g)$

The semantic property of the measure function $\llbracket \text{wide} \rrbracket$, which is the maximal degree to which x is wide at i_1 , is denoted as ‘ $\text{width}_{\max}(x)(i_1)$ ’. The semantic property of *initDeg* is the degree of x at interval i_1 and its presupposition is that the degree must reach at least contextually minimal degree.

The next stage is *procDegP*. It represents the maximal width at the interval i_2 that i_1 precedes, and it combines with the degree head pos_v . The $\text{width}_{\max}(x)(i_2)$ in this structure undergoes head-to-head raising. It moves to a higher *procDeg* head, pos_v . The combination of $\text{width}_{\max}(x)(i_2)$ and pos_v represents that the width at interval i_2 exceeds the width at interval i_1 which precedes i_2 . I also propose that *-(e)ci* is the realization of the degree head pos_v , which only selects the predicates that have no absolute standardized degree. In *-(e)ci* construction, *-(e)ci* specifically compares the $\text{width}_{\max}(x)(i_1)$ to $\text{width}_{\max}(x)(i_2)$ as the degree head pos_v . (48) presents the semantic denotation of structure with the head movement of $\text{width}_{\max}(x)(i_2)$.²³

(48)



$$\llbracket \text{pos} \rrbracket = \lambda g \in D_{\langle e, \langle i, d \rangle \rangle}. \lambda x. \lambda i_1 \in D_{\langle i \rangle}. g(x)(i_1): g(x)(i_1) > \min_c(g)$$

$$\llbracket \text{wide}_{i_1} \rrbracket = \lambda x. \lambda i_1 \in D_{\langle i \rangle}. \text{width}_{\max}(x)(i_1)$$

$$\llbracket \text{initDegP} \rrbracket = \lambda x. \lambda i_1. \text{width}_{\max}(x)(i_1): \text{width}_{\max}(x)(i_1) > \min_c(\text{width}_{\max})$$

$$\llbracket \text{wide}_{i_2} \rrbracket = \lambda x. \exists i_2. \text{width}_{\max}(x)(i_2)$$

$$\llbracket \text{eci}(\text{pos}_v) \rrbracket = \lambda f \in D_{\langle e, \langle i, d \rangle \rangle}. \lambda h \in D_{\langle e, \langle i, d \rangle \rangle}. \lambda x. \lambda i_1. f(x) > h(x)(i_1)$$

$$\llbracket \text{procDeg}'_2 \rrbracket = \lambda h \in D_{\langle e, \langle i, d \rangle \rangle}. \lambda x. \lambda i_1, \exists i_2: i_1 < i_2. \text{width}(x)(i_2) > h(x)(i_1)$$

$$\llbracket \text{procDeg}'_1 \rrbracket = \lambda x. \lambda i_1, \exists i_2: i_1 < i_2. \text{width}_{\max}(x)(i_2) > \text{width}_{\max}(x)(i_1)$$

$$\llbracket \text{procDegP} \rrbracket = \lambda i_1, \exists i_2: i_1 < i_2. \text{width}_{\max}(\text{the river})(i_2) > \text{width}_{\max}(\text{the river})(i_1)$$

23 The initial AP wide_{i_1} cannot undergo movement to the AP in *procDeg'* due to different intervals. *width* in *procDeg'* indicates the width at interval i_2 , which should be compared to the width at interval i_1 .

In the initial state, the width of the river is contextually salient to be called a river, non-minimal degree of width. The whole structure is true iff the degree of an object at the later interval is greater than the degree at the initial interval. The *initDegP* is the underlying structure of *-(e)ci* constructions and *nelp(i₂)* is the pronounced *nelp*-‘wide’ combining with *-(e)ci*.

Returning to the measure of change function m_{Δ} and comparing it to the proposed structure, the denotation of m_{Δ} is repeated in (49).

(49) Measure of change

For any measure function \mathbf{m} , $\mathbf{m}_{\Delta} = \lambda x. \lambda e. \mathbf{m} \uparrow \mathbf{m}(x)(\text{init}(e))(x)(\text{fin}(e))$

(Kennedy and Levin 2008: 18)

The output of m_{Δ} was the degree at the end of the event, which corresponds to *widei₂* in the structure. The entailed meaning that the degree at the end of the event undergoes a change from the degree at the initial event, which corresponds to the structure of *initDegP*. Then it becomes a property by combining with *-(e)ci*, the realization of *pos_v*.

The reason why *wide_{\Delta}* needs to be decomposed in this structure is the requirement of stating the initial state before the change of state in order to rule out the true absolute predicates that become bare inchoatives. This assumption rules out the true absolute predicates that require minimal (e.g. *cet*- ‘wet’) or maximal degree (e.g. *malu*- ‘dry’) to obtain their own semantic properties since they require a zero degree at the beginning of the event. For example, the true absolute predicate like *cet*- ‘wet’ is true iff it undergoes the change of state from the dry state to any degree that passes the minimal degree of wetness. Likewise, the absolute predicate like *malu*- ‘dry’ that requires maximal degree must be wet in its initial state. Therefore, the *initDegP* is necessary to block true absolute predicates. The proposed structure of *-(e)ci* inchoatives embodies the measure of change function m_{Δ} all by itself. As having two degrees, an initial degree and the degree at a later interval, the two degrees can be explicitly compared. Thus, it is fully compositional in that there are two degrees in distinct intervals, having two distinct functional degree heads, *pos* and *pos_v*.

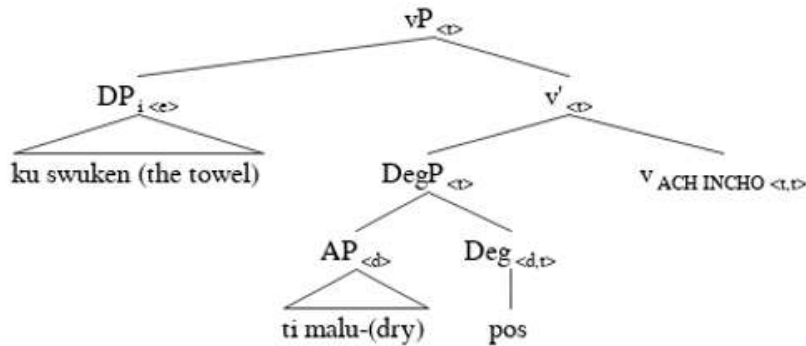
3.3 The structure of bare inchoatives

Predicates that combine with *-(e)ci* to become inchoatives are not able to mean the

change-of-state if they have bare forms. Likewise, predicates that become bare inchoatives are not compatible with *-(e)ci*. (50) is the proposed structure of bare inchoatives.

Since it has been discussed that bare inchoatives also have degree properties, they are expected to have DegP as *-(e)ci* inchoatives. I assume that the predicates of bare inchoatives have the same semantic type $\langle e, d \rangle$ as the predicates of *-(e)ci* inchoatives except for the interval *i*. Thus, they must also combine with *pos* to complete the computation.²⁴

(50) The towel dried.



The degree head *pos* encodes the standard relation, and it must vary depending on lexical features of the adjectives (Kennedy and McNally 2005). Bare inchoatives, as true absolute predicates, have maximal or standard depending on lexical features of the predicates. Accordingly, *pos* ensures the standards are fixed and the predicates have to achieve the standardized degrees. For example, bare inchoative *malu-* 'dry' is achieved only when the object reaches the maximal degree of dryness. *pos* combining with this type of predicates encodes the maximal standard value. If the object has a non-maximal degree of dryness, then the truth condition is false.

In (51b), bare inchoative *cet-* 'wet', on the other hand, combines with *pos* that encodes the minimal standard degree. *cet-* 'wet' is true once the object achieves the minimal degree of wetness. If the object has a non-minimal degree of wetness, then the truth condition is false.

²⁴ In bare inchoatives, it is assumed that the predicate combines with the subject first before combining with *pos* in order to follow the semantics of BECOME operator in Beck and Johnson (2004).

- (51) a. $\llbracket \text{dry} \rrbracket = \lambda x.\text{dryness}(x)$
 $\llbracket \text{pos} \rrbracket = \lambda g(x) \in D\langle d \rangle. \lambda x. g(x)=\mathbf{max}(g)$
- b. $\llbracket \text{wet} \rrbracket = \lambda x.\text{wetness}(x)$
 $\llbracket \text{pos} \rrbracket = \lambda g(x) \in D\langle d \rangle. \lambda x. g(x)=\mathbf{min}(g)$

min and **max** are functions from measure functions to the minimal and maximal elements in their ranges, respectively (Kennedy 2007).

I adopted the verbal head, v_{INCHO} proposed by Son (2006) to present the inchoative meaning of the bare form. This structure assumes that the covert v_{INCHO} expresses the change of state syntactically, adopting the semantics of BECOME defined by Beck and Johnson (2004) as shown in (52b). In this paper, I propose a specific v_{INCHO} that allows only true absolute predicates, resulting in bare inchoatives. I will call this specific v_{INCHO} $v_{\text{ACH_INCHO}}$. In addition to the semantics of BECOME (Beck and Johnson 2004), this $v_{\text{ACH_INCHO}}$ has a defined condition as described in (52a):

- (52) a. For all P and e, BECOME (P)(e) is defined iff for any context c and c',
 $\llbracket P \rrbracket^c \leftrightarrow \llbracket P \rrbracket^{c'}$
- b. If defined, for all P and e, $\lambda P. \exists e.[\text{BECOME (P)(e)}=1]$ iff for all relevant interval $i < \tau(e)$, P is false at i' and for all relevant interval $\tau(e) < i''$, P is true where $\tau(e)$ is the running time of e.

First, $v_{\text{ACH_INCHO}}$ is defined if and only if the truth condition of P is not context-dependent and remains the same across contexts. This defined condition blocks the relative predicates from combining with $v_{\text{ACH_INCHO}}$. Then, $v_{\text{ACH_INCHO}}$ combining with P yields the meaning that there exists an event that results in P, and P is not true in the prestate of the event.

The proposition (50) means that there is an event where the towel reached its maximal degree of dryness. First, *malu-* 'dry' satisfies the defined condition (52a) since the conventional meaning of *malu-* 'dry' has a maximum standard, yielding the constant truth value across contexts. Combining with $v_{\text{ACH_INCHO}}$, the state of towel did not reach the maximal degree of dryness before the event happens. It is true only if the towel attains the maximum degree value. The semantic denotation of the sentence (53) is the following:

(53) The towel dried.

[[dry] = λx .dryness(x)

[[AP] = dryness(the towel)

[[pos] = $\lambda g(x) \in D\langle d \rangle$. $g(x)=\mathbf{max}(g)$

[[DegP] = dryness(the towel)= \mathbf{max} (dryness)

[[v_{ACH_INCHO}] = λP . $\exists e$ [BECOME (P)(e)=1]

[[vP] = $\exists e$ [BECOME (dryness(the towel)= \mathbf{max} (dryness)) (e)=1]

The structure of bare inchoatives indeed expresses the achievements of degrees. As other typical achievement verbs such as *die* and *find*, the entity undergoes the process of changing the state, and there is the moment at which there is a transition to a result state. This meaning of achievement is licensed by v_{ACH_INCHO} in the proposed structure. It provides a critical end point where the state is changed.

3.4 Interpretive economy and structural economy

In section 3.2, I discussed the defined condition of v_{ACH_INCHO}, which blocks relative predicates. In this section, I introduce the concept of Interpretive Economy (Kennedy 2007) as the basis of the defined condition, which influences the selection requirement between bare and *-(e)ci* inchoatives in the end.

(54) Interpretive Economy

Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions.

(Kennedy 2007: 36)

Kennedy (2007) proposes the concept of *Interpretive Economy* to account for the default mapping of absolute predicates to the positive form that has the conventional meaning of the predicates. Although the context-dependent interpretation and relative standard of comparison can be in principle an option, the conventional meaning that has the absolute truth condition should surface. (54) maximizes “the role of agreed upon meanings, constraining the range of possible interpretations (Kennedy 2007: 36)”.

Regarding *Interpretive Economy*, I apply this concept to the selection level of

predicates: the selection requirement between bare and *-(e)ci* inchoatives is purely based on the conventional meaning of the predicates it selects. V_{ACH_INCHO} selects the true absolute predicates whose truth values are consistent across contexts based on their conventional meanings. The selection requirement of V_{ACH_INCHO} was defined in (52a). *-(e)ci* is required only when predicates have context-dependent truth-conditions in terms of their conventional meaning, which is the property of relative predicates.

The basic concept of *Interpretive Economy* can be further extended to the economy of structural realization of Interpretive Economy. For instance, bare inchoatives have less intricate structure than *-(e)ci* inchoatives in that the former have one DegP, while the latter requires two stages of DegPs, namely *init*DegP and *proc*DegP. Therefore, once the lexical meaning of the predicates satisfies the selection requirement of bare inchoatives, *-(e)ci*, which requires a more complex structure, will not be applied to the inchoative structure of the predicates. The usage of the simpler structure, which is the structure of bare inchoatives, is maximized as long as the conventional meaning of the predicates is compatible with it. I define this concept as *Structural Economy*:

(55) Structural Economy

Truth-conditions are required to be computed on the basis of the conventional meaning of predicates to the extent possible, requiring the more complex structures only when the conventional meaning of predicates is not compatible with simpler structures.

For example, the predicate *tat-hi* ‘close’ is inherently absolute that requires a maximum standard. Therefore, the truth value remains constant in any contexts, satisfying the defined condition of V_{ACH_INCHO} and becoming a bare inchoative. Since it satisfies the lexical meaning of predicates that can be bare inchoatives, it prevents the predicate *tat-hi* ‘close’ from combining with the *-(e)ci* morpheme, which requires a more complex structure. On the other hand, the conventional meaning of a predicate like *nelp-* ‘wide’ inherently contains the relative meaning, and thus cannot satisfy the defined condition of V_{ACH_INCHO} . As it cannot satisfy the required lexical meaning of predicates that become bare inchoatives, they must combine with the *-(e)ci* morpheme and contain context-dependent relative meanings. *Structural Economy* defined in (55) in effect prevents a semantic coercion process to alter the structure of an absolute predicate.

One notion to point out is that the *Interpretive Economy* allowed context-dependent

truth conditions only when the conventional meaning is insufficient. Absolute predicates like *yel-li* ‘open’ can have context-dependent degree properties, for instance, in comparative constructions. I predict that this contextual meaning can be achieved after the selection requirement of V_{ACH_INCHO} , which is based on the lexically inherent conventional meaning. Therefore, the contextual meaning of absolute predicates does not affect the lexical selection of inchoative verbs. Since the conventional meaning of *open* has a fixed minimal standard, it still satisfies the defined condition of V_{ACH_INCHO} and becomes a bare inchoative.

The example below also supports the claim that the lexical selection of inchoative verbs is based on their inherent meanings even though absolute predicates can have more relative meanings due to semantic extension.

- (56) a. I ai-ga ce ai-pota te malu-ess-ta.
 This kid-Nom that kid-than more be skinny-PST-DEC
 ‘This kid is skinner than that kid.’
- b. *I ai-ga ce ai-pota te malu-eci-ess-ta.
 This kid-Nom that kid-than more be skinny-ECI-PST-DEC
 Intended: ‘This kid is skinner than that kid.’

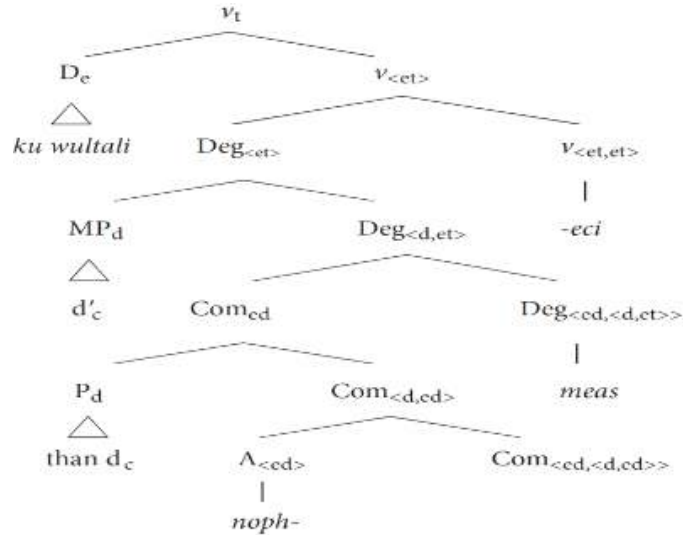
malu- ‘dry’ can function as an adjective meaning ‘be skinny’ as shown in (56). It shows that *-(e)ci* is still not compatible with *malu-* ‘dry’ even though it has no absolute standard to be skinny in this context. This is a case where the selectional requirement of *-(e)ci* in inchoative verbs is purely based on its lexically inherent meaning. *Malu-* ‘dry’ meaning ‘be skinny’ is the result of semantic extension of the inherent meaning of absolute *malu-* ‘dry’. The change of state from *wet* to lacking water or liquid was extended to the change of a physical shape having less weight. It shows that the absolute meaning of *dry* was extended to describe a range of relative meaning. It is, however, crucial to note that the selectional requirement of *malu-* ‘dry’ is still based on its inherent lexical meaning, blocking the *-(e)ci* structure.

4. The comparison with Lim and Zubizarreta (2012)’s analysis of *-(e)ci* structure

Lim and Zubizarreta (2012) previously proposed the structure of *-(e)ci* construction.

Tree structure shown below is what Lim and Zubizarreta (2012: 250) proposed:

- (57) *Ku wultali-ka noph-eci-ta*
 The fence-NOM high-eci-DEC
 'The fence becomes higher.'



- [[noph-]]^c = λx. the degree to which x was high
 - [[noph-Com]]^c = λd'_d. λx. the degree to which x was high w.r.t. d'
 - [[noph-Com than d_c]]^c = λx. the degree to which x was high w.r.t. d_c
 - [[meas noph-Com than d_c]]^c = λd_d. λx. height of x w.r.t. d_c was more than or equal to d
 - [[d'_c meas noph-Com than d_c]]^c = λx. height of x w.r.t. d_c was more than or equal to d'_c
 - [[-(e)ci d'_c meas noph-Com than d_c]]^c = λx. height of x w.r.t. d_c was more than or equal to d'_c
- Therefore, [[ku wultali-ka noph-aci-]]^c = [[that fence became d'_c meas taller than d_c]]^c, which is true if and only if height of that fence w.r.t. d_c became more than/equal to d'_c.

The first main difference between this *-(e)ci* structure of Lim and Zubizarreta (2012) and the proposed structure in this paper is the type of degree heads. They adopt a degree head *meas* instead of *pos*. *Meas* is a degree head that takes both the adjective as well

as a measure phrase (MP) as its argument (Svenonius and Kennedy 2006). They assume a covert default measure phrase (MP) with a comparative phrase (CompP) to account for the relative increase in the degree of height.

Total and partial verbs combining with *-(e)ci*, like *kkaykkushay-ci-* ‘clean’, *kencohay-ci-* ‘dry’, *telep-eci-* ‘dirty’, and *hulisha-ci-* ‘blur’, however, do not have the inherent property to take MP because the degree properties of these predicates do not provide the explicit numeric measurement, yielding no MP either covertly or overtly. For example, the measure phrase to describe the degree of cleanness is not commonly assumed. Lim and Zubizarreta (2012) simply propose that *meas* takes CompP as its argument in Korean predicates combining with *-(e)ci* without delimiting the types of predicates that can combine with *-(e)ci*.

The next main difference is the property of *-(e)ci*. Lim and Zubizarreta (2012) assume *-(e)ci* is a verb meaning ‘become’, while I propose *-(e)ci* is the realization of *pos_v*. They fail to correctly predict the morphological form of bare inchoatives since they did not consider bare inchoatives. Lim and Zubizarreta (2012) did not make a restriction on the types of predicates that are compatible with *-(e)ci*. They stated that verbs of change of state and verbs of creation are also compatible with *-(e)ci*. In their verb list, it was *kencoha-* ‘dry’ combining with *-(e)ci* that was presented as an example of absolute adjectives in their paper. They did not include predicates that become bare inchoatives such as *malu-* ‘dry’, *pi-* ‘empty’, and *cec-* ‘wet’, which cannot combine with *-(e)ci*. Since they belong to verbs of change of state, they must be compatible with *-(e)ci*, which is in fact not true. Under their assumption, it can’t capture the reason why *malu* ‘dry’ is not compatible with *-(e)ci*. As the paper did not compare bare and *-(e)ci* inchoatives, they do not demonstrate why there is a restriction between the two types of inchoatives. It has been observed that the generalization in the current paper can be further extended to other change-of-state verbs and verify why some change-of-state verbs are not compatible with *-(e)ci*.

In addition, this paper also acknowledges that they cannot explain why the change-of-state verbs like *cwuk-* ‘die’ or *salaci-* ‘disappear’ are not able to combine with *-(e)ci*. Under the analysis of bare inchoatives in the current paper, not only can we account for the incompatibility of predicates that become bare inchoatives with *-(e)ci*, but also that of achievement verbs like *cwuk-* ‘die’ or *salaci-* ‘disappear’, which have the same semantic property with bare inchoatives in that they satisfy the defined condition.

5. Conclusion

It has been mainly discussed that *-(e)ci* only takes relative predicates. Even though some of them seems to be absolute predicates, they, in fact, have the same property of traditional relative predicates. Bare inchoatives, on the other hand, only take absolute predicates. The degrees of bare inchoatives have standards; once it satisfies the standard, then the degree is achieved. Then, a bare inchoative can extend its semantic property to the larger surface or space. Only *-(e)ci* inchoatives can increase the degree of the property of the predicates. Furthermore, the different semantic properties caused different syntactic structures in Korean. Bare inchoatives contain v_{ACH_INCHO} , which takes only absolute predicates that have the identical truth value across context. The degree functional head *-(e)ci*, which encodes the relatively increased degree, semantically selects relative predicates that are incompatible with v_{ACH_INCHO} .

In terms of syntactic structures, I proposed the lexical decomposition where all the meaning compositions are spelled out as a separate head as well as two distinct degree phrase stages in syntax. The measure of change function m_{Δ} needs to be decomposed in this structure in order to state the at least minimal degree before the change of state, blocking the true absolute predicates that become bare inchoatives. The true absolute predicates must not have its semantic property at the beginning of the event, which has been selected by v_{ACH_INCHO} . For example, the true absolute predicate like *cet-* ‘wet’ is true iff it undergoes the change of state from the ‘not wet’ state to any degree that passes the minimal degree of wetness. Likewise, the absolute predicate like *malu-* ‘dry’ that requires maximal degree must be ‘not dry’ in its initial state. Therefore, the *initDegP* is necessary to block true absolute predicates.

The generalization of *-(e)ci* inchoatives in section 2 is significant in that it can account for its distribution that Lim and Zubizarreta (2012) could not capture. It was *kencoha-* ‘dry’ combining with *-(e)ci* that was presented as an example of absolute adjectives in their paper. This paper does not consider absolute adjective *malu* ‘dry’, which cannot combine with *-(e)ci*. Under their assumption, it can’t capture the reason why *malu* ‘dry’ is not compatible with *-(e)ci*. As the paper did not compare bare and *-(e)ci* inchoatives, they do not demonstrate why there is a restriction between the two types of inchoatives. It has been observed that the generalization in this paper can be further extended to other change-of-state verbs and verify why some change-of-state verbs are not compatible with *-(e)ci*. The acceptability judgment task also supported the claim

that not all traditional absolute predicates have the same properties.

The proposed structure *-(e)ci* inchoative in the current paper is, in fact, compatible with three different situations where (i) the river was already contextually wide enough to be called ‘wide’ and got wider although pragmatically it’s more natural to put *te* ‘more’ but not required, (ii) the river indeed has a width contextually considered to be ‘narrow’, but became ‘wide’ afterwards, and (iii) the river has a ‘narrow’ width and became bigger, but still a contextually narrow river. Furthermore, this paper found the morphosyntactic realization of a degree head and the structures of the measure of change function that Kennedy and Levin (2008) left as future research. The proposal that *-(e)ci* is an overt *pos_v* marker would be another crosslinguistic evidence of Kennedy (1999)’s claim, in line with *hen* as an overt *pos* marker in Mandarin Chinese (Zhang 2015).

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