Degree Comparisons across Possible Worlds: Measure Phrase Modification with *-(i)na*[*]

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1 Introduction

Let's suppose that you have a friend named Louie, and happen to know his height. One day, another friend of yours asks you how tall Louie is and you answer as in (1), with no particular intonation on any part of the utterance:

(1) a. Louie is 6 feet 3 inches tall.
b. lwui-nun khi-ka 190cm-i-ta. (Korean)
Louie-TOP height-NOM 190cm-CPL-DC
'Louie is 190 centimeters tall.'

Other than having stated the height of Louie as you remembered, have you expressed your opinion on Louie's height by the utterances in (1)? The expressions in (1) only have a literal meaning such that Louie is 190 centimeters (or 6 feet 3 inches) tall. That is, neither of the expressions in (1) implies that Louie is tall. To convey that undelivered implication—assuming that being 190 centimeters in height is considered pretty tall for you—you might answer as in (2) in English:

(2) Louie is 190 centimeters tall. He's (pretty) tall.

There exists a lexical item in Korean that is intended for delivering the same idea in (2), namely, the particle *-(i)na*, as in (3a):[1,2]

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[1] A very similar construction is found in Japanese, in which Watanabe (2013) discusses it in detail:
(i) Louie-wa se-ga 190cm(-mo)-aru.
Louie-TOP height-NOM 190cm(-MO)-is
'Louie is 190cm tall. (entails: Louie is tall)'

[2] There is a fascinating phenomenon where a distance-distributivity marker *ssik* (Oh 2006 and references therein) intensifies the evaluative (Rett 2008) reading when it appears between the measure phrase and *-(i)na*. I won't discuss it in this paper, yet it certainly seems worth delving into:

(3) a. lwui-nun khi-ka 190cm-*na* toy-n-ta.
Louie-TOP height-NOM 190cm-INA reach-IMPRF-DC
'Louie is 190cm tall. (*entails: Louie is tall*)'
b. *lwui-nun khi-ka 190cm-*na* toy-Ø-ta.
Louie-TOP height-NOM 190cm-INA reach-PRF-DC
c. *lwui-nun khi-ka 190cm-*na* i-ta.
Louie-TOP height-NOM 190cm-INA CPL-DC
d. *lwui-nun khi-ka 190cm-*na* -ta.
Louie-TOP height-NOM 190cm-INA -DC

I argue that the particle *-(i)na* in (3a) sets up a comparison between the measure of Louie's height in the actual world ("*190cm"*) and that of Louie's in the speaker's expectations. The goal of this paper is to provide a formal semantic analysis for this particle. A particular focus is on analyzing constructions like (3a) in which I dub them '*ina*-constructions.' I suggest that *-(i)na* triggers a presupposition that seems to show properties of *expressive presuppositions* à la Schlenker (2003, 2007) in a sense that it is *indexical*, *attitudinal*, and *shiftable* (cf. Potts 2005, 2007a). It first takes two arguments, namely: a VP meaning of type ⟨*e,st*⟩, a function that maps individuals to functions from states to truth-values, and a measure phrase. Then, it draws a comparison between two degrees *d* and *d'*, one taken from the measure phrase (from the actual world) and the other from the speaker's expectations, on a scale determined by meaning of the subject of a stative verb, e.g. *khi* 'height,' where it is satisfied if and only if the *d* is greater than the *d'*.[3] Syntactically, I postulate that *-(i)na* is a verbal Degree head (Deg_v^0) that takes a VP complement.

I work out the details of the analysis in the following sections. I discuss grounds for defining *-(i)na* as a presupposition trigger in section 2. Section 3 lays the syntax of degree constructions in Korean and discusses the position and category of *-(i)na*. Section 4 establishes the semantics of *-(i)na* and works out the compositional semantics of *ina*-constructions in detail. I conclude in section 5.

2 The *ina*-construction and Its Evaluative Interpretation

I claim that the particle *-(i)na* is a presupposition trigger. In this section, I demonstrate that it seems difficult to classify *-(i)na* as a conventional implicature (CI) trigger in the sense of Potts (2005), even though the entailment triggered by

(i) lwui-nun khi-ka 190cm-*ssik-ina* toy-n-ta.
Louie-TOP height-NOM 190cm-SSIK-INA reach-IMPRF-DC
'Louie is 190cm tall. (entails: Louie is *very* tall)'

[3] On a root-level, the presupposition and the expectations are the speaker's. When embedded, the presupposition is the matrix subject's, but not always. See section 2.4.

-(i)na shows some properties of CIs.

2.1 Preliminary: *-(i)na* and Low Expectations

Hyo-Sang Lee (2003) assumes that, morphosyntactically, the particle *-(i)na* has been grammaticalized to serve as four homophonous particles: a noun particle, a conjunctive suffix, a verbal connective suffix, and a sentence/clause-ending modal suffix. Discourse-pragmatically, the particle can be used to express the speaker's surprise in the face of the unexpected situation, to show indifference, indeterminacy, or uncertainty about an item or action in question, and marking a disjunctive relation, free choice, or an adversative relation between two situations. His conclusion is that all of such uses of the particle branch from expressing the speaker's 'low expectation' of a relevant situation. The relation between *-(i)na* and low expectations will be our guiding principle as we delve into the lexical semantics of the particle *-(i)na*. I will focus on the use of *-(i)na* as a modifier of measure expressions in this paper.

2.2 The Evaluative Reading Exists

The *ina*-construction in (3a), repeated below as (4), is 'evaluative':

(4) lwui-nun khi-ka 190cm-*na* toy-n-ta.
Louie-TOP height-NOM 190cm-INA reach-IMPRF-DC
'Louie is 190cm tall. (*entails: Louie is tall*)'

As discussed in Rett (2008), in the sense of Neeleman et al (2004), an expression "is evaluative if it makes reference to a degree that exceeds a contextually specified standard" (p.210). The evaluativity in (4) comes from the entailment in which it can be paraphrased as 'the speaker thinks that the subject/topic of the sentence is tall.' In English, an exemplar evaluative construction is the *positive construction* (Kennedy 1997 & 2007, Kennedy & McNally 2005, Cresswell 1976, von Stechow 1984), as in (5):

(5) Louie is *pos* tall.

The meaning of (5) can be read as 'Louie meets/exceeds standard for tallness for the speaker.' Simple sentences containing measure phrases like (1a) and (1b), repeated below in (6), are non-evaluative because they do not have to make reference to a degree that exceeds a contextual standard:

(6) a. Louie is 6 feet 3 inches tall. (*does not entail: Louie is tall*)
b. lwui-nun khi-ka 190cm-i-ta.
Louie-TOP height-NOM 190cm-CPL-DC

'Louie is 190cm tall.' (*does not entail: Louie is tall*)

The *ina*-construction in (4) strikes us as special because it is a sentence that contains a measure phrase and, at the same time, is evaluative.

Is there really an evaluative reading? If there is, we would expect to find an infelicity due to a contradiction when the *ina*-construction is immediately followed by an evaluative expression that makes reference to a degree that does not meet a contextually determined standard, such as (7):

(7) lwui-nun khi-ka cak-ta.
Louie-TOP height-NOM small-DC
'Louie is short.'

Using the same principle, we would not expect any infelicity when a non-evaluative sentence like (6b) precedes an evaluative construction regardless of its making reference to a degree that meets or doesn't meet a contextual standard. Our prediction is borne out:

(8) lwui-nun khi-ka 190cm-i-ta... (non-evaluative)
Louie-TOP height-NOM 190cm-CPL-DC
a. ...lwui-nun (khi-ka) khu-/cak-ta.
Louie-TOP height-NOM big-/small-DC
'Louie is 190cm tall. Louie is tall/short.'

(9) lwui-nun khi-ka 190cm-na toy-n-ta... (evaluative)
Louie-TOP height-NOM 190cm-INA reach-IMPRF-DC
a. ...lwui-nun (khi-ka) khu-ta.
Louie-TOP height-NOM big-DC
'Louie is 190cm tall (and is tall). Louie is tall.'
b. #...lwui-nun (khi-ka) cak-ta. [contradiction]
Louie-TOP height-NOM small-DC
'Louie is 190cm tall (and is tall). Louie is short.'

It seems that the evaluativity indeed exists in the *ina*-construction. In the next subsection, we will explore the identity of this evaluative meaning. I source the origin of the evaluative reading from a presupposition that is triggered by the particle *-(i)na*.

2.3 Presupposition: The Origin of the Evaluative Reading

There are three possible sources for the evaluative reading: an assertion, a presupposition, or a conventional implicature. Presupposition tests show that the evaluative reading '190cm is tall' is a presupposition, since it survives under

negation (10), in questions (11), and in the antecedents (12):

I. *Presuppositions are preserved under negation. Entailments are negated.*

(10) lwui-nun khi-ka 190cm-na toy-ci-n anh-nunta.
L.-TOP height-NOM 190cm-INA reach-COMP-IMPRF NEG-DC
'It is not the case that Louie is 190cm tall.'
Does not entail: Louie is 190cm tall.
Does not entail: Louie is tall.
Entails: Being 190cm in height exceeds the speaker's standard for tallness, i.e. 190cm is tall.

II. *Presuppositions are preserved in questions. Entailments are not.*

(11) lwui-ka khi-ka 190cm-na toy-na?/toy-n-ta-ko?
Louie-NOM height-NOM 190cm-INA reach-QS/reach-IMPRF-DC-QS
'Is Louie 190cm tall?'
Does not entail: Louie is 190cm tall.
Does not entail: Louie is tall.
Entails: 190cm is tall.

III. *Presuppositions are preserved in the antecedent of conditionals. Entailments are not.*

(12) lwui-uy khi-ka 190cm-na toy-n-ta-myen,
Louie-GEN height-NOM 190cm-INA be-IMPRF-DC-if
na-n(un) kkamccak.nolla-l kes-i-ta.
I-TOP startle-FUT NMN-CPL-DC
'If Louie is 190cm tall, I would be startled.'
Does not entail: Louie is 190cm tall.
Does not entail: Louie is tall.
Entails: 190cm is tall.

The proposition that I paraphrased as 'being 190cm in height exceeds the speaker's standard for tallness'—i.e. the proposition that *190cm is tall*—is a presupposition as it survived in the presupposition tests. In contrast, the '*Louie is tall*'-entailment does not survive any of the tests in (10)-(12); I therefore conclude that it is an entailment, which arises due to an inference with respect to the presupposition. In the next subsection, I discuss whether this presupposition should instead be analyzed as a conventional implicature (Potts 2005, 2007a).

2.4 Conventional Implicatures and Expressives

Potts (2005) proposed that there exists a dimension distinct from at-issue, ordinary, descriptive, truth-conditional meanings. This dimension is constituted by conventional implicatures (CIs) (Potts 2005: 11; Grice 1975):

I. CIs are part of the conventional (lexical) meaning of words
II. CIs are commitments, and thus give rise to entailments
III. These commitments are made by the speaker of the utterance "by virtue of the meaning of" the words he chooses
IV. CIs are logically and compositionally independent of what is "said (in the favored sense)", i.e., independent of the at-issue entailments

-(i)na shares a striking similarity with the defining characteristics of CIs. I will put *ina*-constructions through a few tests following Potts's generalizations on CIs as an attempt to see if they fit under the CI definition. The first property of CIs I will test is their *inability to be reinforced*. Repeating, thereby reinforcing, a CI content would raise a sense of redundancy, as opposed to conversational implicatures which are reinforceable (Potts 2007b: 672):

(13) lwui-nun khi-ka 190cm-na toy-n-ta.
Louie-TOP height-NOM 190cm-INA reach-IMPRF-DC
?lwui-nun khi-ka khu-ta.
Louie-TOP height-NOM big-DC
'Louie is 190cm tall. Louie is tall.'

(13) would've been infelicitous had *-(i)na* triggered a CI. Yet, (13) is felicitous and the continuation 'Louie is tall' seems to confirm/reinforce the entailment from the preceding sentence.[4] What if we flip the order of two sentences in (13)? That will serve us as a test for the second property of CIs: *a proposition that is once expressed and repeated again as a CI is redundant* (Potts 2007b: 674):

(14) lwui-nun khi-ka khu-ta.
Louie-TOP height-NOM big-DC
lwui-nun khi-ka 190cm-na toy-n-ta.
Louie-TOP height-NOM 190cm-INA reach-IMPRF-DC
'Louie is tall. Louie is 190cm tall.'

However, (14) is felicitous and doesn't seem to raise any sense of redundancy, or such redundancy that would rule in (14) as infelicitous. The third property of CIs to test is their *tendency to project out of attitude complements* (Potts 2007b: 674), so-called 'presupposition plugs':

(15) meyli-ka lwui-ka khi-ka 190cm-na

[4] Some speakers find (13) to sound redundant.

Mary-NOM Louie-NOM height-NOM 190cm-INA
toy-n-ta-ko sayngkak-ha-nuntey,
reach-IMPRF-DC-COMP think-do-given.that
kuken.mal-to.an-tway — lwui-nun khi-ka cak-a.
that's.nonsense — Louie-TOP height-NOM small-DC
'Mary thinks Louie is 190cm tall, but that's nonsense—Louie is short.'

(15) is felicitous; it is possible for the speaker to deny the content 'Louie is tall.' Without the attitude context, the content 'Louie is tall' projects and the speaker can't deny it, as in (16):

(16) # lwui-ka khi-ka 190cm-na tw-ay,
Louie-NOM height-NOM 190cm-INA reach-DC,
haciman kuken.mal-to.an.tway — lwui-nun khi-ka cak-a.
but that's.nonsense — Louie-TOP height-NOM short-DC
'Louie is 190cm tall, but that's nonsense—Louie is short.'

It is important to notice that the difference in height, i.e. substituting the height *190cm* with the lower height such as *160cm*, doesn't make a difference in terms of felicity judgments of (15) and (16). This follows if we assume that the measure phrase feeds *-(i)na* with a degree and *-(i)na* compares the degree with a speaker-determined standard, producing a result in which the degree taken from the measure phrase is higher than the degree from a speaker's standard.

The last feature of CIs at which I will look is *speaker-orientation*. If *-(i)na* triggers a CI, the commitment 'Louie is tall' in *ina*-constructions like (4) has to be made by 'the speaker of the utterance.' However, it is possible to embed sentences like (4) and obtain non-speaker orientations as shown in (17-21):

(17) The matrix VP *mal-ha*'s unergative use: 'to say'
Clyde-ka Floyd-nun khi-ka 190cm-na
Clyde-NOM Floyd-TOP height-NOM 190cm-INA
toy-n-ta-ko mal-ha-yss-ta.
reach-IMPRF-DC-COMP say-do-PST-DC
'Clyde said that Floyd is 190cm tall.'
Presupposes: 190cm is tall <u>for Clyde</u>.
Entails: <u>Clyde thinks</u> that Floyd is tall.

(18) The matrix VP *mal-ha*'s transitive use: 'to tell'
Clyde-ka Louie-eykey Floyd-nun khi-ka
Clyde-NOM Louie-DAT Floyd-TOP height-NOM
190cm-na toy-n-ta-ko mal-ha-yss-ta.
190cm-INA reach-IMPRF-DC-COMP say-do-PST-DC
'Clyde told Louie that Floyd is 190cm tall.'
Presupposes: 190cm is tall <u>for Clyde</u>.
Entails: <u>Clyde thinks</u> that Floyd is tall.

(19) (18) with the topic-marked matrix subject
Clyde-**nun** Louie-eykey Floyd-nun khi-ka
Clyde-TOP Louie-DAT Floyd-TOP height-NOM
190cm-na toy-n-ta-ko mal-ha-yss-ta.
190cm-INA reach-IMPRF-DC-COMP say-do-PST-DC
i. 'Clyde told Louie that Floyd is 190cm tall.' =(18)
ii. 'Clyde said, for Louie, Floyd is 190cm tall.'
Presupposes: 190cm is tall <u>for Louie</u>.
Entails: <u>Louie thinks</u> that Floyd is tall.

(20) Factive propositional construction
na-n(un) Clyde-ka Louie-eykey Floyd-nun
I-TOP Clyde-NOM Louie-DAT Floyd-TOP
khi-ka 190cm-na toy-n-ta-ko
height-NOM 190cm-INA reach-IMPRF-DC-COMP
mal-hay-ss-ta-nun kes-ul al-ass-ta.
say-do-PST-DC-RC NMN-ACC know-PST-DC
'I knew (the fact) that Clyde told Louie that Floyd is 190cm tall.'
Presupposes: 190cm is tall <u>for Clyde</u>.
Entails: <u>Clyde thinks</u> that Floyd is tall.

(21) (20) with the topic-marked embedded subject of the matrix clause
na-n(un) Clyde-**nun** Louie-eykey Floyd-nun
I-TOP Clyde-TOP Louie-DAT Floyd-TOP
khi-ka 190cm-na toy-n-ta-ko
height-NOM 190cm-INA reach-IMPRF-DC-COMP
mal-hay-ss-ta-nun kes-ul al-ass-ta.
say-do-PST-DC-RC NMN-ACC know-PST-DC
i. 'I knew that Clyde told Louie that Floyd is 190cm tall.' =(20)
ii. 'I knew (the fact) that Clyde said, for Louie, Floyd is 190cm tall.'
Presupposes: 190cm is tall <u>for Louie</u>.
Entails: <u>Louie thinks</u> that Floyd is tall.

Nevertheless, the issue of CIs' speaker-orientation has been disputed. Amaral et al (2007) discuss that CIs generally reflect the speaker's point of view at the issue under discussion, but the point of view might be indexical. Harris and Potts (2009) admit that non-speaker-oriented readings of appositives arise even outside of embedded contexts. Also, Kierstead (2013) argues that Tagalog predicate *akala* 'falsely believe' is a CI that gets non-speaker-oriented readings in embedded contexts and behaves like a shifted indexical.

In summary, although the entailment triggered by *-(i)na* shows some properties of CIs, it seems hard to conclude that *-(i)na* is a CI trigger. Another issue with classifying *-(i)na* as a CI trigger is a theory internal one: In Potts's (2005) multidimensional approach, CIs and at-issue contents belong to different dimensions and the interaction between two dimensions is impossible. Yet, the content triggered by *-(i)na* invariably interacts with the at-issue entailment. Alternatively, one might think of *-(i)na* as a contributor of expressive content

(Potts 2007a) in a restricted sense. In their study of Japanese honorifics, Potts and Kawahara (2004) observe that expressive meanings interact with ordinary meanings and argue that expressive operators can probe into descriptive dimension to find arguments:

(22) Nesugoshi-chimat-ta.
overslept-ANTI.HON-PST
1. 'I overslept.'
2. 'It sucks that I overslept'

However, 'nondisplaceability' of expressives, which prevents expressives from getting embedded interpretations, doesn't seem to relate well with the properties of *-(i)na*, where its embedding results in non-speaker orientation. Although I won't be able to discuss other properties of expressives that may be relevant to *-(i)na* in this paper in detail, *nondisplaceability*, *perspective dependence*, and *immediacy* of expressives seem to cause problems to analyzing *-(i)na* as a contributor of expressive content. Yet, in light of my observations, the behavior of *-(i)na* resembles Schelenker's (2003, 2007) 'expressives': "the lexical items that carry a presupposition of a particular sort that is *indexical*, *attitudinal*, and *shiftable*" (p.237). Therefore, I classify *-(i)na* as a presupposition trigger and suggest the possibility where *-(i)na* exemplifies a lexical item like Schlenker's.

3 The Syntax of Degree Constructions in Korean

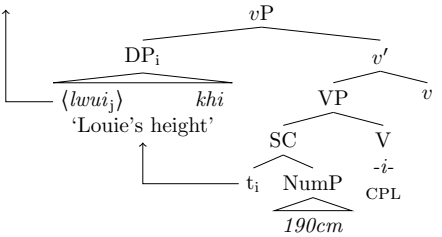
3.1 The Status of Adjectives in Korean

A number of languages across the world seem to have a reduced/closed class of adjective (Dixon 1982). In light of this, Beck (1999) argues that adjectives are the most marked class, prone to be neutralized, and neutralization depends on the presence of adjectival class, and in its absence, nominal and verbal classes serve the adjectival function. It seems possible that Korean belongs to a class of languages with the lexicon that conflates adjectives and verbs, lacking an open class of adjectives (Yu 1998, Maling and Kim 1998, among others). Min-Joo Kim (2002) argues that adjectives in Korean are better analyzed as stative verbs, and that adnominal adjectives in Korean are predicates inside relative clauses. She further divides adnominal adjectives into four distinct classes and only expressions that end in the suffix *-un* are 'true' adjectives as they are the only class that are fully gradable (Kim M-J to appear). I adopt her view of 'adjectives' in Korean and treat them as stative verbs.

3.2 Basic Degree Constructions

The basic degree modification takes a form of (multiple nominative) Inalienable Possession Construction (IPCs; Yoon 1990, Ura 1996, among many others). I take the nonconstituent approach (Ko 2005, Yoon 1990, Kim Y-J 1990, among many others) to analyzing IPCs. Following Yoon (2003), I assume that the copula is a raising verb that selects a SC as its complement in the predicational copula constructions, as in (23), which illustrates the structure of (1b):

(23)

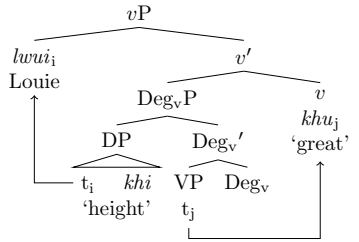


In this paper, I propose that stative verbs project a verbal degree phrase (Deg_vP). The Deg_vP can be seen analogous to the degree phrase (DegP) in the extended AP (Abney 1987, Kennedy 1997, among others). I suggest that there are two basic kinds of stative verbs used in building degree constructions, syntactically distinguished in terms of the occupancy of Deg_v^0 and semantically differentiated with respect to Semantic Types. Additionally, possessor raising and the V-to-*v* head movement are assumed to be put into operation.

3.2.1 The *great*-kind Stative Verbs

The *great*-kind stative verbs are unaccusative and project an unoccupied Deg_v^0, as in (24a). Semantically, this kind of stative verbs are of type ⟨d,⟨e,st⟩⟩:

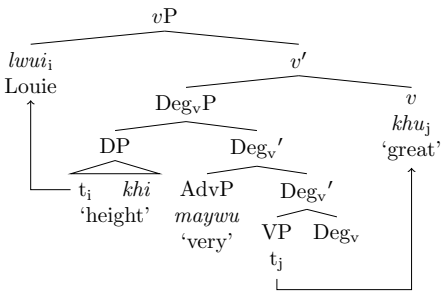
(24) a.



b. lwui-ka khi-ka khu-ta. (=24a)
Louie-NOM height-NOM great-DC
'Louie is tall.'

I will assume that existential closure of the degree variables takes place at the highest Deg_v' level in order to let the Possessor-Possessee DP, of type *e*, combine with the VP denotation. Accordingly, degree adverbs like *maywu* 'very' merge as an adjunct of Deg_v'. I suggest that Deg_v' adjunct degree adverbs are of type ⟨⟨d,⟨e,st⟩⟩,⟨e,st⟩⟩ and for such adverbs, the existential closure is part of their denotations:

(25) a.

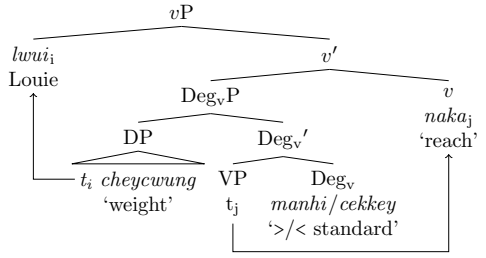


b. lwui-ka khi-ka maywu khu-ta. (=25a)
Louie-NOM height-NOM very great-DC
'Louie is very tall.'

3.2.2 The *reach*-kind Stative Verbs

The *reach*-kinds are of semantic type ⟨e,st⟩. They resemble the *great*-kinds in a way that they are unaccusative and project a Deg_v^0, but they require Deg_v^0 to be filled by degree words of type ⟨⟨e,st⟩,⟨d,⟨e,st⟩⟩⟩ such as *manhi* 'a lot; exceeding standard' or *cekkey* 'a little; not meeting standard,' as in (26a). This predicts two things: First, *reach*-kinds need a host degree word in Deg_v^0; second, no degree adverbs of type ⟨⟨d,⟨e,st⟩⟩,⟨e,st⟩⟩ can be the host. These are borne out in (26c-d):

(26) a.



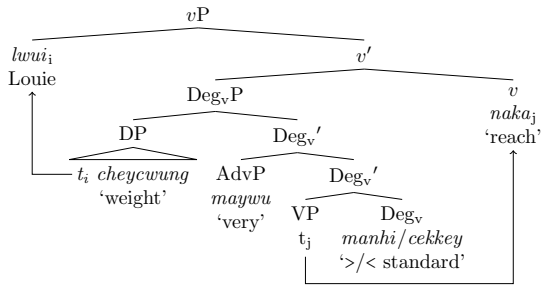
b. lwui-ka cheycwung-i manhi naka-n-ta. (=26a)
Louie-NOM weight-NOM exceeds.standard reach.to-IMPRF-DC
'Louie is heavy.'
c. *lwui-ka cheycwung-i naka-n-ta.

Louie-NOM weight-NOM reach.to-IMPRF-DC

d. *lwui-ka cheycwung-i maywu naka-n-ta.
Louie-NOM weight-NOM very reach.to-IMPRF-DC

As with the *great*-kinds, the degree variable is existentially closed at the highest Deg_v' level and degree adverbs like *maywu* may adjoin to Deg_v', as in (27a):

(27) a.



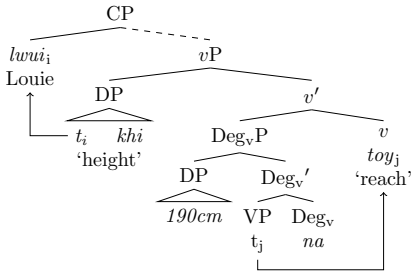
b. lwui-ka cheycwung-i maywu manhi naka-n-ta. (=27a)
Louie-NOM weight-NOM very >standard reach.to-IMPRF-DC
'Louie is very heavy.'

c. *lwui-ka cheycwung-i manhi maywu naka-n-ta.
Louie-NOM weight-NOM >standard very reach.to-IMPRF-DC

3.3 The Position of *-(i)na*

I suggest that *-(i)na* appears in Deg_v^0 and the DP containing a measure phrase is merged in [Spec, Deg_vP]. Stative verbs are s-selected by the subject (Possessor-Possessee) in DP that is merged outside of Deg_vP in [Spec, vP]. Therefore, no existential closure of degrees takes place within Deg_vP. (28) shows the structure of (4), where the verb *toy* is used:[5]

(28)



[5] The verb *toy* can have various meanings including '*become*, *be*, *done*, *result*, and *enough*,' etc.

4 The Semantics of the Particle *-(i)na*

I suggest that *-(i)na* in (29) draws a comparison between the measure *190cm* and Louie's height in the speaker's expectations, and decides that the former is greater than the latter. This section works out the details of this analysis.

(29) lwui-nun khi-ka 190cm-*na* toy-n-ta.
Louie-TOP height-NOM 190cm-INA reach-IMPRF-DC
'Louie is 190cm tall. (*presupposes: 190cm is tall*)'

4.1 Theoretical Assumptions

An insight from one principal theory of vagueness is that objects called 'degrees,' which directly represent measurement, are in the model of a semantic ontology (Cresswell 1976, von Stechow 1984, Kennedy 1997, Kennedy & McNally 2005, Kennedy 2007, among many others). We need a ruler to measure something, and this ruler is called a 'scale,' that is a set of degrees with an ordering relation that is linear, total, and dense (Bale 2011, Fox & Hackl 2006, among others). The scale with this ordering relation imposes a restriction on the possibility of degree comparisons across scales. Degrees can be arguments or what is yielded of gradable predicates. I adopt this view of vagueness.

4.2 The Compositional Semantics of the *ina*-construction

Assuming that Lee's (2003) hypothesis, in which *-(i)na* and its uses reflect the low expectation of the speaker, is on the right track, it seems conceivable to sketch expectations as a set of possible worlds as in (30):

(30) Where $w_@$ denotes the actual world,
$\text{EXPECTED}_{w@} = \{w: w \text{ is accessible from } w_@ \text{ and } w \text{ is compatible with the speaker's expectations in } w_@\}$

-(i)na makes a comparison between two degrees, one determined by the measure phrase and the other acquired from the state that is part of $\text{EXPECTED}_{w@}$, and defines that one is greater than the other. Then, (31) is the denotation for *-(i)na*:

(31) $[\![\text{INA}]\!] = \lambda f_{(e,st)} \lambda d \lambda x \lambda s.$
$\forall w' [w' \in \text{EXPECTED}_{w@} \rightarrow f(x)(s) \wedge s \sqsubseteq w' \wedge d > \text{DEG}(x)]$

The denotation in (31) is true iff for all worlds w' that are members of $\text{EXPECTED}_{w@}$, there is a function f that maps individuals to functions from states to truth-values and the state s is part of w', and the degree d is greater than the

output of the measure function DEG. Let us turn to the *ina*-construction in (32) to see how this works. In (32), *-na* sets up a comparison between the measure *190cm* in $w_@$ and Louie's height in $\text{EXPECTED}_{w@}$, and says that the former is greater than the latter.

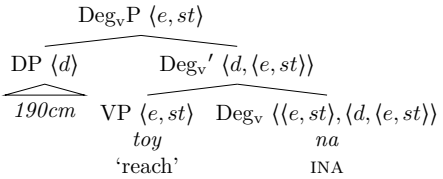
(32) [$_{CP}$ lwui$_i$-nun [$_{vP}$ [$_{DP}$ ⟨lwui$_i$⟩ khi-ka] [$_{DegvP}$ 190cm ⟨toy$_j$⟩ *na*] toy$_j$] -n-ta]
Louie-TOP height-NOM 190cm INA reach
'Louie is 190cm tall. (*presupposes: 190cm is tall*)'

To make sense of the role of "DEG" in (31), we will look at the denotation for the Possessor-Possessee DP, [$_{DP}$ *lwui khi*], defined in (33a). The meaning of (33a) is, conceivably, the individual counterpart of its degree. I postulate that the measure function DEG can access the scale structure of such DP meaning, e.g. (33a), and maps individuals to degrees. It shares a conceptual notion with Chierchia's (1998) nominalizing function and its counterpart predicativizing function.[6]

(33) a. ⟦[$_{DP}$ *lwui khi*]⟧ = height(Louie)
b. ⟦[$_{VP}$ *toy*]⟧ = $\lambda x \lambda s$. reach(x)(s)
c. ⟦*190cm*⟧ = 190cm

Now we have all materials required to do the compositional semantics of (32): the syntax in (28) and the semantics of lexical items in (33). This is shown in (34-35). The first step, as in (35a), is to combine ⟦INA⟧ of type ⟨⟨e,st⟩,⟨d,⟨e,st⟩⟩⟩, i.e. (31), with the meaning of the verb *toy*, i.e. (33b). Then, in (35b), the measure phrase *190cm* in DP of type *d* introduces the degree from the actual world.

(34)



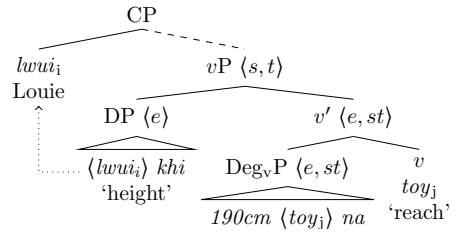
(35) a. ⟦INA⟧ (⟦[$_{VP}$ *toy*]⟧) = $\lambda d \lambda x \lambda s$.
$\forall w'$ [w' ∈ $\text{EXPECTED}_{w@}$ → reach(x)(s) ∧ $s \sqsubseteq w'$ ∧ d > DEG(x)]
b. ⟦[$_{Degv'}$ *toy* INA]⟧ (⟦*190cm*⟧) = $\lambda x \lambda s$.
$\forall w'$ [w' ∈ $\text{EXPECTED}_{w@}$ → reach(x)(s) ∧ $s \sqsubseteq w'$ ∧ 190cm > DEG(x)]

Combining the Possessor-Possessee DP with Deg$_v$P is the only remaining step as illustrated in (36), and this yields the denotation in (37): it is true iff for all worlds w' that are members of $\text{EXPECTED}_{w@}$, there is the state s where *Louie's*

[6] I would like to thank Marcin Morzycki for suggesting this idea.

height reaches (to some point) and *s* is part of *w′* and *190cm* is greater than the output of DEG, the measure function that is associated with the scale structure of *Louie's height*. As desired, this seems to correctly reflect the meaning of (32).

(36)



(37) $[\![[_{\text{DegvP}}\ \textit{190cm}\ \langle \textit{toy}_j \rangle\ \text{INA}]]\!]\ ([\![[_{\text{DP}}\ \textit{lwui khi}]]\!]) = \lambda s.$
$\forall w' [w' \in \text{EXPECTED}_{w@} \rightarrow \text{reach(height(Louie))}(s) \wedge s \sqsubseteq w' \wedge$
$190\text{cm} > \text{DEG(height(Louie))}\ ]$

5 Conclusion

In this paper, I argued that the particle *-(i)na* is a presupposition trigger that probes into a VP meaning to draw a comparison between two degrees, one from the actual world and the other from the speaker's expectations. The denotation of *-(i)na* will be true if and only if the degree assigned by the measure phrase in the actual world is greater than the degree measured from the Possessor-Possessee DP meaning in the speaker's expectations. Syntactically, I posited that *-(i)na* is a verbal Degree head, Deg_v^0, in the extended VP.

Nonetheless, there still is much remaining work to be done. First, there is *-(i)na*'s antonym, the negative sensitive item *-pakkey*: We will need a story for the position of NegP first, which might merge in as a Deg_vP complement, then figure out what exactly it does. Second, there is *-(i)na*'s interaction with other functional items, including approximators like *cengto* 'about.' Third, there is the role of *-(i)na* as a NP-modifier and its interaction with *-kkaci* 'until.' Fourth, there is the intensification effect observed with *ssik*—the distributivity marker (see note 2). Fifth, there is its interaction with tense and aspect. All of these will need to be examined in detail.

This is expected to have implications for semantics and syntax of other degree constructions in Korean, including positive and comparative constructions that seem to make use of degrees. Under the assumption that Korean may lack an open class of adjectives and so-called adnominal adjectives are really relative clauses with stative verbs, exploration of this domain in this language ought to contribute to understanding how degree modification works in verbs, especially in relation to tense and aspect. That will provide us with fruitful insights into understanding how modification works in languages.

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